Comprehensive Plastics Reduction Program

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT

MARCH 2024 SCH #2023050007

environment
LA SANITATION
CITY OF LOS ANGELES
zero waste • zero wasted water

Table of Contents

Table of Figures

Table of Lists

Acronyms

AB	Assembly Bill
ADT	Average daily trips
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APC	Area Planning Commission
AQMP	Air Quality Management Plan
BMP	Best management practice
BTU	British thermal unit
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
cf	Cubic feet
CFR	Code of Federal Regulations
CH_4	Methane
CHSC	California Health and Safety Code

CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CPRP	Comprehensive Plastics Reduction Program
CRPR	California Rare Plant Rank
CRV	California Redemption Value
CWA	Clean Water Act
DASH	Downtown Area Short Hop
dB	Decibel
dBA	A-weighted scale
DTSC	Department of Toxic Substances Control
DDW	Division of Drinking Water
DPM	Diesel particulate matter
EIR	Environmental impact report
EPR	Extended Producer Responsibility
EPS	Expanded polystyrene
ft^3	Cubic feet
FTA	Federal Transit Authority
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
GHG	Greenhouse gas
GWh	Gigawatt-hours
GWP	Global warming potential
H_2S	Hydrogen sulfide
HAP	Hazardous air pollutant
HCP	Habitat conservation plan
HDPE	High density polyethylene
HFC	Hydrofluorocarbon

hp	Horsepower
HRA	Health Risk Assessment
HUC	Hydrologic Unit Code
Hz	Hertz
IBWA	International Bottled Water Association
IPCC	Intergovernmental Panel on Climate Change
kg	Kilogram
kWh	Kilowatt-hour
LADOT	Los Angeles Department of Transportation
LADWP	Los Angeles Department of Water and Power
LAFD	Los Angeles Fire Department
LAMC	Los Angeles Municipal Code
LAPD	Los Angeles Police Department
LASAN	Los Angeles Sanitation and Environment
LAWA	Los Angeles World Airports
lbs	Pounds
LCA	Life Cycle Assessment
LDPE	Low-density polyethylene
LHA	Lifetime health advisory
LID	Low Impact Development
LRA	Local Responsibility Area
LST	Localized significance threshold
MATES	Multiple Air Toxics Exposure Study
MCL	Maximum contaminant level
MCLG	Maximum contaminant level goal
mg/m^3	Milligram(s) per cubic meter
$\mu g/m^3$	Microgram(s) per cubic meter
MGY	Million gallons per year
MMT	Million metric tons
MRF	Material recovery facility
MRZ	Mineral resource zone

MMT CO_2e	Million metric tons of carbon dioxide equivalents
$MTCO_2e$	Metric tons of carbon dioxide equivalents
MW	Megawatt
MWh	Megawatt-hour
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
N_2O	Nitrous oxide
NF_3	Nitrogen trifluoride
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO	Nitric oxide
NO_2	Nitrogen dioxide
NO_X	Oxides of nitrogen
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOD	Notice of Determination
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
O_3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCR	Post-consumer recycled content
PEIR	Program Environmental Impact Report
PET	Polyethylene terephthalate
PFAA	Perfluoroalkyl acid
PFAS	Per- and polyfluoroalkyl substances
PFC	Perfluorocarbon
PFOA	Perfluorooctanoic acid

PFOS	Perfluorooctane sulfonate
PHA	Polyhydroxyalkanoate
PHB	Polyhydroxybutyrate
PHG	Public health goal
PLA	Polylactic acid
$PM_{2.5}$	Fine particulate matter
PM_{10}	Respirable particulate matter
ppt	Part(s) per trillion
PP	Polypropylene
ppm	Part(s) per million
PRC	Public Resources Code
PRO	Producer Responsibility Organization
PS	Polystyrene
PVC	Polyvinyl chloride
RCP	Regional Comprehensive Plan
RMP	Risk Management Policy
RPS	Renewal Portfolio Standard
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
SAFE	Solvents, automotives, flammables, and electronics
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SDWA	Safe Drinking Water Act
SEA	Significant Ecological Area
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act of 1975
SO_2	Sulfur dioxide
SoCalGas	Southern California Gas Company

SR	State Route
SRA	State Responsibility Area
SSC	Species of special concern
SVP	Society of Vertebrate Paleontology
SWPPP	Storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TMDL	Total maximum daily load
tpd	Tons per day
UNEP	United Nations Environmental Program
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United State Geological Survey
VHFHSZ	Very high fire hazard severity zone
VMT	Vehicle miles traveled
VOC	Volatile organic compound
W	Watt
Wh	Watt-hour

Executive Summary

Introduction

The City of Los Angeles (City) is part of a worldwide movement to re-evaluate attitudes towards consumption, disposal, product stewardship, and infrastructure to reduce plastic waste and promote sustainability. The City proposes to expand upon previously passed ordinances by implementing a city-wide Comprehensive Plastics Reduction Program (Program). The City is evaluating numerous upstream measures to reduce or eliminate the production and use of single-use plastic products, and encourage reuse or recycling of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment. The Program's upstream elements include the following broad categories:

- Plastic Bottle Policies
- Foodware Policies
- Textile Policies
- Per- and polyfluoroalkyl substances (PFAS) Ban
- Additional Product Bans
- Formation of Working Groups and Additional Studies
- Outreach and Education

The City is also evaluating downstream measures by which to increase the City's ability to manage these materials and divert them from landfill disposal. Downstream measures include collecting, reusing, recycling, and composting alternative materials and supporting reusable products. Downstream measures may include the construction or expansion of recycling and composting facilities; regional market development to expand the City's ability to recycle and reuse currently unmarketable single-use items; and infrastructure to support reusable items. The Program would also include public education, outreach, and engagement as well as enforcement.

Program Location

Implementation of the Program would occur throughout the entirety of the incorporated City of Los Angeles, which encompasses approximately 469 square miles, stretching from the Angeles National Forest to the north to the Pacific Ocean to the south (Figure ES-1).

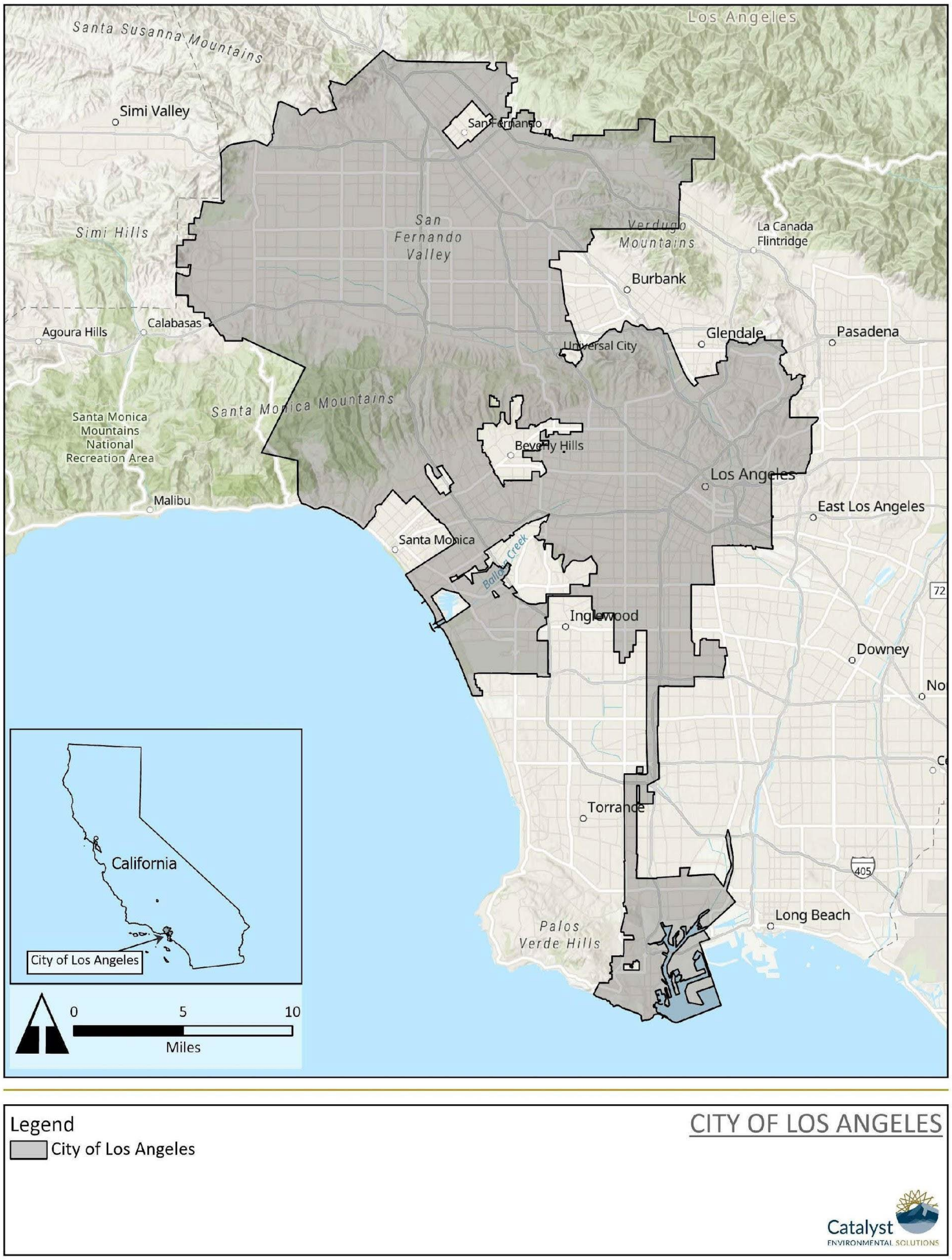

Figure ES-1. Program Location

Program Objectives

CEQA Guidelines Section 15124(b) require the project description to include a statement of objectives for the proposed project, including the underlying purpose of the proposed project. The underlying purpose of the Program is to create a comprehensive city-wide strategy to reduce plastic waste and reduce the environmental and human health impacts of single-use plastics. To meet this purpose, the objectives are as follows:

- Contribute to the City's goal of becoming zero waste by 2050.
- Reduce the volume of single-use plastics, particularly those that cannot be composted or recycled in City-contracted facilities, into the City's waste stream.
- Reduce the amount of plastic waste that is littered and pollutes water resources and has adverse effects on human health and wildlife.
- Encourage and support the use of reusable alternative materials.
- Reduce aesthetic degradation of the City due to plastic litter.
- Develop downstream systems and facilities as needed to support the reuse, recycling, and composting of alternative products to single-use plastics.

Upstream and downstream measures would work together to create a zero waste loop in the City (Figure ES-2).

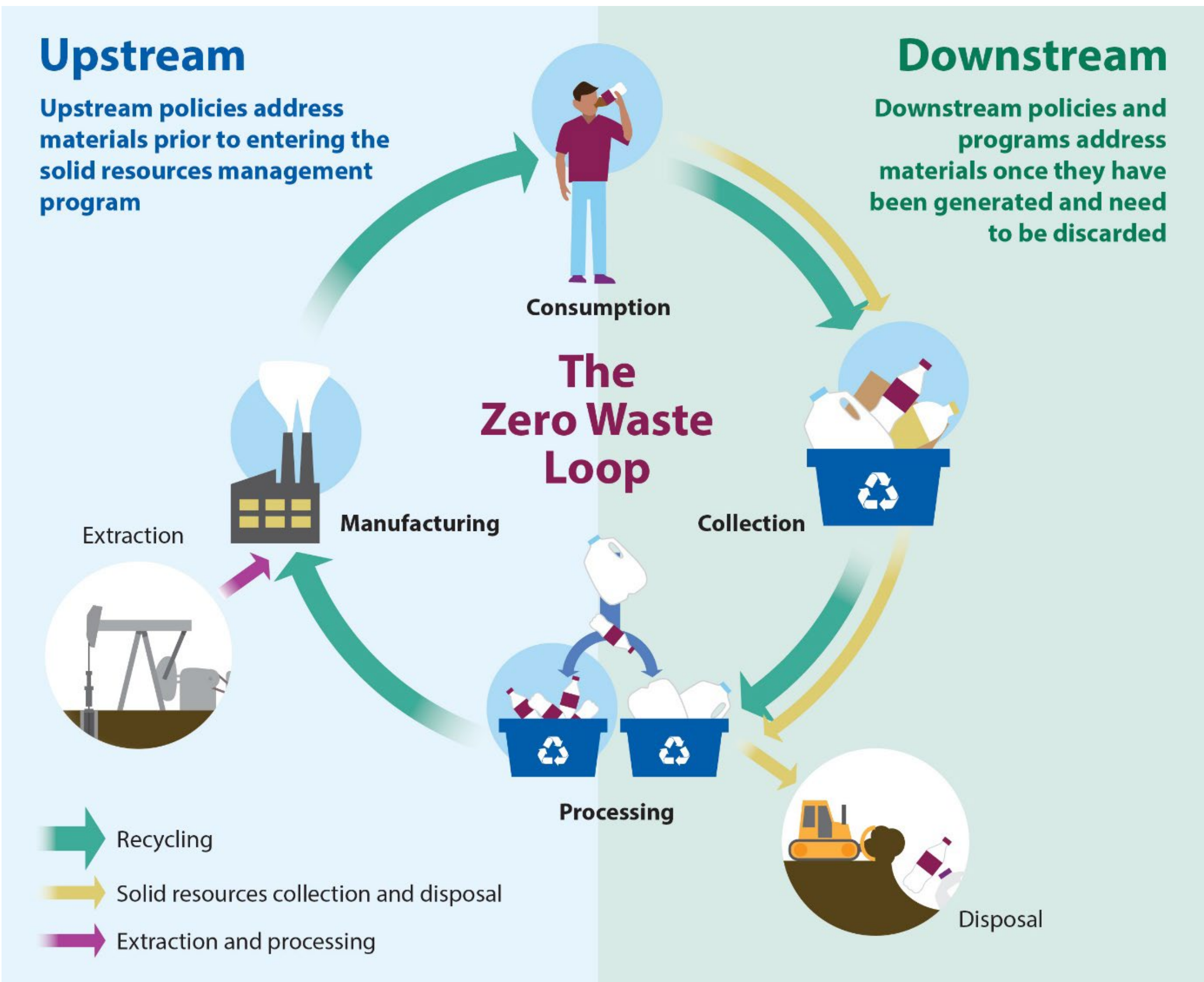

Figure ES-2. Zero Waste Loop

Program Overview

The City is proposing the Program to reduce the volume of single-use plastics and related items in the City's waste stream and reduce environmental and human health impacts of single-use plastics. The Program would include City actions and policies that can be defined as upstream measures to reduce or eliminate the use of single-use plastics and products in the City's waste stream and downstream measures to expand the City's ability to manage reuse, recycling, and composting of alternative materials in order to support reusable products. Figure ES-3 illustrates the different categories and the individual Program elements within each category.

Figure ES-3. Overview of Comprehensive Plastics Reduction Program Measures

Upstream Measures

The City may implement various measures to reduce or eliminate the use of single-use products within the City. These measures fall into the following categories shown in Table ES-1 and are described in detail herein.

Table ES-1. Overview of Upstream Measures

Upstream Measure Policy Category	Associated Elements
Plastic Bottles	Single-use plastic water bottles Refillable plastic bottles Refillable beverage bottles Leashed lids on single-use plastic bottles Single-use plastic beverage holder rings
Foodware	Dine-in services Single-use to-go foodware Meal kit reuse and recycling Plastic tea bags Coffee/beverage pods Bioplastics ban City reusable foodware pilot projects
Textiles	Textile disposal policies Washing machine microfiber filtration
PFAS	--
Additional Products	Plastic bag clips Aerosol string Plastic sandbags Lighter-than-air balloons Single-use e-cigarettes Single-use printer cartridges
Working Group and Additional Studies	Zero waste in food or beverage facilities Extended producer responsibility program support
Outreach and Education	--

Downstream Measures

As the City implements the various upstream measures to reduce the production and use of single-use products within the City, it is anticipated that use of alternative reusable, compostable, and recyclable materials to plastics would increase throughout the City. Therefore, while the City anticipates a decrease in single-use materials entering the City's waste stream and requiring disposal in landfills, it also anticipates that it would need to increase its capacity to handle compostable and recyclable replacement materials. The City may also seek to develop new facilities to handle trash/waste to avoid landfill disposal; expand or upgrade existing facilities to increase and/or improve processing capabilities;

and/or develop new facilities to enable the repair and reuse of materials (e.g., washing stations for reusable foodware, table linens). Therefore, the City may have the need to develop, expand, or upgrade the following new facilities and infrastructure:

- Facilities to handle recyclable materials (i.e., "blue bin facilities");
- Facilities to handle compostable materials (i.e., "green bin facilities");
- Facilities to handle trash/waste disposal (i.e., "black bin facilities");
- Bottle refilling/hydration stations; and
- Foodware and linen washing facilities.

Environmental Review Process

As described in CEQA Guidelines Section 15168 (a) and (b), a program EIR is an EIR that may be prepared on a series of actions that can be characterized as one large project, and are related either:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual activities carried out under the same authorizing statutory or regulatory authority, and having generally similar environmental effects which can be mitigated in similar ways.

As such, the City is preparing a Program Environmental Impact Report (PEIR) for its Comprehensive Plastics Reduction Program. This PEIR has been prepared in conformance with CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations, Section 15000 et seq.).

Purpose and Use of the PEIR

The purpose of this document is to inform agency and governmental decision-makers and the public about the potential significant environmental effects associated with implementation of the range of activities that the City may conduct, implement, or oversee as part of the Program.

As described in CEQA Guidelines Section 15121(a), an EIR is a public information document that assesses potential environmental impacts of a proposed project and identifies mitigation measures and alternatives to the project that could reduce or avoid adverse environmental impacts. It is not the purpose of the PEIR to recommend either approval or denial of the proposed measures. Rather the PEIR serves to provide a full disclosure of potential environmental impacts of the Program for the City's review and consideration.

Lead Agency

The lead agency is the public agency that has the greatest responsibility for carrying out or approving a project that may have a significant effect upon the environment (PRC Section 21067). The City of Los

Angeles, acting through the Bureau of Sanitation (LA Sanitation and Environment, LASAN), is the Lead Agency for this Program.

Summary of Environmental Impacts and Mitigation Measures

Upstream Measures

As described in the PEIR, implementation of the Program upstream elements would cause no impacts to agricultural and forestry resources, cultural resources, geology and soils, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, and wildfire. Impacts to aesthetics, air quality, biological resources, energy, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, transportation, and utilities and service systems would be beneficial or less than significant (Table ES-1).

Downstream Measures

Construction and operation of Program downstream elements would cause less than significant impacts to greenhouse gas emissions, energy, land use and planning, mineral resources, population and housing, public services, and recreation. Downstream measures would cause impacts that would be mitigated to less than significant levels to aesthetics, agriculture and forestry, air quality, geology and soils, hydrology and water quality, and utilities and service systems. Construction and operation of downstream elements has the potential to cause significant and unavoidable impacts to biological resources, cultural resources, hazards and hazardous materials, noise, transportation, tribal cultural resources, and wildfire (Table ES-2).

Alternatives to the Proposed Program

An important aspect of the environmental review process is the identification and analysis of alternatives to the Program that would avoid or minimize the significant impacts identified for the proposed Program, are feasible, and substantially meet the Program objectives. The CEQA Guidelines (Section 15126.6(a-f)) require an EIR to describe a reasonable range of feasible alternatives, including a No Project/Program Alternative, and to analyze the impacts of the alternatives to allow for a comparative analysis of impacts for consideration by decision-makers.

A screening-level analysis was conducted to identify a reasonable range of alternatives to analyze in comparison to the proposed Program in the PEIR. Based on the screening level analysis, two alternatives, in addition to the proposed Program, have been carried through for comparative evaluation in the PEIR: Alternative 1: No Program Alternative and Alternative 2: Extended Producer Responsibility (EPR) Alternative.

Comparison of Alternatives

Alternative 1: No Program Alternative

Under the No Program Alternative, the City would not implement any upstream measures proposed under the Program to reduce the distribution, offer, provision, and sale of single-use plastic products in the City. The City also would not expand its capacity to recycle, compost, and reuse alternative materials via downstream measures. There would be continued compliance with state-level plastic reduction laws and regulations as well as continued enforcement of existing City ordinances banning or restricting certain types of single-use plastics.

The adverse effects of plastic pollution described in Section 1.3 (Project Objectives, Purpose, and Need) would continue in the City, including steadily increasing plastic waste going to landfills and plastic pollution degrading ecosystem health, human health, and the aesthetics of the City.

Alternative 2: Extended Producer Responsibility

EPR is generally described as a pollution prevention policy that focuses on products used by consumers, rather than mining/material extraction and manufacturing. EPR allows business as usual in terms of the materials used to produce products and focuses on ways to manage the material once it is discarded. This concept is based on the premise that the primary responsibility for waste generated during the production process (including extraction of raw materials) and after the product is discarded, is that of the producer of the product. The theory is that by making producers pay for the waste (wasted resources and post-consumer waste) and pollution they create, they will have an incentive to incorporate a broader range of environmental considerations into both their product design and choice of materials, thereby reducing consumption of resources at the various stages of the life cycle of a product or package. Cleaner production and waste prevention are the goals.

In the context of recycling plastics, EPR aims to shift the burden of managing plastic waste from local governments to the companies that produce and sell plastic products, and to the consumers who must take action for the program to work, and who often pay a fee to fund the program. This is particularly relevant due to the challenges posed by plastic pollution and the difficulty of effectively recycling plastic materials at municipal facilities.

The Extended Producer Responsibility Alternative would meet the Program objectives but to a lesser extent because the manufacture, sale, provision, and offer of single-use plastics that would be banned under the proposed Program would be allowed to continue under this alternative. Alternative 2 is effectively business as usual for the use of all types of plastic materials. Further, the success of the Extended Producer Responsibility Alternative in meeting the Program objectives would be dependent on effective consumer participation. Any lack of consumer participation would reduce the ability of this alternative to meet the Program objectives compared to the Program. However, the Extended Producer Responsibility Alternative would avoid the potential impacts of the Program that may occur due to the production and disposal (i.e., recycling and composting) of alternative materials to single-use plastics.

Environmentally Superior Alternative

The State CEQA Guidelines (Section 15126.6(d)) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project. The CEQA Guidelines (Section 15126.6(e)(2)) further state, in part, that “If the environmentally superior alternative is the “No Project” alternative, the EIR would also identify an environmentally superior alternative among the other alternatives”. Based on the analysis provided in this PEIR, the City has determined that the Program is the environmentally superior alternative.

Organization of the PEIR

The following describes the organization of this PEIR:

- Section 1: Introduction. This section discusses the CEQA process, the purpose of the PEIR, and public involvement in the CEQA process.
- Section 2: Program Description. This section provides a detailed description of the Program, including rationale for the proposed measures included in the Program.
- Section 3: Environmental Setting, Impacts, and Mitigation Measures. This section describes the environmental setting and identifies potential impacts of the Program and alternatives for each of the CEQA Guidelines Appendix G environmental resource areas. If potentially significant adverse effects are identified, then measures to mitigate such impacts are presented.
- Section 4: Cumulative Impacts. This section analyzes the potential for the Program to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope.
- Section 5: Alternatives. This section presents an overview of the alternatives development process and describes the alternatives to the Program that were considered.
- Section 6: Other CEQA Concerns. This section identifies areas of the PEIR where significant environmental effects cannot be avoided, if any. It also includes an analysis of growth inducement impacts that could occur due to the proposed Program.
- Section 7: References. This section provides a complete list of all references used to prepare the PEIR.
- Section 8: Report Preparers. This section identifies authors involved in preparing the PEIR, including any persons and organizations consulted during the CEQA process.

Table ES-2. Summary of Alternatives

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Aesthetics				
a) Have a substantial adverse effect on a scenic vista?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	MM AES-2: Lighting

Would the Program?	**Program**	**Alternative 1 – No Program**	**Alternative 2 – EPR**	**Mitigation Measures**
e) Create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment MM AES-3. Shading Reduction
Agricultural Resources				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AG-1: Farmland replacement/ easement
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Result in the loss of forest land or conversion of forest land to non-forest use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Air Quality				
a) Conflict with or obstruct implementation of the applicable air quality plan?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
c) Expose sensitive receptors to substantial pollutant concentrations?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Biological Resources				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-3: Worker Environmental Awareness MM NOI-1: Noise and Vibration Study and Control Plan
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
g) Would the Project Have a substantial impact, either directly or through habitat modifications, on common wildlife species?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM BIO-3: Worker Environmental Awareness MM NOI-1: Noise and Vibration Study and Control Plan
Cultural Resources				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discovery Procedures
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discovery Procedures

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects
Energy				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Geology and Soils				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Result in substantial soil erosion or the loss of topsoil?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM GEO-1: Paleontological Resources Protection Measures
Greenhouse Gas Emissions				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Hazards and Hazardous Materials				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-3: Phase I/II Environmental Site Assessment MM HAZ-4: Remediation Action Plan/Soil Management Plan
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-5: Airport Safety Hazard Assessment MM TR-1: Traffic Impact Report
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Analysis

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
Hydrology and Water Quality				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HWQ-1: Hydrology Study MM UTIL-3: Water Conserving Design MM UTIL-4: Water Supply Assessment

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Land Use and Planning				
a) Physically divide an established community?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Mineral Resources				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Noise				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan MM NOI-2: Construction Noise Authorization MM NOI-3: Construction Hours MM NOI-4: Sensitive Receptor Buffers MM NOI-5: Property Line Noise Levels
b) Generation of excessive groundborne vibration or groundborne noise levels?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-6: Airport Impact Analysis

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Population and Housing				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Public Services				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Recreation				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Transportation				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
d) Result in inadequate emergency access?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Tribal Cultural Resources				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Survey and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discoveries Procedures MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Utilities and Services Systems				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM UTIL-1: Underground Utilities Search MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment MM UTIL-5: Wastewater Services Information (WWSI) Request MM UTIL-6: Energy Efficient Design
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Less than Significant with Mitigation	MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Less than Significant with Mitigation	MM UTIL-5: Wastewater Services Information (WWSI) Request.
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Same as Program	MM UTIL-2: Construction Waste Reduction MM UTIL-3: Water Conserving Designs
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Wildfire				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None.
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None.
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

Notes: + = greater adverse effect as compared to those of the Program; ++ = greatest adverse effect as compared to those of the Program

SECTION 1 Introduction

The City of Los Angeles (City) is part of a worldwide movement to re-evaluate attitudes toward consumption, disposal, product stewardship, and infrastructure to reduce plastic[1] waste and promote sustainability. The City is a leader in protecting its natural environment and the health and safety of its residents. Since 2013, the City, through its Bureau of Sanitation (Los Angeles Sanitation and Environment, LASAN), has demonstrated its commitment to zero waste[2] and the reduction of single-use plastics through the following six ordinances:

- Zero Waste City Facilities and Events on City Property: Ordinance 187718 (2022)
- Expanded Polystyrene (EPS) Ban: Ordinance 187717 (2022)
- Expanded Single-Use Carryout Bag Ban: Ordinance 187716 (2022)
- Disposable Foodware Accessories on Request: Ordinance 187030 (2021)
- Plastic Straws on Request: Ordinance 186028 (2019)
- Single-Use Carryout Bag Ban: Ordinance 182604 (2013).

The City proposes to expand on these measures by implementing a city-wide Comprehensive Plastics Reduction Program (Program) and is preparing this Program Environmental Impact Report (PEIR) under the California Environmental Quality Act (CEQA) to support its decision-making process. The City is evaluating numerous measures to reduce or eliminate the production and use of single-use plastic products, and encourage reuse or recycling of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment. These are known as upstream measures because they keep single-use plastics from entering the use and disposal streams. These upstream measures include bans on specific single-use products; product stewardship programs; extended producer responsibility (EPR) programs targeting specific items; policies to require and/or support the manufacturing of durable, reusable, repairable, and recyclable products; and the formation of working groups to evaluate program efficacy and conduct additional studies. The Program's upstream elements include the following broad categories:

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[1] "Plastic" means a synthetic or semisynthetic material chemically synthesized by the polymerization of organic substances that can be shaped into various rigid and flexible forms, and includes coatings and adhesives. "Plastic" includes, without limitation, polyethylene terephthalate (PET), high-density polyethylene (HDPE), polyvinyl chloride (PVC), low-density polyethylene (LDPE), polypropylene (PP), polystyrene (PS), polylactic acid (PLA), and aliphatic biopolyesters, such as polyhydroxyalkanoate (PHA) and polyhydroxybutyrate (PHB). "Plastic" does not include natural rubber or naturally occurring polymers such as proteins or starches.

[2] The City's Green New Deal (City of Los Angeles 2019) lays out the following targets for waste management:
- Increase landfill diversion rate to 90% by 2025; 95% by 2035; and 100% by 2050
- Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028
- Eliminate organic waste going to landfill by 2028
- Increase proportion of waste products and recyclables productively reused and/or repurposed within L.A. County to at least 25% by 2025; and 50% by 2035.

- Plastic Bottle Policies
- Foodware Policies
- Textile Policies
- Per- and polyfluoroalkyl substances (PFAS) Ban
- Additional Product Bans
- Formation of Working Groups and Additional Studies
- Outreach and Education

For those plastics that cannot be addressed through upstream measures, and to manage the increase in recycling and composting due to the increased use of recyclable and compostable alternative materials anticipated from the Program, the City is also evaluating downstream measures by which to increase the City's ability to manage these materials and divert them from landfill disposal. Downstream measures include collecting, reusing, recycling, and composting alternative materials and supporting reusable products. Downstream measures may include the construction or expansion of recycling and composting facilities; regional market development to expand the City's ability to recycle and reuse currently unmarketable single-use items; and infrastructure to support reusable items. The Program would also include public education, outreach, and engagement as well as enforcement. Upstream and downstream measures would work together to create a zero waste loop in the City (Figure 1.1-1).

The Program is a comprehensive series of actions intended to minimize or eliminate single-use plastics and reduce waste within the City; therefore, the City, as lead agency, is developing this PEIR. The PEIR has been prepared in conformance with CEQA (Public Resources Code [PRC] Section 21000 et seq.) and the State CEQA Guidelines (Title 14, California Code of Regulations [CCR], Section 15000 et seq.). As described in CEQA Guidelines Section 15121(a), an environmental impact report (EIR) is a public disclosure document that assesses the potential environmental impacts of a proposed project and identifies mitigation measures and alternatives to the project that would reduce or avoid significant adverse environmental impacts. The purpose of this document is to inform agency and governmental decision-makers and the public about the potential significant environmental effects associated with the Program. It is not the purpose of the PEIR to recommend either approval or denial of any elements of the Program. Rather, the PEIR discloses potential environmental impacts of Program elements for City Council's review and consideration in their discretionary decision-making authority related to the Program.

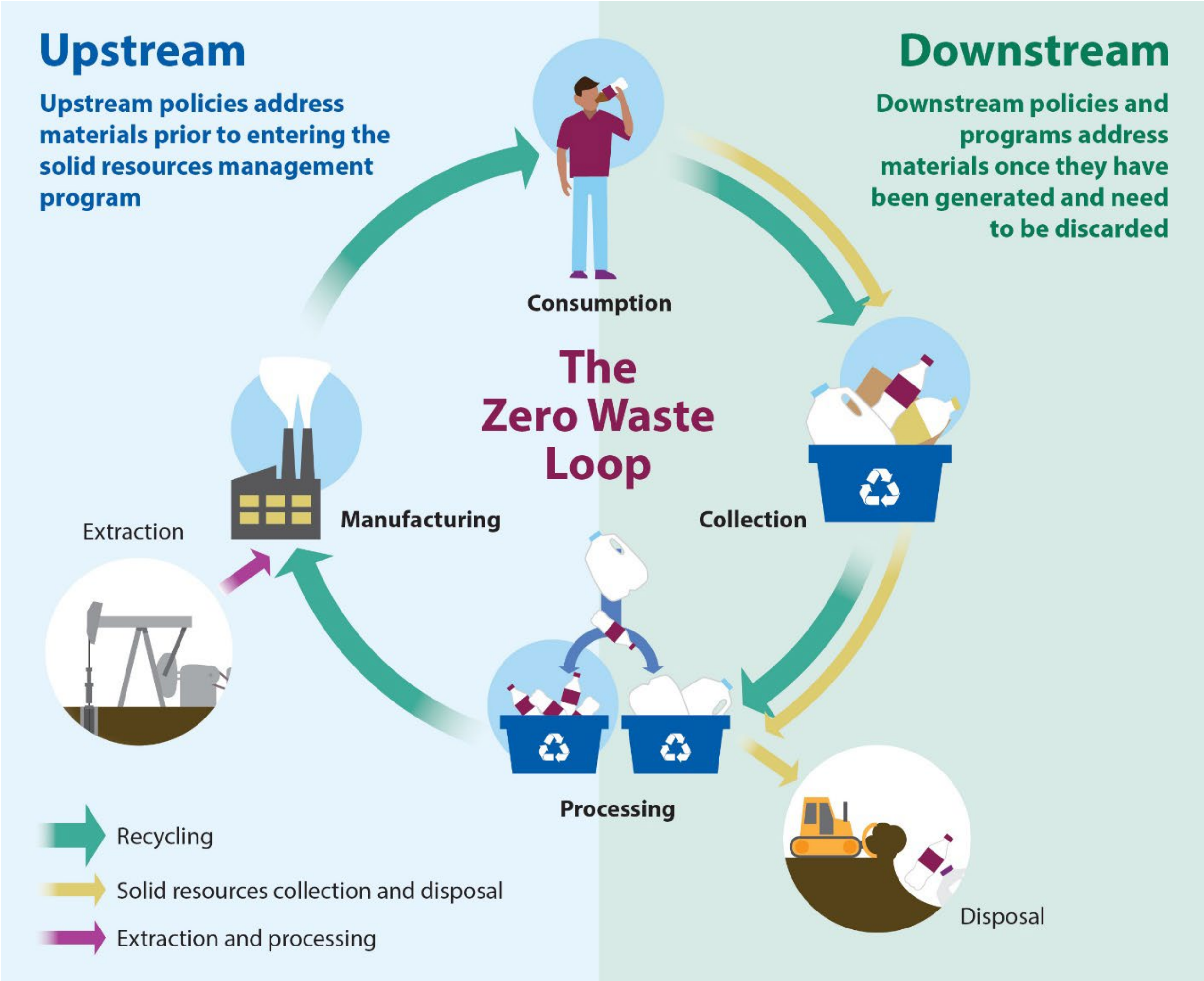

Figure 1.1-1. Zero Waste Loop

1.1 Solid Resources Management in the City of Los Angeles

Waste management is a fundamental component of overall environmental sustainability and climate change efforts and an integral part of the effort to reduce greenhouse gases (GHGs) and pollution. As such, LASAN takes the perspective of identifying solid resources, with waste being the materials that cannot be diverted from landfill disposal.

As the City department responsible for waste management, LASAN has been managing solid waste since 1890 and collecting solid waste from residential curbside customers since 1943. LASAN provides weekly solid waste collection services to approximately 750,000 residential customers consisting of single-family residences and small (<5) multi-family units. Approximately 65,000 multi-family units of five or more and commercial customer accounts are serviced through the recycLA program (the City's commercial waste franchise program) and recycLA Service Providers. LASAN implements a four-bin collection system consisting of the following:

- black bin (trash sent to landfill);
- blue bin (recyclables);

- green bin (food scraps/compostable items/yard trimmings); and
- brown bin (horse manure).

LASAN collects over 235,000 tons per year of blue bin materials from its residential curbside blue bin recycling program, and the recycLA program collects an additional 180,000 - 200,000 tons of blue bin materials per year. Recyclable materials are sorted at Material Recovery Facilities (MRFs): marketable products are sold to be reused as feedstock, and trash is sent to landfills.

While the terms “recyclable” and “compostable” are used frequently in labeling and marketing, many products identified as such are not able to be recycled or composted at municipal and private solid resources facilities contracted by the City (referred to herein as City-contracted facilities). The recyclability of a product is dependent upon two main factors: 1) collection, sorting, and processing capacity of the solid waste provider/processing facility and 2) ability to market the material to be made into new products. The successful marketing of recyclable material is heavily dependent on market demand. Currently, many plastics such as film plastics and foam plastics do not have markets to incentivize the collection and recovery of these materials.

Up until 2017, the U.S. plastics recycling system had been largely export-dependent: in 2017, China received 70% of the U.S.’s plastic scrap. Due to the high demand from its manufacturing sector, Chinese companies accepted plastic scrap bales, even with high contamination rates, which resulted in high disposal and mismanagement versus utilization rates. In 2017, China announced it would be restricting its imports of plastic and paper scrap under the National Sword Policy, which placed new stringent technical standards for the remaining imported materials including contamination limits of 0.5% for post-consumer plastic. The objective was to no longer be seen as “the world’s dumping ground” (Heiges and O'Neill 2022). Additionally, China has increasingly generated its own plastic scrap, reducing the country’s need to import scrap from other countries. The U.S. exported 1.25 million metric tons of plastic in 2017. Following China’s policy shift, it exported 908,000 metric tons in 2018 and under 600,000 metric tons of plastic exports in 2021. The relatively abrupt change to plastics recycling in the U.S. has led to a reconsideration of how these materials can be handled domestically. The City of Los Angeles is committed to taking responsibility for its waste streams; the Program is one step in this commitment.

Plastic products are identified by the following resin identification codes based on the type of plastic polymer out of which the product is made (Figure 1.1-2); only plastic types 1, 2, and 5 are currently accepted for recycling in the City:

- 1 - polyethylene terephthalate (PET or PETE) (e.g., beverage bottles, cups, packaging)
- 2 - high-density polyethylene (HDPE) (e.g., bottles, cups, milk jugs)
- 3 - polyvinyl chloride (PVC) (e.g., pipes, siding, flooring)
- 4 - low-density polyethylene (LDPE) (e.g., plastic bags, six-pack rings, tubing)
- 5 - polypropylene (PP) (e.g., food containers)
- 6 - polystyrene (PS) (e.g., utensils, clamshells, cafeteria trays)
- 7 - other plastics (e.g., acrylic, nylon, polycarbonate, polylactic acid).

Resin identification code	1	2	3	4	5	6	7
Polymer name	**POLYETHYLENE TEREPHTHALATE**	**HIGH-DENSITY POLYETHYLENE**	**POLYVINYL CHLORIDE**	**LOW-DENSITY POLYETHYLENE**	**POLYPROPYLENE**	**POLYSTYRENE**	**ALL OTHER PLASTICS** including acrylic, fiberglass, nylon, polycarbonate, and polylactic acid (a bioplastic)
Abbreviation	PET or PETE	HDPE	PVC	LDPE	PP	PS	OTHER
Recyclable in Los Angeles?	✓	✓	✗	✗	✓	✗	✗
Percentage recycled annually in the US	36%	30 - 35%	<1%	6%	3%	34%	Low
How long to decompose under perfect conditions	5-10 years	100 years	Never	500-1000 years	20-30 years	50 years	Majority of these plastics never degrade Polylactic acid: 6 months
Examples	Soda and water bottles, cups, jars, trays, clamshells	Milk jugs, detergent and shampoo bottles, flower pots, grocery bags	Cleaning supply jugs, pool liners, twine, sheeting, automotive product bottles	Bread bags, paper towels and tissue overwrap, squeeze bottles, trash bags, six-pack rings	Yogurt tubs, cups, juice bottles. straws, hangers, sand and shipping bags	To-go containers and flatware, hot cups, razors, CD cases, shipping cushion, cartons, trays	Polycarbonate, nylon, ABS, acrylic, PLA, bottles, safety glasses, CDs, headlight lenses

Figure 1.1-2. Plastic Types by Resin Identification Code

Although many plastic materials contain the “chasing arrows” symbol, which many consumers mistakenly understand to represent that a product is recyclable, most plastics are not actually recycled in practice. Clean and dry plastics (i.e., free of food residue) with resin identification codes 1, 2, and 5 are recyclable[3] in the City. In addition to these plastics, items including but not limited to bimetal cans, glass containers, newspaper, mixed paper, cardboard corrugated containers, aluminum cans/foil, scrap metal are recyclable (see Figure 1.1-3 below) in the City.

[3] Films of any resin identification code or black plastics are not recyclable in the City.

Figure 1.1-3. What Goes in the Recycling, Composting, and Trash Bins in the City

The State of California has enacted multiple laws (PRC Sections 42355-42358.5) restricting the marketing of products with terms such as "recyclable", "biodegradable", and "compostable"[4]. The California Department of Resources Recycling and Recovery (CalRecycle) is currently seeking feedback on an updated definition of compostable for state rulemaking purposes.

[4] Under California law, a compostable product must meet the following requirements:

- Compostable plastic products must meet the requirements of ASTM D6400-19.
- Compostable plastic-coated fiber products must meet the requirements of ASTM D6868-19.
- Any consumer product labeled "Home Compostable" must be certified to meet the OK compost HOME certification requirements.
- Have a total organic fluorine concentration of less than 100 parts per million (ppm).
- Be labeled in a manner that distinguishes it from noncompostable products.
- Be designed to be associated with the recovery of desirable organic wastes, such as food scraps and yard trimmings.

For the purposes of this PEIR, the following definitions are used:

- Recyclable means those plastics that are accepted for recycling in the City: clean plastics with resin identification codes 1, 2, or 5 that are not films or black.
- Compostable materials are those materials that disintegrate, biodegrade, and are nontoxic within the time and temperature operated at City-contracted composting facilities in compliance with American Society for Testing and Materials (ASTM) standards. The following materials are compostable through the City's green bin program: food-soiled paper; paper egg cartons, napkins, towels, plates, and to-go boxes; pizza boxes; and 100% wooden or fiber-based utensils. The following materials are not compostable within the City's[5] green bin program: plastic items marked "compostable"; bioplastic materials; and paper foodware or foodware accessories lined or coated with wax, plastic, foil, or any other material that causes the item not to be acceptable in the green bin.

1.2 Agency Authority

The lead agency is the public agency that has the greatest responsibility for carrying out or approving a project that may have a significant effect upon the environment (PRC Section 21067). The City of Los Angeles, acting through LASAN, is the Lead Agency for this Program.

1.3 Program Objectives, Purpose, and Need

1.3.1 Program Purpose and Need

Single-use plastics are ubiquitous in modern-day life and their use has increased significantly: half of all plastic ever produced has been made since 2002. However, less than 10% of plastic is recycled globally, leading to a huge accumulation of plastic waste, estimated at over 6 billion metric tons, in the earth's environment. In 2010 alone, between 4 and 12 million tons of plastic waste ended up in the ocean (Landrigan et al. 2023). Locally, single-use plastics are the most common items collected during annual beach cleanups[6]; are found in local waterways and clog stormwater infrastructure; and harm the aesthetics of the City when littered.

The social, economic, and environmental costs of plastic use and pollution have been well-documented. In general, plastics do not biodegrade in the environment and pose a risk to both terrestrial and aquatic life when littered. Chemicals in plastic have been linked to adverse human health impacts at every stage of the plastic life cycle including workers and 'fence-line' communities that live next door to plastic production and waste disposal sites (Landrigan et al. 2023; Merkl and Charles 2022; UNEP 2021c). Microplastics have been found in virtually every type of environment including the deepest recesses of the ocean, pristine mountain glaciers, and human breast milk (Barrett et al. 2020, Stefánsson et al. 2021, Braun et al. 2021). The costs and impacts of plastics are borne by all but fall disproportionately on people with the least ability to pay for adaptation (UNEP 2023).

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[5] Existing "certifications" and other laboratory testing do not meet actual operational conditions of City-contracted commercial composting facilities, so these excluded products do not actually compost or biodegrade during the process.

[6] All of the storm drains in the City ultimately empty into the Pacific Ocean. Therefore, any trash that is littered anywhere in the City, if not picked up, can make its way to the ocean and the beach.

The remainder of this section summarizes work completed at the local, state, national, and international level that emphasizes the purpose and need for local actions such as the proposed Comprehensive Plastics Reduction Program.

1.3.1.1 Local

The UCLA Luskin Center was commissioned by Los Angeles County to study the issues of plastic waste, plastic processing and recyclability, and plastic alternatives in the County, and to use the resulting findings to inform the drafting of an ordinance addressing plastic waste[7] (UCLA Luskin School of Public Affairs 2020). The 2020 Luskin Study identified the following major Purpose and Need considerations relevant to this PEIR, including that plastics:

- Are the primary source of land litter in California;
- Infiltrate City drainages and accrue in landfills;
- Are channeled to the Pacific Ocean via urban run-off;
- Contribute to loss of tourism and recreational/aesthetic values;
- Are a human health threat; and
- Are not routinely recycled.

The study also highlighted that replacement of single-use plastic foodware with compostable foodware implies expanding composting infrastructure, and analysis is necessary to ensure that replacement materials have lower environmental impact than plastics.

The major findings of the 2020 Luskin Study were:

- There are adverse environmental, economic, energy, and human health-related impacts associated with plastic production and plastic waste in Los Angeles County. Single-use plastic foodware is a contributing factor to these impacts, and its outsized representation in litter suggests a particularly significant impact in the environmental sphere, the area for which impacts in Los Angeles County appear most acute.
- While all types of plastic are technically recyclable, the majority are not actually recycled. This difference in technical versus *de facto* recyclability is driven by a variety of factors including material properties, product size, contamination from food residue and other substances, and market conditions.

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[7] Ordinance 2022-0016, adopted by the Los Angeles County Board of Supervisors on April 19, 2022, amended Title 12 – Environmental Protection, Chapter 12.86 of the Los Angeles County code to require that single-use articles that food facilities provide to customers with ready-to-eat food, such as food containers, cups, dishes, and accessories, be either compostable or recyclable. The ordinance includes exemptions from this requirement involving single-use articles for food that is: prepared and packaged outside of the unincorporated area of the County; provided in connection with a declared emergency; or provided to patients at hospitals and other health facilities. The ordinance also prohibits the retail sale of products made from expanded polystyrene foam, such as coolers, packaging materials, single-use articles such as cups, plates, and similar items, and pool toys, unless the products are encased in a durable material. Additionally, it requires full-service restaurants to use reusable foodware for dine-in customers.

- Only HDPE (resin identification code 2) products and PET (resin identification code 1) bottles are currently commonly recycled in Los Angeles County.
- Current recycling policies and practices do not effectively address the adverse impacts associated with single-use plastic foodware. No material recovery facility serving Los Angeles County currently recycles plastic foodware, primarily due to issues of food residue contamination, product size, and product material.
- Available evidence suggests that replacing single-use plastic foodware with reusable foodware will reduce the negative impacts of plastic waste in Los Angeles County. Expected effects include a reduction in the generation of non-recyclable plastic solid waste, a decrease in the prevalence of plastic litter, and fiscal benefits to vendors, waste management operators, local governments, and ratepayers.
- In the food service sector, the adoption of compostable foodware presents potential benefits, including lower net lifetime environmental impact and higher food waste diversion rates.
- The experiences of jurisdictions interviewed indicate that policies restricting plastics have been effective at reducing the adverse impacts of plastic waste with no reported negative economic impacts.

1.3.1.2 State

The State of California has been active in regulating single-use plastic bags, packaging, and other elements that are encompassed by this Program. Appendix A provides a summary of state laws and associated regulations that are pertinent to this Comprehensive Plastics Reduction Program. The scope of actions described in Appendix A demonstrates that the State's purpose and need for its laws and regulations regulating plastics is consistent with the purpose and need expressed in this PEIR, but the City of Los Angeles is considering additional actions that are not preempted by the laws and regulations of the State.

Of most relevance to the Program is Senate Bill (SB) 54 (Plastic Pollution Prevention and Packaging Producer Responsibility Act). SB 54 was enacted on June 30, 2022, and draft regulations for implementation (Plastic Pollution Prevention and Packaging Producer Responsibility Act Regulations) were published in December 2023 by CalRecyle's Division of Circular Economy. SB 343 (Truth in Labeling for Recyclable Materials[8]) works in tandem with SB 54. A primary goal of SB 54 is that 100% of single-use packaging will be recyclable or compostable by the year 2032.The legislation also includes target rates for recycling plastic covered material as follows: no less than 30% of covered material on and after January 1, 2028, no less than 40% on and after January 1, 2030, and no less than 65% on and after January 1, 2032 The third element of SB 54 is a source reduction target that requires by January 1, 2032, a PRO acting on behalf of participants of the PRO's approved plan shall develop and implement a plan to achieve a 25% reduction by weight and 25% by plastic component source reduction requirement for covered material sold, offered for sale, or distributed in the state. SB 54 and SB 343 are already supporting each other in this regard, by evaluating the existing recyclability of material categories, and

[8] SB 343 was enacted in 2021 to prohibit the use of the chasing arrows symbol or any other indicator of recyclability on products and packaging unless certain criteria are met. See Appendix A, Section 1.1.6.1 for more information.

requiring products to be advertised as such. SB 54 is a fundamentally downstream program; it does not include any bans aimed at keeping certain single-use plastic products from entering the use and disposal streams. Rather, SB 54 seeks to manage single-use plastic in such a way that the collection, recycling and composting of discarded products is achievable across all sectors of the economy. SB 54 defines which products are or could be recyclable, and then provides requirements to ensure recyclability and decrease plastic waste through EPR for specific plastic resin types, not products. SB 54 would also impose a new State-mandated local program that would require that local jurisdictions, such as the City and recycling service providers, include in their collection and recycling programs covered materials contained on the lists published by CalRecycle.

The City's Program takes a different but complementary approach to extend the measures in SB 54 to include specific items and programs that the City's solid resources divisions address. While SB 54 addresses plastic material type and form through recycling, the Program takes the approach of regulating the product and its use with a mixture of upstream bans and reuse/recycling. For example, SB 54 considers many plastic items smaller than 2 inches in diameter to be recyclable and therefore can be used and then recycled according to plastic resin type. However, in the City, items this small are not separable and therefore do not enter the recycling stream. For these items that cannot be recycled in the City, the product use is banned. The items would not enter the use stream in the first place. Another difference is that SB 54 includes specific exemptions. For example, SB 54 exempts single-use plastic water bottles, and all bottles subject to the existing CalRecycle Beverage Container Recycling Program and the Container Redemption Value, from the requirements. The Program would seek to eliminate single use plastic bottles from the system. Therefore, the Program would complement the requirements of SB 54 by either banning certain single-use plastic items or having focused EPR programs for specific products (such as small single-use beverage pods) that are not captured by the City's material recovery facilities.

1.3.1.3 National

The reduction of plastics in the environment, particularly single-use plastics, is also being addressed at the national level. The U.S., through the Environmental Protection Agency (USEPA), has published a draft National Strategy to Prevent Plastic Pollution (2023b). The U.S. approach to plastic pollution reduction is primarily voluntary actions aimed at eliminating the release of plastic waste from land-based sources into the environment by 2040. As written, the draft does not include EPR measures or bans.

The National Strategy includes further substantial evidence related to the objectives for the Program. A resident of the U.S. used approximately 1.8 times more plastic products than a resident of the European Union in 2019. The majority of this plastic will end up as waste: in 2018, only 9% of plastic collected through municipal solid waste was recycled in the U.S. (USEPA 2023b). In 2016, the U.S. had approximately 4.3% of the world's population but generated 10.5% of global plastic waste (National Academies of Sciences, Engineering, and Medicine [NASEM] 2022). The U.S. had the largest plastic waste footprint of any country in 2019, generating approximately 486 pounds per capita (Organisation for Economic Co-operation and Development [OECD] OECD 2022a).

To counter these existing conditions, the USEPA identified the following three objectives to be met through voluntary actions:

- Reduce pollution during plastic production;
- Improve post-use materials management; and
- Prevent trash and micro- and nano-plastics from entering waterways and remove escaped trash from the environment.

1.3.1.4 International

In March 2022, 175 countries agreed to develop a legally binding agreement on plastic pollution by 2024. The United Nations Environmental Programme (UNEP) published a 2023 report, *Turning off the Tap: How the world can end plastic pollution and create a circular economy*, to provide substantial evidence and environmental assessment to inform the development of the international treaty (UNEP 2023). The report acknowledges that while plastics may contribute positively to society, the way plastics are currently produced, used, and disposed of is polluting ecosystems, creating risks for human and environmental health, and destabilizing the climate.

The UNEP, as well as the USEPA, State, and the City, seek to move to a *circular economy* where products are produced with the next use already in mind, to reduce the need for extraction of new resources, and reduce the amount of material needing to be treated as waste. Circular economy is defined as "a systems-focused approach and involves industrial processes and economic activities that are restorative or regenerative by design, enable resources used in such processes and activities to maintain their highest values for as long as possible, and aim for the elimination of waste through superior design of materials, products, and systems (including business models)" (USEPA 2023). The UNEP report (2023) shows that only an integrated, systematic shift from a linear to a circular economy can keep plastics out of the environment and human bodies and in the economy. It also reinforces the importance of actions by governments to facilitate and guide this shift.

Figure 1.1-5 illustrates the flow of materials in a circular economy. It distinguishes between solid resource management on the right half of the diagram (stock management) and renewable energy implementation on the left half (flow management). Specifically, the right side of the diagram pertains to the Purpose and Need for this PEIR. The stock management half of the diagram illustrates how finite materials and products, such as plastic products, are ideally kept in use and reuse for as long as possible in a circular economy via practices like sharing, reusing, remanufacturing, and recycling. One goal is for manufacturers of these products to design them with the intent that the product will be reused or recycled, rather than be discarded after a single use.

To reduce plastic pollution and increase the circularity of plastic products, a coordinated effort across the entire value chain—including federal, state, local, and Tribal governments; environmental organizations; industry; academia; and the public—is necessary. For policy changes to be successful, a behavioral shift is required: governments can create the regulatory environment to incentivize the shift to a circular economy; industry, municipalities, informal waste pickers, plastic converters and key users – such as packaging, textile, transport, fisheries and agricultural sectors– can accelerate reuse and recycling and ensure the sustainability of alternatives introduced in the market; and consumers must be aware of and accept alternative use patterns and materials (UNEP 2023).

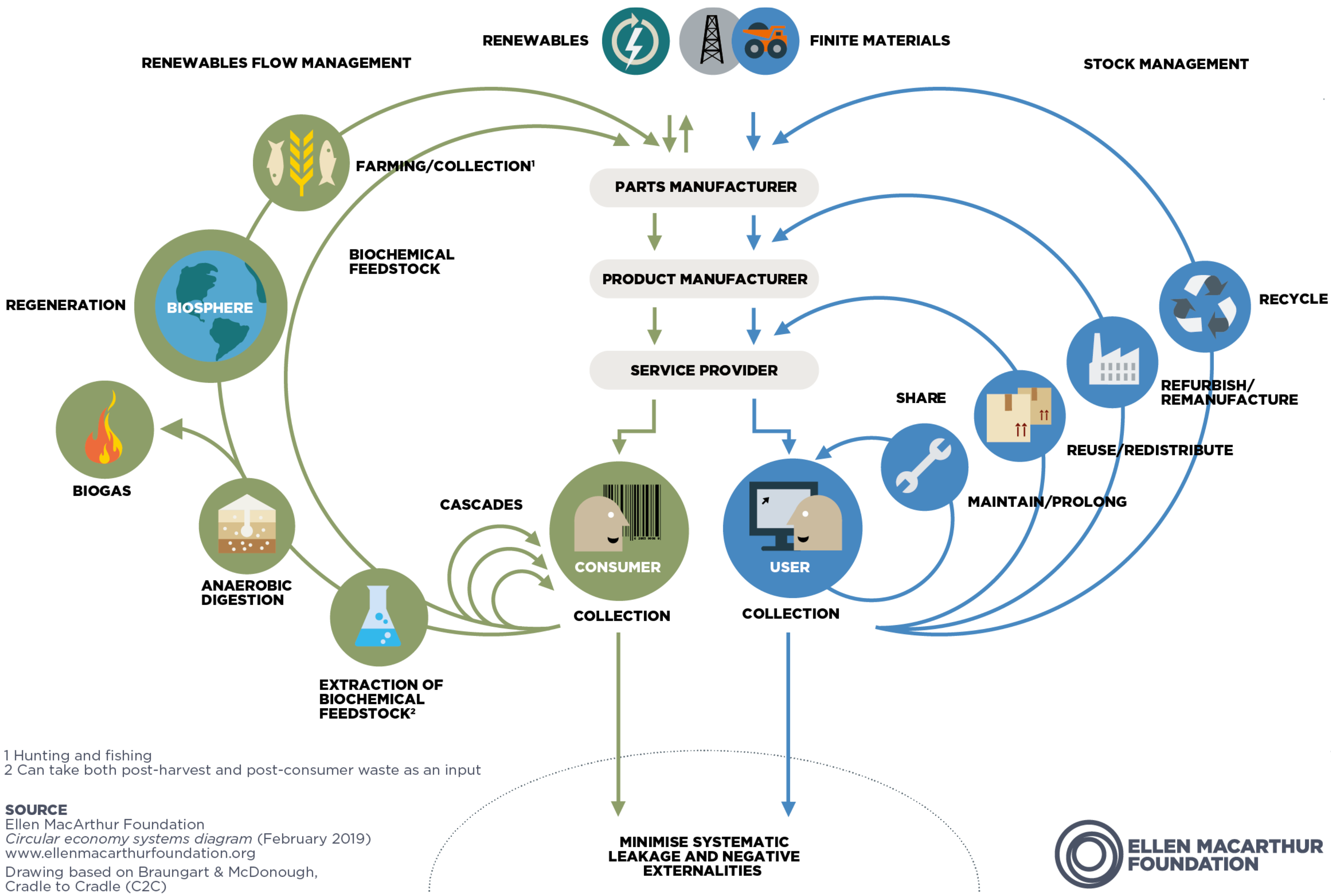

Figure 1.1-5. Diagram of a Circular Economy

1.3.2 Program Objectives

CEQA Guidelines Section 15124(b) requires the project description to include a statement of objectives for the proposed project, including the underlying purpose of the proposed project. The underlying purpose of the Program is to create a comprehensive city-wide strategy to reduce plastic waste and reduce the environmental and human health impacts of single-use plastics. The Program objectives are as follows:

- Contribute to the City's goal of becoming zero waste by 2050.
- Reduce the volume of single-use plastics, particularly those that cannot be composted or recycled in City-contracted facilities, into the City's waste stream.
- Reduce the amount of plastic waste that is littered and pollutes water resources and has adverse effects on human health and wildlife.
- Encourage and support the use of reusable alternative materials.
- Reduce aesthetic degradation of the City due to plastic litter.
- Develop downstream systems and facilities as needed to support the reuse, recycling, and composting of alternative products to single-use plastics.

1.4 Overview of the CEQA Process

This section provides the basis for preparing a PEIR, anticipated future actions that will rely on the CEQA analysis in this PEIR, and a summary of the past and planned milestones in the CEQA process for the Program.

1.4.1 Level of CEQA Review

As described in CEQA Guidelines Section 15168 (a) and (b), a PEIR is an "EIR that may be prepared on a series of actions that can be characterized as one large project, and are related either:

1. Geographically,
2. As logical parts in the chain of contemplated actions,
3. In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways."

The Program meets each of these relationships, therefore a PEIR is the appropriate document to carry out a CEQA review. A PEIR can achieve the following objectives:

- Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis;
- Avoid duplicative reconsideration of basic policy considerations;

- Allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts; and
- Allow reduction in paperwork.

1.4.2 CEQA Tiering and Intended Use of the PEIR

The process of evaluating future Program activities and preparing the appropriate environmental documentation based on this PEIR is known as "tiering." Tiering consists of evaluating future Program activities and determining whether they are within the scope of the PIER and if additional environmental analysis and documentation is necessary.

As specified in CEQA Guidelines Section 15168(c), future activities implemented under the Program "must be examined in the light of the PEIR to determine whether an additional environmental document must be prepared.

- If a later activity would have effects that were not examined in the PEIR, a new initial study would need to be prepared, leading to either an EIR or a negative declaration. That later analysis may tier from the PEIR as provided in CEQA Guidelines Section 15152.
- If the agency finds that pursuant to CEQA Guidelines Section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the Program covered by the PEIR, and no new environmental document would be required. Whether a later activity is within the scope of a PEIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the PEIR.
- An agency shall incorporate feasible mitigation measures and alternatives developed in the PEIR into later activities in the program.
- Where the later activities involve site-specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation are within the scope of the PEIR."

Notably, CEQA Guidelines Section 15168(c) state the following:

> "A program EIR will be most helpful in dealing with later activities if it provides a description of planned activities that would implement the program and deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed project description and analysis of the program, many later activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required."

As such, this PEIR evaluates the potential environmental impacts that could result from implementation of the range of activities that the City may conduct, implement, or oversee as part of the Program. The goal of this PEIR is to provide a detailed description and analysis of the upstream elements of the program, such that later City actions based on the measures described herein and related activity may be found to be within the scope of the Program described in the PEIR, and further CEQA analysis not be required. Thus, this PEIR evaluates the potential environmental impacts that could result from implementation of the following Program elements:

- Plastic Bottle Policies
- Foodware Policies
- Textile Policies
- PFAS Ban
- Additional Products
- Formation of Working Groups and Additional Studies
- Outreach and Education

The City is also evaluating downstream measures by which to increase the City's ability to manage alternative materials, such as by collecting, reusing, recycling, and composting alternative materials and supporting reusable products. Although the type and size of downstream activities can be specified and analyzed in this PEIR, the location of the downstream activity is speculative. As such, this PEIR analyzes the reasonably foreseeable impacts of downstream activities but does not provide a site-specific evaluation to determine the level of significance of impacts. Therefore, it is anticipated that, while the future construction and implementation of downstream activities can substantially rely on the analyses in this PEIR, subsequent CEQA analysis may be required once a specific location for a downstream activity is proposed in the future.

This PEIR uses substantial evidence to disclose the potential impacts of the Program in an adequate and complete manner, as it is anticipated to be implemented in the foreseeable future.

1.4.3 CEQA Noticing and Public Review

1.4.3.1 Notice of Preparation

The City released a Notice of Preparation (NOP) pursuant to CEQA Guidelines Section 15082 to agencies, organizations, and the public, including on the Governor's Office of Planning and Research (OPR) State CEQA Clearinghouse (SCH # 2023050007) and the Los Angeles County Clerk on May 1, 2023. The NOP is included in the Scoping Summary Report (Appendix B). The NOP initiated a 30-day public comment period from May 1 to May 30, 2023, during which members of the public and other agencies were welcome and invited to submit comments on potential effects to resources, alternatives for analysis in the Draft PEIR, and scope of the Draft PEIR.

The NOP informed the public that the City is preparing a PEIR and provided a brief program description, overview of the CEQA/EIR process, information on the scoping process and the 30-day comment period, and directions on how to submit a comment. The City provided three options, which were included in the public scoping notices, for interested parties to submit scoping comments:

- E-mail address: christine.batikian@lacity.org.
- Online comment form (available in Spanish and English): https://forms.gle/2ZWkx9HrwSHSdrMp6

- Mailing address: LASAN - Solid Resources Citywide Recycling Division
  Attention: Christine Batikian
  1149 S. Broadway
  5th Floor, Mail Stop 944
  Los Angeles, CA 90015

The City posted the NOP on the LASAN website: https://www.lacitysan.org/ceqa. A display advertisement indicating the preparation of the PEIR as well as scoping meeting times, how to submit scoping comments, and the duration of the scoping period was posted in the Los Angeles Times and Los Angeles Daily News on May 1, 2023.

The City mailed or emailed a copy of the NOP to government agencies, non-governmental organizations, trade groups, tribes, neighborhood councils, council district offices, chambers of commerce, business improvement districts, and other interested parties identified by the City on May 1, 2023. In total, the City mailed 101 letter copies of the NOP and sent emails with the NOP to 547 recipients.

1.4.3.2 Scoping Meetings

As part of the scoping process, the City held two virtual public meetings, on May 10 and 11, 2023. A cumulative total of 31 people attended the public meetings. The meetings were used to describe the role of the City in developing the Program and the PEIR; the Program was described to a level of detail that would support comments by interested parties and agencies; and the CEQA process for the PEIR was described. Attendees were provided with time to speak and encouraged to submit written scoping comments. The presentation portion of the meeting was recorded in both English and Spanish formats and is available on the LASAN website at: https://www.lacitysan.org/ceqa.

1.4.3.3 Scoping Comments

A total of 34 comments were received during the public scoping period. An additional five comments were received after the close of scoping on May 30 and were considered during the drafting of the PEIR. All comments received during the scoping process are included in the Scoping Summary Report (Appendix B).

In addition to logistical comments and questions about scoping meeting presentation recordings, mailing lists, and invitations for the City to present at neighborhood council meetings, the following types of comments were provided:

- General support for the Program;
- General opposition to the Program;
- Inclusion of additional Program elements; and
- Information pertaining to or request to analyze impacts of the Program on water resources, GHG emissions, environmental justice, human health, and biological resources.

1.4.3.4 AB 52 Consultation

Assembly Bill (AB) 52 directs the lead agency preparing the CEQA document to consult with Native American Tribes. AB 52 was ratified to provide Tribes with an ancestral connection to the Program area the opportunity to provide information on the presence of potential tribal cultural resources. The purpose of the AB 52 consultations between the Tribes and the City was to 1) collect information; 2) build a working relationship between the City and Tribe; and 3) avoid inadvertent discoveries (NAHC 2016). Any information shared during these consultations is considered privileged and confidential but is considered when conducting the resource analyses.

Pursuant to AB 52, the City sent consultation notification letters via certified mail on March 30, 2023, to all tribes identified by the Native American Heritage Commission (NAHC) in the Los Angeles area. Follow-up consultation notification letters were sent via e-mail to tribal representatives when certified mail was returned as undeliverable. Of the tribes that were contacted, one requested formal consultation: Gabrieleño Band of Mission Indians - Kizh Nation. The City formally consulted with Gabrieleño Band of Mission Indians - Kizh Nation via a phone meeting on June 27, 2023. Tribal concerns from these consultations are identified and resolved in Section 3.19 (Tribal Cultural Resources).

Pursuant to PRC 21080.3.2(b), the AB 52 process is concluded when: (1) “The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.”

1.4.3.5 Public Review of the Draft PEIR

To announce the availability of this Draft PEIR for public review and comment, the City issued a Notice of Completion (NOC) and Notice of Availability (NOA) on March 12, 2024, which initiated the 45-day public comment period. The NOC and NOA were electronically submitted to the State Clearinghouse, posted with the Los Angeles County Clerk, and posted on the City website (PRC Sections 21092, 21092.2): https://www.lacitysan.org/ceqa.

The City distributed the NOA to the same stakeholders as the NOP (described above in Section 1.4.3.1) as well as additional interested parties that requested addition to the notification list during scoping consistent with the requirements of PRC Section 21092 and CEQA Guidelines Section 15087, parties that have expressed interest in the Program since scoping ended, and additional interested parties identified by LASAN. The NOA included a brief overview of the proposed Program and its location, the anticipated significant effects of the Program, CEQA process and Draft PEIR, information on where to review a hard copy of the Draft PEIR or where to access an electronic copy of the Draft PEIR, as well as information on how to submit a comment, and the period during which comments on the Draft PEIR would be received (PRC Section 21092(b); CEQA Guidelines Section 15087(c)).

In addition to the posting of the NOC and NOA, a display advertisement indicating the availability of the Draft PEIR as well as public comment meeting times, how to submit public comments, and the duration of the public comment period was posted in the Los Angeles Times, Los Angeles Daily News, and La Opinion on March 12, 2024.

A hard copy of the Draft PEIR is available for public review at the front desk of the City of Los Angeles, Public Works Building, 1149 S. Broadway Los Angeles, CA 90015, during business hours Monday through Friday, 9:00 a.m. to 4:30 p.m. Hard copies of the Draft PEIR are also available to the general public for review at the Los Angeles Public library branches shown in Table 1.4-1.

Table 1.4-1. Locations Where the Draft PEIR is Available for Review

Library Name	Library Address
Echo Park Branch Library	1410 W. Temple Street Los Angeles, CA 90026
Valley Plaza Branch Library	12311 Vanowen Street North Hollywood, CA 91605
Canoga Park Branch Library	20939 Sherman Way Canoga Park, CA 91303
Will & Ariel Durant Branch Library	7140 W. Sunset Boulevard Los Angeles, CA 90046
Palms - Rancho Park Branch Library	2920 Overland Avenue Los Angeles, CA 90064
Panorama City Branch Library	14345 Roscoe Boulevard Panorama City, CA 91402
Lake View Terrace Branch Library	12002 Osborne Street Lake View Terrace, CA 91342
Hyde Park Miriam Matthews Branch Library	2205 W. Florence Avenue Los Angeles, CA 90043
Junipero Serra Branch Library	4607 S. Main Street Los Angeles, CA 90037
Washington Irving Branch Library	4117 W. Washington Boulevard Los Angeles, CA 90018
West Los Angeles Regional Branch Library	11360 Santa Monica Boulevard Los Angeles, CA 90025
Porter Ranch Branch Library	11371 Tampa Avenue Porter Ranch, CA 91326
Cahuenga Branch Library	4591 Santa Monica Boulevard Los Angeles, CA 90029
Arroyo Seco Regional Branch Library	6145 N. Figueroa Street Los Angeles, CA 90042
Harbor City - Harbor Gateway Branch Library	24000 S. Western Harbor City, CA 90710

Public meetings to present the findings of the Draft PEIR and answer questions from the public will be held virtually at the following times:

- Thursday March 21, 2024 at 11:00 a.m.
- Thursday April 4, 2024 at 6:00 p.m.
- Saturday April 6, 2024 at 9:00 a.m.

Interested parties may submit a written comment on the Draft PEIR via one of the following methods:

- E-mail address: san_sourcereduction@lacity.org
- Online comment form: forms.gle/4qwhchkSDLebxhKH9
- Mailing address: LASAN – Solid Resources Citywide Recycling Division
  Attention: Christine Batikian
  1149 S. Broadway
  5th Floor, Mail Stop 944
  Los Angeles, CA 90015

The City encourages comments that are substantive in nature and focus on specific technical issues, the Program, potential alternatives, effects analyses, and mitigation measures. Comments based on these topics will have a direct impact in developing the Final PEIR. All substantive comments on the Draft PEIR received by the end of the public comment period (April 26, 2024, 45 days after NOC/NOA publication) will be directly addressed and responded to in the Final PEIR.

1.4.3.6 Publication of the Final EIR

The City will evaluate the comments received during the Draft PEIR public comment period and prepare a written response to any significant environmental issues in the Final PEIR. When the Final PEIR is complete, the City will issue public notices announcing the document's availability.

1.4.3.7 Notice of Determination

Following review of the Final PEIR, the Los Angeles City Council will vote on whether or not to certify the PEIR as adequate for their decision-making purposes. The Los Angeles City Council, in consideration of the PEIR, comments and testimony received, and further deliberation, may then vote to adopt the Program. After certification of the PEIR, the City will file a Notice of Determination (NOD) with the Los Angeles County Clerk and the State Clearinghouse and post the NOD on the City website (PRC Section 21092.2). The NOD notifies the responsible/trustee agencies and the public that the Los Angeles City Council has decided to certify and adopt the Final PEIR.

Throughout the process, the City will engage interested parties, including regulatory agency staff, elected officials, businesses, manufacturers, environmental and community groups, and the public.

1.5 Organization of the PEIR

The following describes the organization of this PEIR:

- **Executive Summary.** This section summarizes the contents of the Draft PEIR.

- **Section 1: Introduction.** This section discusses the CEQA process, the purpose of the PEIR, and public involvement in the CEQA process.
- **Section 2: Program Description.** This section provides a detailed description of the Program, including rationale for the proposed measures included in the Program.
- **Section 3: Environmental Setting, Impacts, and Mitigation Measures.** This section describes the environmental setting and identifies potential impacts of the Program and alternatives for each of the CEQA Guidelines Appendix G environmental resource areas. If potentially significant adverse effects are identified, then measures to mitigate such impacts are presented.
- **Section 4: Cumulative Impacts.** This section analyzes the potential for the Program to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope.
- **Section 5: Alternatives.** This section presents an overview of the alternatives development process and describes the alternatives to the Program that were considered.
- **Section 6: Other CEQA Concerns.** This section identifies areas of the PEIR where significant environmental effects cannot be avoided, if any. It also includes an analysis of growth inducement impacts that could occur due to the Program.
- **Section 7: References.** This section provides a complete list of all references used to prepare the PEIR.
- **Section 8: Report Preparers.** This section identifies authors involved in preparing the PEIR, including any persons and organizations consulted during the CEQA process.

SECTION 2 Program Description

The City is proposing the Program to reduce the volume of single-use plastics and related items in the City's waste stream and reduce environmental and human health impacts of single-use plastics. The Program would include City actions and policies that can be defined as upstream measures to reduce or eliminate the use of single-use plastics and products in the City's waste stream and downstream measures to expand the City's ability to manage reuse, recycling, and composting of alternative materials in order to support reusable products. Upstream and downstream measures are described in Section 2.2 and 2.3, respectively. Figure 2.2-1 illustrates the different measures categories and the individual Program elements within each category.

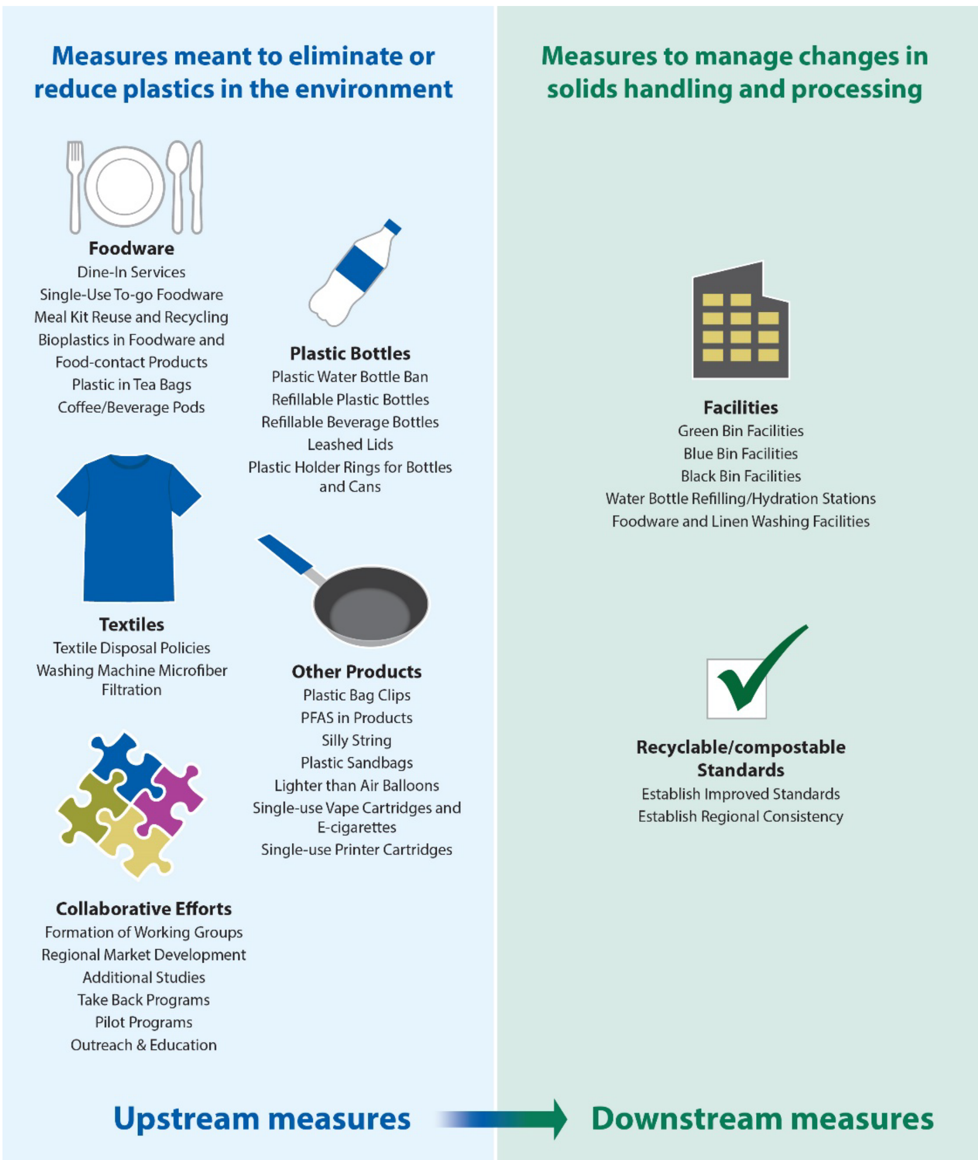

Figure 2.1-1. Overview of Comprehensive Plastics Reduction Program Measures

2.1 Program Location

Implementation of the Program would occur throughout the entirety of the incorporated City of Los Angeles, which encompasses approximately 469 square miles, stretching from the Angeles National Forest to the north to the Pacific Ocean to the south (Figure 2.1-2).

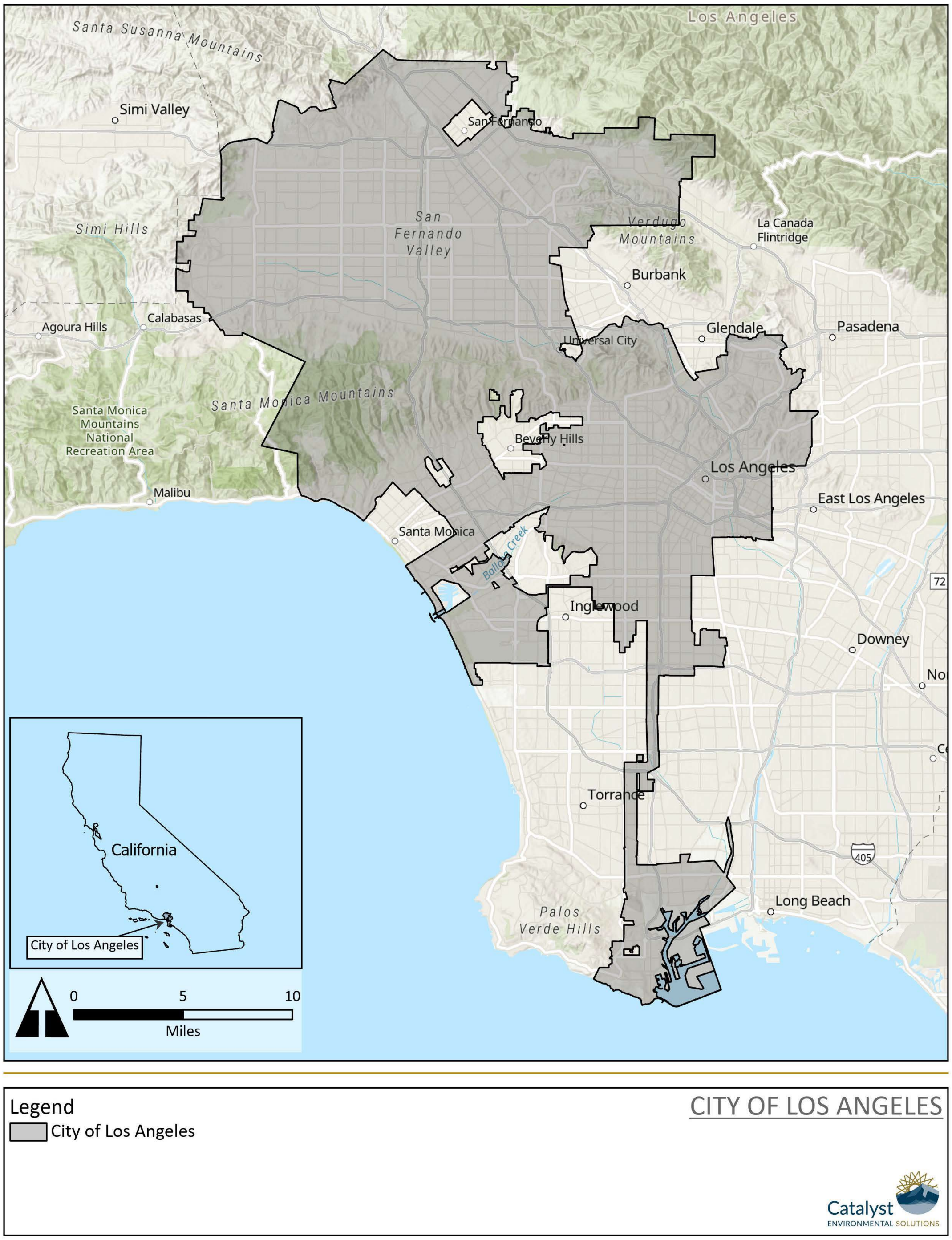

Figure 2.1-2. Program Location

2.2 Upstream Measures

The City may implement various measures to reduce or eliminate the use of single-use products within the City. These measures fall into the following categories and are described in detail herein (see also Figure 2.1-1 and Table 2.2-1):

- Plastic Bottle Policies
- Foodware Policies
- Textile Policies
- PFAS
- Additional Products
- Formation of Working Groups and Additional Studies
- Outreach and Education

The policies proposed include bans on particular products and materials, requirements for alternative materials use, and requirements for EPR programs. EPR is a policy approach that places the responsibility for the end-of-life management of a product, including its packaging and waste, on the producers or manufacturers. It also implies extended consumer responsibility, because it requires the active and correct participation of consumers for success, and in some cases including fees paid by consumers. Working together, the goal is to create a more circular economy by incentivizing producers to adopt more sustainable practices in the design, production, and end-of-life management of their products that minimize the volume of material that is landfilled, and supporting the behavioral changes and financial contributions needed for active participation by consumers.

In this section, each general upstream measure category contains all related specific Program elements (Figure 2.1-1 and Table 2.2-1), organized as follows: 1) description of the proposed measure and 2) rationale for the proposed measure, including relevant background information and context.

Table 2.2-1. Overview of Upstream Measures

Upstream Measure Policy Category	Associated Elements
Plastic Bottles	Single-use plastic water bottles Refillable plastic bottles Refillable beverage bottles Leashed lids on single-use plastic bottles Single-use plastic beverage holder rings
Foodware	Dine-in services Single-use to-go foodware Meal kit reuse and recycling Plastic tea bags Coffee/beverage pods Bioplastics ban City reusable foodware pilot projects
Textiles	Textile disposal policies Washing machine microfiber filtration
PFAS	--
Additional Products	Plastic bag clips Aerosol string (Stilly String™) Plastic sandbags Lighter-than-air balloons Single-use e-cigarettes Single-use printer cartridges
Working Group and Additional Studies	Zero waste in food or beverage facilities EPR program support
Outreach and Education	--

2.2.1 Plastic Bottle Policies

2.2.1.1 Single-Use Plastic Water Bottle Ban

2.2.1.1.1 Proposed Measure(s)

The City may consider prohibiting the distribution, offer, provision, and sale of water[9] in plastic bottles in the City, unless the bottles are considered reusable or refillable[10] by the consumer, the vendor, or the manufacturer.

[9] Pre-packaged water includes purified water or mineral water.
[10] Per SB 54 "reusable" or "refillable" or "reuse" or "refill," in regard to packaging or food service ware, means either of the following:
(2) For packaging or food service ware that is reused or refilled by a consumer, it satisfies all of the following:

The City may also consider implementing strategies to develop more drinking fountains and water bottle filling stations throughout the City (see Section 2.3.4 for a description of these stations). To assist City residents and visitors in locating these existing and new facilities, the City may publish online, via City websites and/or a mobile app, a map of all publicly accessible water fountains. The City may provide information such as a list of the fountains, with addresses and hours of public accessibility, and which locations have bottle fillers.

2.2.1.1.2 Rationale for Proposed Measure(s)

Single-use plastic water bottles have become ubiquitous due to their ease of use, transport, and availability: approximately 1 million plastic bottles are sold globally every minute (United Nations University 2023). Plastic bottles have been one of the top ten items collected on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988 (California Coastal Commission 2020) and were the third-most collected item worldwide during Ocean Conservancy's beach cleanups in 2021 (Ocean Conservancy 2022). It is estimated that in 2006, producing water bottles for American consumption required the equivalent of more than 17 million barrels of oil, not including energy for transportation; bottling water produced more than 2.5 million tons of carbon dioxide; and it took 3 liters of water to produce 1 liter of bottled water (Pacific Institute 2006). Bottled water is also very expensive: Los Angeles Department of Water and Power supplied approximately 160 billion gallons of clean water to 4 million people in the City in 2018, for less than half a penny per gallon. In comparison, the cost of bottled water is approximately $1.22 a gallon, almost 250 times more expensive than municipal tap water.

In 2018, the recycling rate of PET bottles and jars in the U.S. was 29.1% (USEPA 2023). When these bottles are recycled, the recycled material is used to produce textile polyester fibers as well as packaging, with bottle-to-bottle recycling increasing (Welle 2011).

There have already been several bans on single-use plastic water bottles in both Los Angeles and San Francisco. In 2014, San Francisco became the first major U.S. city to ban the sale of plastic water bottles on city-owned property, including San Francisco International Airport. The ban targeted events and vending machines on city property, aiming to reduce plastic waste generated at these public gathering places. In 2019, Los Angeles World Airports (LAWA) adopted a Sustainability Action Plan that called for phasing out the sale and provision of single-use plastic water bottles and development of a zero waste plan for LAWA. Since then, LAWA has adopted such a policy, which took effect on June 30, 2023. In 2022, the Los Angeles City Council passed the Zero Waste at City Facilities and Events Ordinance, which bans Contractors from providing water in plastic bottles or in disposable cups and requires them to provide hydration or bottle refilling stations.

A ban on single-use plastic water bottles would support the adoption of reusable alternatives, such as refillable water bottles made from materials such as stainless steel, glass, ceramic, paper cartons/boxes, aluminum bottles and cans or durable polycarbonate plastics. Single-use alternatives to single-use

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(A) Explicitly designed and marketed to be utilized multiple times for the same product.
(B) Designed for durability to function properly in its original condition for multiple uses.
(C) Supported by adequate and convenient availability of and retail infrastructure for bulk or large format packaging that may be refilled to ensure the packaging or food service ware can be conveniently and safely reused or refilled by the consumer multiple times.

plastic water bottles include materials that may or may not be recyclable, such as cardboard boxes/cartons, aluminum cans, glass bottles, and pouches, which can be made from a variety of materials including plastic films, aluminum foil, PET, and PP.

2.2.1.2 Refillable Plastic Bottles

2.2.1.2.1 Proposed Measure(s)

The City may consider requiring that 25% of all plastic bottles and jugs sold in full-line supermarkets and certain grocery stores[11] be refillable by a certain implementation date. This measure would include those plastic bottles and plastic jugs that are used as packaging for beverages of all types, fresh and prepared food, personal care products, and home care products.

The City may also consider requiring regulated supermarkets and grocery stores to establish a "refill convenience zone", which must contain a facility at which plastic bottles can be refilled with the purchased product (e.g., detergent, cleaning fluids, lotions, etc.). These facilities would be located within existing retail establishments or within a new retail establishment.

2.2.1.2.2 Rationale for Proposed Measure(s)

An estimated 12 billion plastic bottles containing home care products, personal care products, and beverages other than water are sold every year in California, and more than one-quarter of these (i.e., over 3 billion bottles) are not recycled but end up as trash or litter (Packaging Strategies 2020).

For refillable systems to be successful, consumer, supplier, and retailer coordination is necessary. A refill convenience zone requires a physical dispensing point for consumers. Many forms of bulk dispensing can already be found in dry goods sections of supermarkets. These "refill zones" would be located within existing grocery stores or new storefronts that would exist regardless of this specific measure. The proposed measure applies to certain grocery stores; as such it is not reasonably foreseeable that stand-alone new facilities would also be constructed to only provide refill capacity required under this measure. However, it is possible that economic forces in the future could lead to the development of such new stand-alone refill facilities, but this is speculative and outside the scope of this measure. Components of refill zones include the following:

- Dispensing Stations: Suppliers and manufacturers of branded goods may have their own bulk packaging and dispensers. Gravity fed dispensers are common for dry goods, while pump-based dispensers may be used for liquids.
- Containers: Customers may bring their own suitable reusable containers or bags, and refillable containers available for purchase are necessary for those who are buying products for the first time.
- Weighing/Labeling: Refilled goods are typically measured by weight, with scales and printers in the refill zones for customers to record product information and amount.

[11] Mandate would apply to a full-line supermarket. A full-line supermarket is one that sells dry groceries, canned goods, or non-food items and perishable items and has annual revenue ≥ $2 million, and grocery stores with facilities ≥ 10,000 square feet.

2.2.1.3 Refillable Beverage Bottles

2.2.1.3.1 Proposed Measure(s)

The City may consider requiring that 10% of all beverage bottles sold in full-line supermarkets and certain grocery stores[12] be refillable by a certain implementation date. For this policy, the City may also require that 10% of all beverage bottles filled in beverage bottling plants within the City be refillable by the established implementation date. Refill facilities would primarily be located within existing establishments under the assumption that existing beverage filling plants have the ability to support reuse through modernization and investment in "swing line" bottling infrastructure that provides operational flexibility between single-use and reuse bottling lines.

2.2.1.3.2 Rationale for Proposed Measure(s)

A study completed by the non-governmental organization Oceana estimates that a 10% increase in the share of soft drink beverages sold in refillable bottles could decrease marine plastic pollution by up to 22% (Schroeer et al. 2020). With its location adjacent to the Pacific Ocean and heavy tourist industry reliant on access to clean beaches, the City is interested in measures that could decrease marine pollution.

Refillable bottles are multiple-use bottles, made of glass, plastic, or aluminum, which are owned by beverage companies and returned by customers, and then cleaned, re-labeled, refilled, and sold again. Beverage companies report that they use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). A "return on the go" refill system is described below:

- Step 1: Consumers buy beverages in refillable bottles from grocery stores, supermarkets, convenience stores, etc.
- Step 2: After drinking the bottles' contents, consumers return the bottles to the shop where they bought them or another location. Drop-off points can be integrated into existing infrastructure (e.g., in grocery stores), or through new third-party systems.
- Step 3: Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or third-party firms. These bottles are delivered back to a centralized location where they are sorted, washed, and put back into the manufacturing process. Transportation and cleaning efficiency are determining factors for the overall environmental performance of refillable materials (Ellen McArthur Foundation 2019; Zero Waste Europe [ZWE] 2020).

Benefits of refill/reuse models include the following:

- Potential cost reductions: At scale, well-designed and successful reuse models may offer significant cost savings for manufacturers and drive efficiency in the supply chain. Passing cost savings on to consumers helps to incentivize customers to adopt reuse, while maintaining profit margins for manufacturers.

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[12] Mandate would apply to a full-line supermarket. A full-line supermarket is one that sells dry groceries, canned goods, or non-food items and perishable items and has annual revenue ≥ $2 million, and grocery stores with facilities ≥ 10,000 square feet.

- Stronger customer relationships: Subscription schemes for reuse create long-term customer relationships and boost brand loyalty and customer retention. Brand loyalty is carried out through potential deposit and reward schemes, and collection data directly informs businesses on effective practices.
- Lower emissions and plastic pollution: When well implemented, reusable packaging may reduce GHG emissions and plastic pollution compared to single-use plastic packaging. For example, reuse schemes can decrease life cycle emissions by 70% when compared to single-use plastic products (ZWE 2020).

Refillable systems show empty bottle return rates up to 95% (Schroeer et al. 2020). The "return on the go" model of refillable systems are successful in part due to deposit return schemes in which consumers pay a deposit per bottle for the first bottle or bottles they buy, and the deposit is paid back when the empty bottles are returned. Accordingly, under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers would store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles would be delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers.

2.2.1.4 Leashed Lids on Single-Use Plastic Beverage Bottles

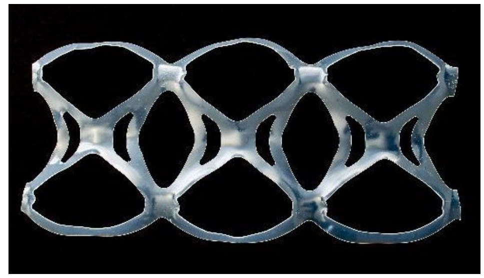
2.2.1.4.1 Proposed Measure(s)

To reduce the number of bottle caps and plastic lids littered and ensure that the caps and plastic bottles are collected and recycled together, the City may require that all lids on plastic beverage bottles sold within the City be leashed (i.e., attached) to the bottle.

2.2.1.4.2 Rationale for Proposed Measure(s)

Plastic bottle caps and lids are commonly made of HDPE (resin identification code 2) or PP (resin identification code 5), both of which are recyclable within the City. However, bottle caps and lids are commonly littered items. Bottle caps and lids have been the third-most collected item on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988, accounting for over 9% of all debris/litter collected (California Coastal Commission 2019). Plastic bottle caps were the fifth-most collected item during the Ocean Conservancy's coastal cleanups worldwide in 2022 (Ocean Conservancy 2022). Plastic beverage bottle makers are already manufacturing bottles with leashed lids to meet the European Union's Single-Use Plastics Directive, which states that single-use plastic bottles that "have caps and lids made of plastic may be placed on the market only if the caps and lids remain attached to the containers during the products' intended use stage," beginning in 2024 (European Union 2019).

2.2.1.5 Single-use Plastic Beverage Holder Rings



2.2.1.5.1 Proposed Measure(s)

The City may ban the manufacture, distribution, offer, provision, and sale of non-recyclable, plastic single-use beverage holder rings.

2.2.1.5.2 Rationale for Proposed Measure(s)

Single-use plastic beverage holder rings are commonly made of LDPE (resin identification code 4) and are not recyclable within the City. The USEPA requires that all plastic ring carriers be degradable according to certain testing requirements (Title 40, Code of Federal Regulations [CFR] Part 238[13]). However, the rings may take months to degrade when improperly littered and degrade into microplastics.

Alternatives to single-use plastic beverage holder rings include plastic circular handles/carriers that snap onto the top of cans. These products are often made of HDPE (resin identification code 2), which is recyclable within the City. These carriers are also reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City.

2.2.2 Foodware Policies

2.2.2.1 Dine-in Services

2.2.2.1.1 Proposed Measure(s)

The City may require all food or beverage establishments to provide only reusable foodware, including but not limited to straws, cups, bowls, plates, utensils, and beverage containers, for all dine-in consumption.[14] Condiments shall be available only via "bulk dispensers" or reusable containers and not individual disposable condiment packets/containers of any type. All disposable napkins provided to customers shall be made of unbleached paper with at least 60% post-consumer recycled content.

2.2.2.1.2 Rationale for Proposed Measure(s)

Single-use foodware items are not necessary for dine-in meals, contribute unnecessarily to the waste stream, and often cannot be recycled. They are also frequently littered: food wrappers and containers as well as cups, plates, and utensils have been the second- and fifth-most collected items, respectively, on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988 (California Coastal Commission 2019).

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[13] The USEPA defines a "Ring carrier" as a plastic ring carrier device that contains at least one hole greater than 1 ¾ inches in diameter which is made, used, or designed for the purpose of packaging, transporting, or carrying multi packaged cans or bottles.

[14] Ordinance 2022-0016, adopted by the Los Angeles County Board of Supervisors on April 19, 2022, amended Title 12 – Environmental Protection, Chapter 12.86 of the Los Angeles County code to enact various single-use plastic and EPS bans. It also requires full-service restaurants to use reusable foodware for dine-in customers.

Reusable/durable substitute products are made from a variety of materials including durable plastics, metals (e.g., stainless steel), ceramic, wood, stoneware, and glass. Each restaurant would be free to choose the specific reusable alternative materials to single-use foodware products, and it is anticipated restaurants would choose alternatives based on the following factors:

- Type(s) of food that the restaurant provides;
- Specific product (foodware, foodware accessory, etc.) to be substituted;
- Availability of and ease of access to specific replacement products; and
- Cost.

The requirement for restaurants to provide reusable foodware for dine-in services would necessitate that restaurants have the ability to wash and sanitize the foodware in accordance with California Health and Safety Code Section 114099. It is assumed that most restaurants other than fast food establishments already provide reusable foodware or a mix of reusable and single-use foodware and therefore already have the required washing equipment on site. For example, in a recent survey, 76% of Seattle, Washington restaurants had a commercial dishwasher onsite (Winsten et al. 2021). In 2017, approximately 40% (9,571) of restaurants in Los Angeles County were classified as “quick service” (Gase 2019). It is assumed that some of these restaurants located in the City may need to install commercial dishwashers or the three-sink system to wash reusable dishes.

2.2.2.2 City Reusable Foodware Pilot Projects

LASAN currently has a Reusable Foodware Microgrant Program that provides financial support to eligible food service establishments within the City to assist with the purchase of washable, durable, reusable foodware. With a priority on Clean Up Green Up community businesses, LASAN aims to provide equitable access to funding for those businesses to reduce pollution and improve their operations. Restaurants and other businesses in different parts of the City are welcome to apply and may receive some assistance. Applications will be accepted through April 2024 or until funds are exhausted. The City may consider establishing other pilot programs to assist in reducing plastic pollution, primarily by replacing single-use foodware with reusable products.

2.2.2.3 Single-Use To-go Foodware

2.2.2.3.1 Proposed Measure(s)

Single use foodware and foodware accessories often end up as trash or litter in the City. To reduce the input of these products into the City’s landfills and the environment, the City may consider requiring food or beverage facilities to do the following for to-go foodware and foodware accessories:

- Distribute, offer, provide, and sell only single-use to-go foodware (cups, lids, plates, bowls, utensils, containers) that are recyclable or compostable within the City.
- Food or beverage facilities that offer single-use to-go and delivery foodware must also provide returnable, reusable to-go and delivery foodware, and the returnable, reusable foodware must constitute 50% of all to-go and delivery foodware that is provided to customers by a certain implementation date.

- Distribute, offer, provide, and sell only single-use to-go foodware (cups, lids, plates, bowls, utensils, containers) that contain a minimum of 30% post-consumer recycled content.

2.2.2.3.2 Rationale for Proposed Measure(s)

There are numerous recyclable and compostable to-go foodware products that can be used to replace plastic to-go foodware products. Compostable alternatives include fiber or paperboard (cardboard) made from tree fiber (virgin or recycled); compostable plant fibers made of the refuse of corn, potatoes, rice, and other starch materials, such as bagasse products; wood; bamboo; and palm leaf. Recyclable to-go foodware includes PET or PP (resin identification codes 1 and 5, excluding any black plastics or films); metals, including aluminum and tin, and glass (LASAN 2023a). Reusable and durable substitute products for to-go and delivery foodware are made from a variety of materials including durable plastics, metals (e.g., stainless steel), ceramic, wood, stoneware, and glass.

A product made from post-consumer content is made from products that were purchased, used, and then recycled by a consumer. The recovered material (e.g., plastic water bottles, aluminum cans, paper) becomes feedstock for new products. Foodware with post-consumer content can be made from certain plastics, mostly resin identification codes 1, 2, and 5, aluminum, and paper/cardboard. Post-consumer content raw material degrades during each recycling and remanufacturing process. Therefore, most products are a combination of post-consumer content and virgin materials.

The City anticipates that the requirement to provide reusable to-go and delivery foodware would lead individual food and beverage facilities to create their own reusable foodware take-back programs or to the development of multi-facility (i.e., numerous food or beverage facilities developing a system to be shared across vendors) or third party take-back programs. Some food or beverage facilities may need to install commercial dishwashers or the three-sink system to be able to wash reusable dishes in accordance with California Health and Safety Code (CHSC) Section 114099.

2.2.2.4 Meal Kit Reuse and Recycling

2.2.2.4.1 Proposed Measure(s)

The City may prohibit the sale of delivery meal kits in the City unless the meal kit manufacturers or providers establish and fund take-back or reuse programs for the non-recyclable components of their meal kits, including but not limited to, gel or ice packs and insulating materials. The take-back and reuse programs would be required to be designed and approved by organization(s) with take-back or EPR expertise.

2.2.2.4.2 Rationale for Proposed Measure(s)

Meal kits are pre-portioned, individually packaged ingredient boxes delivered to customer homes. Meal kits offer convenience in meal curation and preparation time, with a marketed advantage of low food waste. However, because meal kits contain perishable items (including dairy and meat), necessary temperature-regulating packaging (gel packs) can result in high levels of related packaging waste.

Food waste occurs at every stage of the value chain and can greatly alter the overall impact of any meal, and this fluctuation is evident in the comparative literature between grocery stores and meal kit deliveries. Retail and consumption stages of domestic food production included 56 million metric tons of food waste in 2016. Since 1960, food waste levels have tripled in the U.S. (USEPA 2021). Meal kits, because of the pre-portioned sizes, may reduce food waste (Schuster 2022).

Home delivery meal kits contain significant amounts of packaging, much of which is not recyclable, including the following:

- Freezer packs in meal kits are typically made from a superabsorbent polymer sodium polyacrylate. Superabsorbent polymers do not readily degrade in the environment but are not shown to bioaccumulate (HERA Project 2014). Sodium polyacrylate has a high potential to clog drains and sewers.
- Insulation and liners support a critical need for meal kit deliveries to stay at food-safe temperatures during delivery. Corrugated liners, honeycombed paperboard, denim fill (#60 cotton) and insulation panels such as ClimaCell, a cellulose-based foam, have all been introduced as alternatives to polystyrene or other insulating materials that line a meal kit box. EPS foam is an inexpensive insulator/liner, but due to environmental concerns is increasingly replaced with fiber-based alternatives. Meal kit companies also may use reflective insulation in meal kits, this includes metallic bubble wrap: a multi-layer combination of plastic films (typically PET) and aluminum foil or another reflective layer. The addition of a thin metal layer can make recycling metallic bubble wrap difficult, as separating different layers of material may only be done in specialized recycling facilities. This product type is not recyclable in the City.
- Plastic film and bags made from LDPE (resin identification code 4) are not accepted in City recycling.
- Small plastic items (bottles, lids less than 3 inches in size) include containers and jars typically made of PET (resin identification code 1) and lids made from PP (resin identification code 5); these plastic types are among the materials accepted in the City's recycling system. However, due to the smaller sizes of single-serving ingredient packaging found in kit meals, plastic elements (bottles, lids, spice bags) under 3 inches can be difficult to capture in MRFs, regardless of plastic type.

2.2.2.5 Plastic Tea Bags

2.2.2.5.1 Proposed Measure(s)

To reduce exposure of people to microplastics, and eventual deposition of microplastics in wastewater, the City may prohibit the distribution, offer, provision, and sale of tea bags constructed of, or containing, plastic components.

2.2.2.5.2 Rationale for Proposed Measure(s)

Tea bags can be made of a variety of materials including filter paper, food-grade plastic, cotton, or silk. Paper tea bags are made from wood and vegetable fibers including wood pulps, abaca plant fibers, which come from a species of banana (sometimes referred to as Manila hemp), and hemp. Plastic tea bags can be made of nylon, PET, and the bioplastic polylactic acid (PLA). Some tea bags are reusable, made of materials such as muslin cotton, and allow consumers to refill and adjust the amount of tea leaves used.

Many tea brands use a heat-sealing process to seal individual tea bags. This can be done using a conventional plastic, e.g., PP, or a bioplastic, PLA. Tea bags that are heat-sealed using conventional plastic or bioplastic would not be allowable under the Program, as they consist of plastic components. Other methods used to seal tea bags, which do not require conventional or bioplastic, include sewing them shut using string, which is often made of organic cotton, or closing them using a metal staple.

The packaging of individual tea bags can also vary. Tea bags are often packaged within a sealed envelope, often lined or containing a small amount of plastic which is used in the sealing process. Some tea brands do not package the individual tea bags in envelopes but will package the entire box of tea bags in a plastic film. Other packaging options include using metal tins to seal the individual tea bags inside. These packaging materials separate from the tea bags themselves, are not considered in this analysis. The Program would only apply to the individual tea bags, which consumers steep in hot water.

Currently, the City allows tea bags to be disposed of in green bins for compost, with several restrictions. Tea bags are accepted if they are paper-based and have a cotton string, including the attached paper tag. Any staples used to attach paper tags to strings need to be removed prior to composting. If the tea bag is made of plastic mesh, then it would not be allowed in the City green bins. Additionally, any adhesives used to heat seal paper tea bags need to be cut off prior to composting. The tea bag wrapper can also be placed in the green bin if it is made of paper.

According to several studies, steeping plastic tea bags releases large amounts of plastic particles into a cup of tea. One study found that plastic tea bags, made from nylon and PET, leach up to 3.1 billion nanoplastics and 11.6 billion microplastics into a single cup of the beverage. These levels are several orders of magnitude higher than plastic loads reported in other foods (Hernandez et al. 2019).

Many tea brands that advertise that their tea bags do not contain plastic sell tea bags that are made from PLA or use PLA in the sealing process for the tea bags. PLA would not be an acceptable replacement product under the Program. Replacement materials for plastic in tea bags under the Program could include paper (wood and vegetable fibers) and cotton. Additionally, loose leaf tea and a reusable diffuser could be used in the place of plastic tea bags.

2.2.2.6 Beverage Pods

2.2.2.6.1 Proposed Measure(s)

The City may prohibit the distribution, offer, provision, and sale of single-use plastic beverage pods, also referred to as capsules, unless the manufacturers and/or providers have a take-back, recycling, or reuse program.

2.2.2.6.2 Rationale for Proposed Measure(s)

According to market research, in 2020, 35% of U.S. households owned single-serve beverage pod machines (Lazarevic 2023). Beverage pods are available in a range of designs and materials. Specifically, coffee pods are constructed to be impervious to oxygen, as coffee spoils once exposed to air. This necessitates designing and sealing a coffee container for a longer shelf life and can present a challenge for suitable replacement materials.

Single-use beverage pods are made from a combination of plastics (usually PP), aluminum, or materials advertised as compostable such as paper and bioplastics. Many of the components of coffee pods, based on materials of individual components alone, are recyclable. However, due to the difficulty in separating the different materials from the spent coffee grounds, and the current inability for MRFs to process the pods, regardless of material, single-use beverage pods end up in landfills from the City's waste stream. Despite recyclability claims made by producers of beverage pods, most MRFs are not equipped to sort items smaller than 3 inches and therefore are not separated to a recycling stream.

Lack of convenience is also a barrier to effective beverage pod capture and recycling. Typically, users do not empty out the spent coffee grounds from the pod but may still place it in the recycling bin, which can contaminate surrounding clean recyclable materials. The continued need to separate the components that make up the pod represents one of the main challenges of coffee pod disposal (Marinello 2021).

Single-use beverage pods that are advertised as compostable are made of a bioplastic ring and typically a mesh style pod that holds the grounds. They are not compostable within the City and are within the definition of plastic used for this analysis.

Aluminum is used in both single-use beverage pods and more durable refillable beverage pods. Single-use aluminum capsules may have plastic lining and have a foil lid. Aluminum is 100% impervious to oxygen, making it a desirable material to seal coffee pods for a longer shelf life. It is also, theoretically, an infinitely recyclable material. In the recycling process, these pods, despite being made from aluminum, still require a process by which plastic components need to be removed from the metal.

Reusable pods are made from durable plastics or aluminum and are meant to be filled individually with fresh coffee grounds purchased separately by the user and are therefore not included in this measure.

Because traditional recycling pathways for beverage pods are unrealistic given the state of municipal recycling capabilities throughout the U.S., the establishment of an EPR program for plastic beverage pods would create an opportunity for plastic beverage pods to avoid being landfilled. EPR programs for beverage pods may establish mail in-options, drop-off points within existing infrastructure (like grocery stores), or separate collection points operated individually or collectively.

2.2.2.7 Bioplastics Ban

2.2.2.7.1 Proposed Measure(s)

The City may prohibit the distribution, offer, provision, rental, and sale of single-use foodware and food-contact products made partially or wholly from bioplastics.

2.2.2.7.2 Rationale for Proposed Measure(s)

Bioplastics are plastics that are made wholly or in part from a non-petroleum, renewable biomass source, such as sugarcane and corn. Many of these products are advertised as biodegradable, compostable, and/or recyclable, but these products are not compostable or recyclable within the City. The term 'bioplastic' refers to either the bio-based origin of a plastic or the biodegradable character of a plastic, which are not the same (Van den Oever et al. 2017):

- Bio-based: product that is wholly or partly derived from biomass, which is a material of biological origin, excluding material embedded in geological formations or fossilized.

- Biodegradable: materials that can be broken down by microorganisms, bacteria or fungi, into water, naturally-occurring gases like carbon dioxide and methane, and biomass. The biodegradability of a material depends on environmental conditions, including temperature and presence of microorganisms, oxygen, and water. The biodegradability of a plastic product varies depending on the environment (Van den Oever et al. 2017).

Bioplastics are one of several major categories of materials that can be used to manufacture foodware that is marketed as compostable. The most common bioplastic used in foodware and food-contact products is PLA, which comprised over 20% of global production of bioplastics in 2022 (European Bioplastics 2023). PLA is made via the fermentation of a carbohydrate (e.g., sugarcane) by bacteria. Other bioplastics include the following materials: bio-based polyethylene, bio-based PET, bio-based polytrimethylene terephthalate, bio-based PP, PHA, polybutylene succinate, starch blends, and polybutylene adipate terephthalate. Bioplastics can be used to make entire products (e.g., clear drinking cups that can be almost indistinguishable from some traditional plastics, like PET) or in combination with other materials (e.g., a PLA coating inside of a paper cup) (UCLA Luskin Center 2020).

PHA is a type of bioplastic made by bacteria and microorganisms from organic materials. PHB is the most common type of PHA bioplastic. PHB is a biocompatible[15] and non-toxic polymer that is biosynthesized and accumulated by a number of specialized bacterial strains (McAdam et al. 2020). PHB can be produced by many different microorganisms, with the most common based on bacterial fermentation by heterotrophs, or organisms that consume other plants or animals for energy (non-primary producing). PHB can also be produced using cyanobacteria, which are photosynthetic bacteria known as blue-green algae, instead of microorganisms. Cyanobacteria can synthesize PHB from the inputs of carbon dioxide (CO_2) and sunlight and do not require organic carbon sources. Cyanobacteria also do not require agricultural land to produce feedstock like PLA bioplastics (Rueda et al. 2023). A characteristic of PHB material is its biodegradability, which occurs within a reasonable timescale when in contact with degrading microorganisms in biologically active environments like soils, fresh water, and aerobic and anaerobic composting (McAdam et al. 2020)[16].

Bioplastic products can be certified as commercially compostable (i.e., compostable in an industrial facility) as well as home compostable[17]. However, bioplastics cannot be composted or recycled at City-contracted facilities, and therefore, all bioplastics regardless of certifications, end up in the City's waste stream.

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[15] This term refers to the ability of a material to be compatible with living organisms, and is used when evaluating materials that do not cause any adverse effect when they come into contact with living organisms, such as proteins, biological cells, and tissues.

[16] During scoping, Newlight Technologies, Inc., a California-based manufacturer of PHB, identified that PHB is "*a compostable polymer, it is natural, home compostable, and does not persist in the environment.*"

[17] PLA/PHB-blend samples degraded fully under at home-composting conditions, which were simulated at 28°C degrees Celsius (Fogašová et al. 2022). The ASTM has standards for commercially compostable products and the Biodegradable Products Institute is a third party that certifies commercial compostability of products, but no equivalent for home compost standards has been established in the U.S. TUV AUSTRIA has a certification for at home compost (OK compost HOME) which is based on several standards, including Australia's AS 5810 (2010), France's NF T 51800 (2015), and Europe's prEN 17427 (2020) (TUV Austria 2023). The TUV OK compost HOME signifies that a product is certified to compost in a home compost environment in under a year.

Bioplastics can pollute plastic recycling streams because they can be hard to tell apart from conventional plastics (UNEP 2021). For example, PET has a relatively high recycling rate, and many PLA products are difficult to distinguish from PET. This document does not take into account any at-home composting done by individuals.

It is anticipated that replacement products for single-use bioplastic foodware and food-contact products would include reusable products as well as products that could be composted or recycled at City-contracted facilities, which could include a variety of replacement product materials. Additionally, reusable foodware made of bioplastic could also be a replacement product.

The following list of potential replacement products for single-use bioplastic foodware and food-contact products are made from materials that can either be recycled or composted at City-contracted facilities (LASAN 2023a):

- Aluminum foil: recyclable (non-food-soiled products)
- Bagasse: compostable (products without coatings or linings)
- Bamboo/bamboo leaf: compostable and/or reusable
- HDPE: recyclable (non-food-soiled products) and/or reusable
- Palm leaf: compostable
- Paper/paperboard: compostable and/or recyclable (non-food-soiled packaging)
- PET or PETE: recyclable (clean, non-food-soiled products)
- PP: recyclable (clean, non-food-soiled products) and/or reusable
- Wheat fiber/straw: compostable and/or reusable
- Wood: compostable and/or reusable.

Reusable foodware alternatives to single-use bioplastic products include the following: durable/reusable plastics, glass, wood, ceramic, stainless steel, and other reusable bioplastics.

2.2.3 Textile Policies

2.2.3.1 Textile Disposal Policies

2.2.3.1.1 Proposed Measure(s)

The City may implement the following measures to ban manufacturers and retailers from disposing of apparel and textiles as trash:

- Prohibit retailers, distributors, warehouses, and fulfillment centers in the City from disposing as trash, destroying, or otherwise rendering unusable, returned apparel, including shoes and accessories. The City would require these entities, individually or collectively, to establish and fund a take-back, marketing, and/or donation system that would be required to be designed and approved by organization(s) with take-back/ EPR expertise.

- Prohibit textile and clothing manufacturers, clothing and textile designers, “cut and sew” and related companies from disposing as trash, destroying, or otherwise rendering unusable, unused, unsold, excess textiles and/or portions of apparel and apparel, and require these entities, individually or collectively, to fund a take-back, marketing, and/or donation system that would be required to be designed and approved by organization(s) with take-back/ EPR expertise.
- Prohibit online and “brick and mortar” retailers, wholesalers, and distributors in the City from disposing as trash, destroying, or otherwise rendering unusable, returned merchandise and require these entities, individually or collectively, to fund a take-back, marketing, and/or donation system that would be required to be designed and approved by organization(s) with take-back/ EPR expertise.

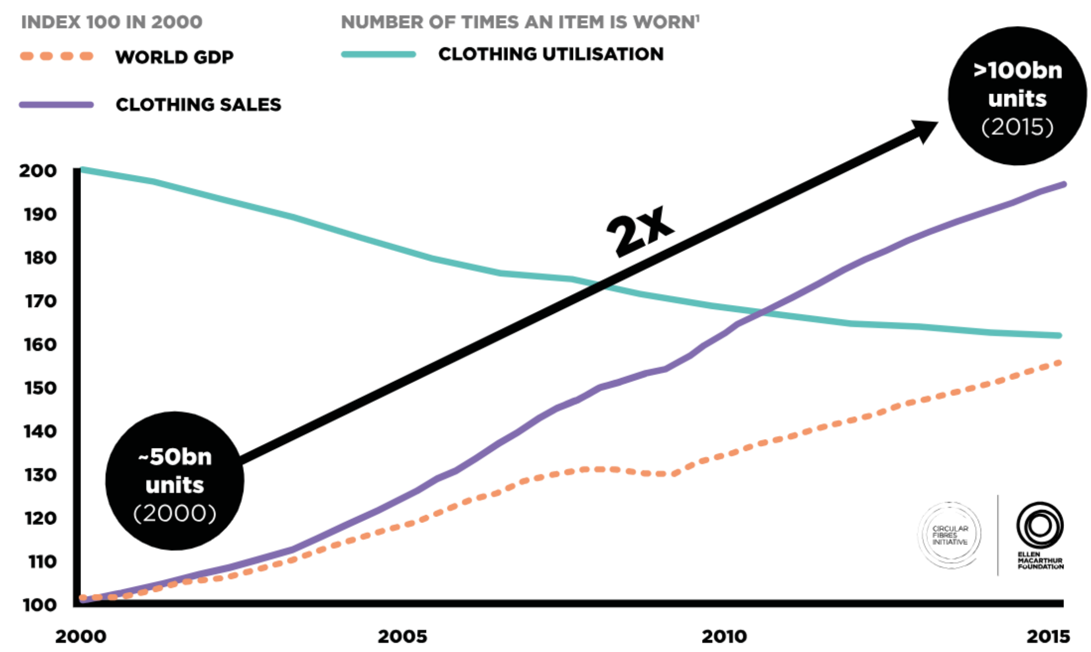
2.2.3.1.2 Rationale for Proposed Measure(s)

Synthetic textiles are the most commonly manufactured fabrics[18], and the majority of textiles are landfilled. As shown in Figure 2.2-2, global clothing sales have doubled from approximately 50 billion units in 2000 to over 100 billion units in 2015. Alongside this increase, clothing utilization (i.e., the average number of times a garment is worn before it is discarded) has decreased from approximately 200 to 160 (Ellen MacArthur Foundation 2017). These trends are driven in part by fast fashion, where production and consumption practices of high turnover rates with low quality materials have come to dominate the market (Moazzem et al. 2021). Fast fashion practices drive waste at both the pre- and post-consumer levels, with higher quantities of clothing produced and discarded. The increase of lower quality textiles makes them less desirable for reuse in the sorting/grading market (Norup et al. 2019).

In 2018, over 11.3 million tons of textiles were disposed of in landfills in the U.S., accounting for almost 8% of all landfill waste, and almost double the amount disposed of in 2000 (USEPA 2022c). The USEPA estimated that the amount of clothing and footwear recycled in 2018 was 1.7 million tons, amounting to a 13% recycling rate nationally (USEPA 2018).

Textiles are the 6th most prevalent waste category in California, with apparel and other textiles accounting for 2.5% of the total tonnage of waste produced in 2021, and accessory goods including shoes, purses, and belts accounting for an additional 0.5% (CalRecycle 2022). This amounts to a combined total of over 1.1 million tons of textiles in the state’s waste stream every year (CalRecycle 2022). Californians spend more than $70 million annually to dispose of used textiles (CalRecycle 2019), while approximately 95% of textiles are in a condition to be reused or recycled (CalRecycle 2022).

[18] Petrochemical-based synthetic fibers (polyester, nylon, elastane, acrylic, polyamide, and spandex) make up approximately 66% of all textile production, and of petrochemical-based clothing, polyester is the most common textile material manufactured (Palacios-Mateo et al. 2021).



Source: Euromonitor International Apparel & Footwear 2016 Edition (volume sales trends 2005–2015); World Bank, World development indicators – GD (2017)

Figure 2.2-2. Global Clothing Sale Trends

It has been estimated that between 10% and 18% of textiles enter the global waste stream at the production level, including estimates of excess and overstock (Roberts et al. 2023; Ellen McArthur Foundation 2017; GreenStory 2021). The disposal of unused goods, whether returned or ultimately unsold, has the most negative impact of any textile in the production chain as the input materials and resources used to produce the item are never offset by actual use.

Reasons for pre-consumer product destruction include the following:

- consumer behavior (fast fashion driven);
- business model (forecasting, bulk-purchasing, overproduction);
- product characteristics (low quality, obsolescence);
- profit margins (retail return costs);
- other economic incentives;
- brand integrity; and
- liability concerns (Roberts et al. 2023).

Of all textiles discarded at the residential, commercial, and industrial level, approximately 85% are discarded in landfills, and 15% are initially diverted to thrift stores and other collection points. Of this 15%, 20% is resold and once the other 80% is sorted and graded, 30% is recycled to industrial rags, 20% is recycled into shoddy/stuffing, 5% is landfilled, 45% is utilized in the exported reuse and resale market, and less than 1% is used for recycling into new fibers (Shumacher and Forster 2022).

By attributing the responsibility of unsold and excess textiles to producers via an EPR model and requiring reuse and recycling, there should be a shift away from disposal of usable textiles. Waste stream levels would be impacted by numerous factors, including the following:

- Specific tonnage of reusable textiles to be diverted from the solid waste stream at the pre-consumer level;
- Alternative needs for typically destroyed textile goods;
- Material of the goods that are diverted;
- Availability of and ease of access to textile collection infrastructure;
- Cost; and
- Systems available to promote reuse and to a lesser degree, recycling of textiles.

2.2.3.2 Washing Machine Microfiber Filtration

2.2.3.2.1 Proposed Measure(s)

The City may require that all clothes washers sold as new in the City by a certain implementation date be equipped with a microfiber filtration system with a mesh size of 100 microns or smaller. The City may also consider working with other relevant departments to develop a rebate program to retire washers without these filtration systems or to retrofit them with necessary filtration.

The City may require single-family homes, multi-family complexes (i.e., those with greater than two units), and commercial laundromats to install microfiber filtration systems with a mesh size of 100 microns or smaller to existing washing machines by a certain implementation date.

2.2.3.2.2 Rationale for Proposed Measure(s)

Microfibers are very short textile fibers that measure under 5 millimeters long; not all microfibers are plastic, but synthetic-based microfibers are a type of microplastic. Synthetic textile production results in microfiber release during use and laundering. The ultrafine thread that composes synthetic microfiber goods include performance wear, other clothing, bedding, and other textiles that make up some of the 5.4 metric tons of synthetic textiles purchased in California between 2008 and 2019, which has coincided with a 26% increase in microfiber shedding (Geyer et al. 2022). Microfibers commonly found in aquatic environments include polyester, polyethylene, acrylic, and elastane (Boucher and Friot 2017). Synthetic microfibers are now one of the most abundant types of microplastics found in the natural environment (Geyer et al. 2022).

Washing textiles is a major contributor of microfibers into the environment, with estimates that one average household load of laundry can shed thousands to millions of microfibers (Erdle et al. 2021). Microfibers can enter the environment directly from washing machine effluent via untreated wastewater, and indirectly through treated wastewater and biosolid application in terrestrial environments (Figure 2.2-3; Erdle et al. 2021).

In California, 95% of microfibers are diverted from waterways via treatment of wastewater at municipal facilities (Geyer et al. 2022). However, microfibers are not filtered out of biosolids at wastewater treatment plants. In the state, the release of microfibers occurs through mainly terrestrial environments: in 2019, terrestrial application of biosolids accounted for 1.6 kilotons of synthetic microfibers released into the environment in California (Geyer et al. 2022). The majority of microplastics are removed in the preliminary and primary treatment stages of wastewater treatment. New filtration technologies have been shown to remove an additional 98-99% of microparticles in final effluent. However, microfibers currently captured in the sludge produced at wastewater treatment facilities continue to enter the environment through terrestrial application in the form of biosolids (Erdle et al. 2021). An increase in wastewater treatment efficiency would likely result in a greater amount of biosolids, and a corresponding increase to microplastics released into the environment through terrestrial applications (Geyer et al. 2022). Diverting microfibers from waterbodies to land shifts rather than reduces microfiber pollution. Once in terrestrial systems, microfibers can also re-enter waterbodies via runoff or wind transport and eventually reach marine ecosystems downstream (Erdle et al. 2021; Geyer et al. 2022; Liu 2022). Synthetic microfibers in the environment are of concern due to additive chemicals (e.g., treatments and dyes), bioavailability to organisms, and toxicity.

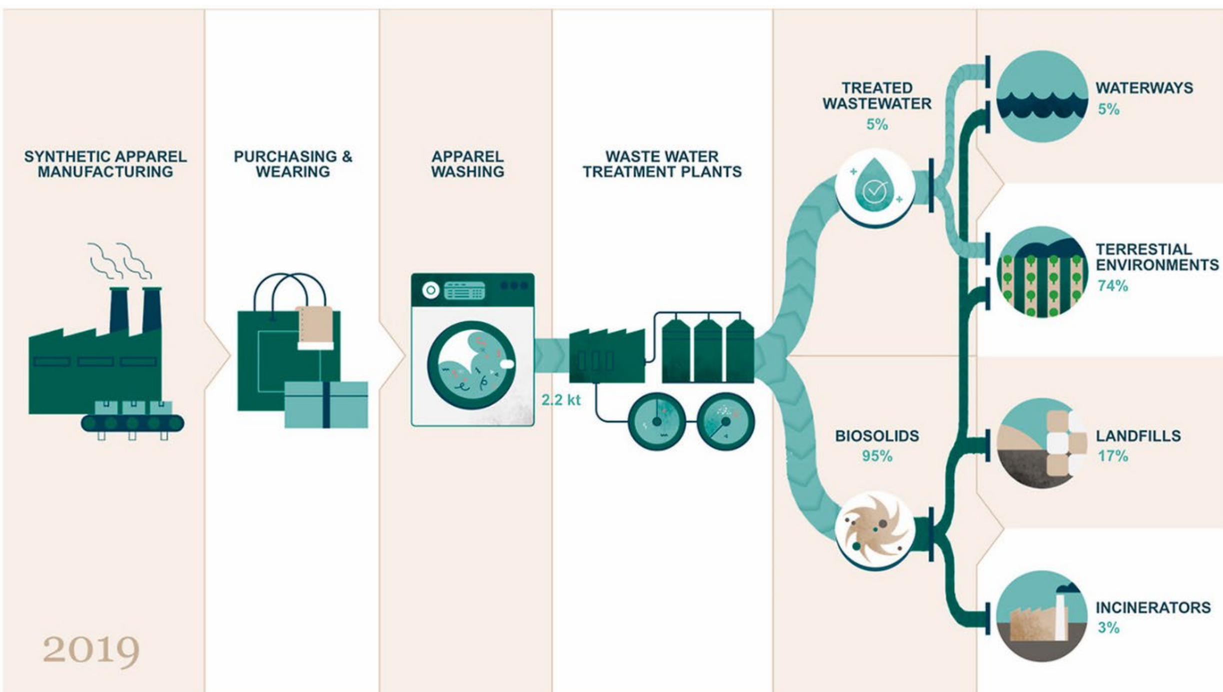


Figure 2.2-3. Microfiber Pathways into the Environment

Once microfibers make their way into the environment, they are difficult to remove; microfiber filters affixed to individual washing machines reduce the flow of microplastics into terrestrial environments, as the microfibers are removed before reaching wastewater treatment plants. Individual behavior such as washing clothing in cold water, using a front-loading washer, and detergent choices can also influence microfiber release, although no single method shows complete removal of microfibers (Erdle et al. 2021).

Microfiber filtration systems[19] available include the following:

- External Filter Systems: These systems use a physical barrier with very small pore sizes to capture microfibers, which can pass through larger barriers. Additional filtration materials include activated carbon, synthetic polymers, and nano-coated filters that capture microfibers.
- Commercial Filter Systems - Commercial filtration systems are designed for industrial levels of laundry and may already include some form of microfiber capturing filtration. Microfiber filtration systems at this scale are typically in-line installations, as individual filters would not be feasible. The filtration methods are the same as other technologies used. Filtration systems at this level tend to be highly efficient at capturing particles within size range and may require less maintenance than individual home filters.

Maintenance of microfiber filters is required, and collected microfibers must be properly disposed of to avoid reentering the water or air. Many of the filter companies on the market have instructions to collect microfibers in a closed container, which are then landfilled. Other brands of microfilters provide a cartridge exchange program where spent filters are sent back to the manufacturer where they are cleaned and refurbished for reuse. The microfibers are not removed completely from the environment, but effectively kept out of waterways, reducing the levels of microplastics being released specifically into aquatic environments. The lifespan of many of these reusable filters is also not known and will eventually require disposal. One existing manufacturer reports that the cartridges can be used up to six times (approximately 120 loads of laundry equivalent to a lifespan of roughly 5 months based on a household average of 300 loads of laundry per year) (Martinko 2020).

2.2.4 PFAS Ban

2.2.4.1 Proposed Measure(s)

The City is considering banning or limiting PFAS from some categories of products and uses that are not currently covered by state law (see Appendix A, Section 1.1.5 for a summary of state laws pertaining to PFAS), including, but not limited to the following:

- Additional food contact items not covered by AB 1200 (e.g., containers, cups, wraps/wrappers, snack bags (such as those to hold French fries) and boats/or trays);
- Household products such as polishes, waxes, paints, cleaning products, cookware;
- Electronics;
- Expand limitations to PFAS contained within carpets, furniture, and rugs;
- Nonstick cookware; and

[19] Other methods of reducing microfibers include in-washer methods, such as placing clothing in washing bags that capture microfibers, have been shown to reduce microfiber shedding by 50 to 78% (Napper 2020). This method does not require any permanent installation or continued maintenance of a washing machine unit.

– Molded plastic made of fluoropolymers[20] or HDPE[21].

2.2.4.2 Rationale for Proposed Measure(s)

PFAS[22] are a large and diverse group of man-made chemicals that repel water, grease/oil, and dirt and are resistant towards aggressive chemicals as well as physical strain (i.e., they are durable). These properties have made PFAS extremely useful in industrial and commercial products such as coatings on metal, paper, stone, leather, and textiles, in plastics like Teflon, for hard chrome plating, as lubricants, oils and waxes, dispersion agents in plastics, paints, pesticides, and even in pharmaceuticals. They have been used in industry and consumer products since Teflon was first discovered in 1938.

There are thousands of different PFAS, some of which have been more widely studied and used than others. The two most well-known chemicals in the PFAS group are perfluoro-octane sulfonic acid (PFOS) and perfluoro-octanoic acid (PFOA). Little attention was paid to this group of chemicals until about 20 years ago when PFOS and PFOA were discovered to occur widely in biota and humans. PFOS and PFOA, which belong to a group of perfluoroalkyl acids (PFAAs) have been found to be toxic, as have other PFAAs and precursors of PFAAs (Rosenmai et al. 2014). In recent years, PFOS and PFOA have been replaced with other PFAS in the U.S. (USEPA 2022b).

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[20] Fluoropolymers are a class of PFAS that are widely used in the semiconductor and electronics industries, in addition to the chemical manufacturing of other plastics with desirable qualities including high durability to corrosion, heat, chemicals, and ultra-violet (UV) light. The use of fluorinated surfactants is especially widespread in the manufacturing of plastics and rubber. Plastic goods can be produced through a process of injection molding, where the feedstock material is processed and shaped into a final product. Fluoropolymers are used throughout this process as mold release agents, polymer processing aids, anti-blocking agents for rubber, and as curatives in the production of plastic. The presence of PFAS in molded plastic goods and materials is the result of either post-manufacturing fluorination process or an "in-mold" extrusion process. According to the Office of Science and Technology Policy (OSTP), there are currently no identified alternatives for these industrial uses of fluoropolymers in the molding of plastics and rubber (OSTP 2023). While not intentionally added at any step, PFAS present in fluorinated packaging is an emerging area of study. It has not been clearly demonstrated that fluoropolymers that are produced by emulsion polymerization can be produced without the use of PFAS as processing aids (Lohmann 2020).

[21] HDPE is frequently fluorinated to make plastic containers less reactive and dissolvable. Fluorination surface treatment improves the resistance of polyethylene to a variety of organic chemicals. Direct fluorination involves exposure of plastic to a fluorine-inert gas mixture, which in turn creates a fluorine-modified layer on the plastic surface; this process allows for cheaper production of durable plastics (Whitehead 2023). In a study conducted by the USEPA, perfluoroalkyl carboxylic acids were measured in high levels in HDPE containers containing pesticides. Those containers that were exposed to a variety of typical conditions showed the increased leaching of PFAS into pesticides that would then be transferred to a terrestrial environment (USEPA 2022a). An additional study showed a variable range of HDPE containers with characteristics that readily allow PFAS to leach, and specifically identified post-mold fluorinated containers to contain the maximum values recorded within the studied products (Vitale 2022).

[22] The OECD defines PFAS as "fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any Hydrogen/Chloride/Bromide/Iodide atom attached to it), i.e., with a few noted exceptions, any chemical with at least a perfluorinated methyl group ($–CF_3$) or a perfluorinated methylene group ($–CF_2–$) is a PFAS" (OECD 2021).

The State of California defines PFAS as "a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom."

PFAS are of concern because they do not break down in the environment; can move through soils and contaminate drinking water sources; bioaccumulate in fish and wildlife; and have been shown to cause adverse health effects in animal studies (Centers for Disease Control and Prevention [CDC] 2022). PFAAs enter the environment via direct routes from uses where PFAAs are the main ingredient such as PFOA as a formerly used dispersion agent in Teflon or PFOS in hard chrome plating. PFAAs can also enter the environment via other sources (PFAA precursors). These include perfluorinated compounds that are taken up from food and transformed in the body into PFAAs. Other routes include residuals or impurities of PFAAs in other PFAS-containing products, such as fluorinated food contact material coatings.

PFAS can be present in our water, soil, air, and food, as well as in materials found within homes or workplaces. PFAS are known components or contaminants in the following (USEPA 2022b).

- Drinking water – public drinking water systems and private wells
- Soil and water near waste sites
- Fire extinguishing foam
- Manufacturing or chemical production facilities
- Food – fish from contaminated water or dairy products from livestock exposed to PFAS
- Food packaging – such as grease resistant paper, microwave popcorn bags, butter wrappers, pizza boxes, etc.
- Household products and dust – common component of stain and water-repellent products applied to carpets, upholstery, clothing, and other fabrics; used for non-stick cookware, etc.
- Clothing treated to add hydrophobic and hydrophilic properties that allow them to resist water, oils, and stains (e.g., outdoor clothing, menstrual underwear, etc.)
- Personal care products – some shampoos, dental floss, and cosmetics
- Biosolids – fertilizers can be contaminated and affect ground and surface water as well as animals grazed on pasture where contaminated fertilizer has been applied.

People are typically exposed to PFAS through food, food packaging, consumer products, house dust, and drinking water. Major sources of PFAS in drinking water are fire training and response sites, industrial sites, landfills, and wastewater treatment plants and biosolids. The potential for human exposure to PFAS from drinking water is of particular concern because once PFAS enter groundwater, they are easily transported large distances. Because PFAS do not break down, their concentrations continue to increase and can contaminate drinking water wells, lakes, and rivers (SWRCB 2023a). As of March 2023, maximum contaminant levels (MCLs[23]) for PFAS in California have not yet been established. The development of standards for PFOA, PFOS, and other PFAS are priorities for the Division of Drinking Water. These are discussed in greater detail in Section 3.10, Hydrology and Water Quality.

The California Environmental Protection Agency (CalEPA) has been coordinating with the USEPA and other governmental agencies over PFAS issues and concerns since 2012 (SWRCB 2023b). The Office of

[23] The MCL is the maximum level allowed of a contaminant in water that is delivered to any user of a public water system.

Environmental Health Hazard Assessment (OEHHA) has been evaluating the health effects of PFAS compounds. Numerous state laws aimed at reducing or removing PFAS from the supply chain as well as reducing exposure of end users have been passed in recent years. Some of these bills form the basis of additional or more restrictive actions that could be proposed by the City (see Appendix A, Section 1.1.5 for a summary of state laws pertaining to PFAS).

2.2.4.2.1 Alternatives to PFAS

Although functional alternatives to PFAS are available, phasing these products or components out requires additional consideration. It cannot be assumed that alternatives will be less harmful to human health and the environment than the PFAS they are replacing. Alternatives analysis for a given use should be conducted using established processes and best practices to identify, evaluate, compare, and select safer alternatives to chemicals of concern based on hazards, performance, and economic viability. Reasonable alternatives are described below for a number of PFAS use categories. Where possible, information about the known hazards or fate of these alternatives is included.

An international group of researchers has proposed phasing out the use of PFAS according to whether the chemicals provide properties that are necessary for health and safety (Cousins et al. 2019). The phase out recommendations are based on the example of the Montreal Protocol, which phased out the use of ozone-depleting chlorofluorocarbons except for certain essential uses. The concept of "essential uses" hinges on the use being "necessary for health, safety, or is critical for the functioning of society" and that "there are no available technically and economically feasible alternatives". For example, some products containing PFAS are essential and have no substitutes (e.g., perfluorosulfonic membranes that confer flame resistance to protective clothing worn by workers in the oil and gas industry). Cousins et al. (2019) considered the definition of essentiality for several categories of PFAS uses. Their definitions and examples and several examples are provided in Table 2.2-2.

Table 2.2-2. Three Essentiality Categories to Aid in the Phase-out of PFAS

Category	Definition	Examples
Non-essential	Uses that are not essential for health and safety, and the functioning of society. The use of substances is driven primarily by market opportunity.	Dental floss Cosmetics and personal products Ski waxes Nonstick coatings for kitchenware
Substitutable	Uses that have come to be regarded as essential because they perform important functions, but where alternatives to the substances have now been developed that have equivalent functionality and adequate performance, which makes those uses of the substances no longer essential.	Most uses of aqueous film-forming foams Certain water-resistant or repellent textiles (e.g., surf shorts) Food packaging
Essential	Uses considered essential because they are necessary for health or safety or other highly important purposes and for which alternatives are not yet established.	Certain medical devices Occupational protective clothing/textiles

Source: Cousins et al. 2019

The existing alternatives to PFAS in the types of products the City may consider under this measure are described below and shown in Table 2.2-4.

- **Food contact materials** are a wide array of materials that at some time contact food, including industrial food production equipment and machinery, food packaging, and kitchen utensils like non-stick forms and pans. Consumer concern over the environmental and health impacts of plastic packaging has led to market pressure for alternative packaging, including paper. Paper food packaging often features a coating to protect the paper and increase durability. Molded fiber bowls are often marketed as green or compostable and may also contain PFAS to help repel grease and water and prevent spoilage. In the past, long-chain PFAS were used but were phased out in the 2000s. Currently, fluorinated paper and cardboard products are largely based on short-chain PFAS (Cousins et al. 2019).
- **Class B fire-fighting foams** (aqueous film-forming foams, fluoroprotein foams, or film-forming fluoroprotein foams) are formulated to extinguish fires of flammable liquids such as hydrocarbon fuels. Aqueous film-forming foams containing PFAS historically contained long-chain PFAAs, but since 2015, the foam manufacturers have eliminated long-chain PFAAs and their precursors from their products (Cousins et al. 2019).
- **Durable water repellents** are applied in textile finishing to impart water and sometimes oil and stain resistance. Avoiding garment saturation with water is a non-essential but much enjoyed comfort feature in situations like biking or walking in rain. Manufacturers also often recommend re-application of aftermarket or impregnation treatment products to converted textiles and leather products every few years to ensure optimal stain and soiling resistance, suggesting that these products migrate out of the fabrics (California Department of Toxic Substances Control [DTSC] 2021). It can also be an essential protection in more extreme conditions such as marine environments or in hospitals where biohazards are present from bodily fluids. Medical textiles are an example of a product where technical standards to protect human life require performance that may be difficult to meet without the use of PFAS. Fabrics containing PFAS have properties that help prevent the transmission of infectious agents by resisting liquid penetration (e.g., bodily fluids). Clothing standards set by the U.S. National Fire Prevention Association for protective clothing for firefighters and other emergency responders require water repellency, oil/stain repellency, and breathability. These are examples of textiles where there are presently no suitable replacements for PFAS. Effective, safe alternatives may become available in the future.
- **Coatings, paints, and varnishes** may contain PFAS (Table 2.2-3). There are many alternatives to fluorinated components in paints, varnishes, and coatings (Table 2.2-4); although some of these alternatives work better than others. Anti-reflective coatings used in semiconductor industries do not yet have viable alternatives to PFAS.

Table 2.2-3. Uses of PFAS in Coatings, Paints, and Varnishes

Product	Product Type	Application	Examples of Use
Coatings	Powder coatings	Architectural	Exterior surfaces of bridges and buildings
		Chemical industry	Lining of reaction vessels, metal surface coatings
	Radiation curable coatings	Electronics	Phone and tablet screens
	Other coatings	Cables and wiring	Commercial indoor local area network cables, aircraft cables
		Anti-reflective coatings	Semiconductor coatings
		Anti-graffiti coatings	Walls, public transport, bridges
		Renewable energy	Solar panels, wind turbine blades
Paints	Aerosol spray paint	Automotive paint	Car coatings
		Architectural, chemical industry	Bridges, construction, metal surface protections
	Water-based paints; solvent-based paints	Architectural, chemical industry, domestic	Bridges, construction, lining of vessels, metal surface protection, doors and walls in homes
Varnishes	Floor and surface finishes/lacquers and stains	Domestic, construction, printing	Protection for stone and tiles, work surfaces, polish for floors, waxes for tables and floors, reflective night paint for roads, pavement and traffic signs, reflective sheetings, printing inks, wood and cellulose shrink/swell protectors

Source: OECD 2022.

Table 2.2-4. Non-fluorinated Alternatives to PFAS in a Variety of Uses

PFAS Use	Concern	Alternatives	Current Uses and Limitations of Alternatives
Food Contact Materials	Food contact materials need to be durable and repel oil for weeks to months (e.g., butter wrappers) or only for a few minutes (e.g., fast food wrappers).	Naturally grease-proof paper and vegetable parchment. These are made from cellulose paper pulp wherein the dense cellulose structure prevents the grease from soaking into the paper.	Offers a high barrier to water and fat and is suitable for use as food wrappers and liners (OECD 2020).
		Rhamnolipids, a microbial bio-surfactant produced by Pseudomonas bacteria (Teli et al. 2020).	Rhamnolipids are currently used in eco-friendly alternatives to commercial cleaning products, pesticides, and antifungal agents (Chong and Li 2017).
		Pectin is a biopolymer that occurs naturally in the starch of ripening fruits such as apples, citrus, cranberries, gooseberries, and plums. Pectin is one of the most significant renewable natural polymers and is both ubiquitous in nature and a byproduct of the horticulture industry (Teli et al. 2020).	Pectin does not perform as well as many alternatives under high temperatures or heavy content loads.
		Cellulose is the primary material used to make paper products and the most abundant natural polymer on earth (Teli et al. 2020). When the crystalline regions of natural cellulose are isolated and recrystallized at the nano-scale, cellulose gains hydrophobic properties without loss of degradability. These features make them useful as bio-composite films (Teli et al. 2020).	Cellulose nanocrystal films perform well in grease resistance but are not as effective at preventing water permeation compared to plastics and PFAS.
		Lignin is a biopolymer in plant biomass that is also potentially useful for creating rigid food packaging such as bowls.	Lignin takes more energy to extract and use compared to cellulose nanocrystal or cellulose. Lignin has good thermal resistance and tensile strength similar to some plastics (Teli et al. 2020).
		Plastic coatings	Does not contribute to the goal of reducing plastic waste
		Aluminum coatings	Difficult to recycle, possibly more expensive than standard options

PFAS Use	Concern	Alternatives	Current Uses and Limitations of Alternatives
Food Production	In food production, PFAS are mainly used to create nonstick surfaces that lower the friction and minimize adhesion, thus creating a surface that is less easily scratched and also easier to clean. They are also used as non-stick or heat- and acid-resistant membranes on conveyor belts and as lubricant oils and greases in machinery. Nonstick pans and kitchenware are either sprayed or rolled with layers of the PFAS polytetrafluoroethylene.	Enameled iron, ceramic, and anodized aluminum coatings.	Ceramic and enamel are easily cleaned and can be heated to fairly high temperatures. These materials may contain minor components used in making, glazing or decorating them, such as pigments, lead, or cadmium. These may be harmful and must be controlled during the manufacturing process (Health Canada 2015). Anodized aluminum cookware conducts heat well and has a hard, non-stick surface that is scratch-resistant and easy to clean. Anodization reduces leaching of aluminum into foods, particularly acidic foods (Health Canada 2015).
Class B Fire Fighting Foams	Current fluorotelomer-based aqueous film-forming foams formulations contain fluorosurfactants that may transform into short-chain PFAAs such as perfluorohexanoic acid and shorter-chained PFAAs in the environment. These are thought to be less bioaccumulative and less toxic compared to long-chain PFAAs. Nonetheless, short-chain PFAAs are extremely persistent and mobile in the environment.	3M developed fluorine-free class B foams in the early 2000s. Since then, many companies have marketed fluorine-free class B foams, many of which meet the standard fire-fighting performance certifications applicable to PFAS-containing aqueous film-forming foams and related foams.	In some scenarios (e.g., military bases), the use of these alternative products may be disallowed; however, other users may be able to phase out PFAS-containing foams (Cousins et al. 2019).
Durable Water Repellents in Textiles	Essential protection in more extreme conditions such as marine environments or in hospitals where biohazards are present from bodily fluids.	Plastic laminate coating for surgical gowns, drapes, and clean air suits	Offer sufficient protection against biological fluids containing bacteria and viruses but may not be sufficiently breathable (Cousins et al. 2019).

PFAS Use	Concern	Alternatives	Current Uses and Limitations of Alternatives
	Durable water repellents are applied in textile finishing to impart water and sometimes oil and stain resistance. Avoiding garment saturation with water is a non-essential but much enjoyed comfort feature in situations like biking or walking in rain.	Silicone-based polymers	Alternative repellents based on silicones are both hydrophobic and soft feeling to the skin. The majority of these durable water repellent types have only moderate durability to laundering and no (unmodified) silicone durable water repellents can deliver oil repellency (Holmquist et al. 2016). The degradation products of silicone durable water repellents are an important consideration when assessing these alternative products as they may be toxic (Lehmann et al. 2000).
		Hydrocarbon-based polymer	Crystallized linear n-alkyl chains are used to achieve water repellency. The result resembles the natural low energy surface of plant leaves that develop repellency with crystalline wax tubules. Unfortunately, these materials have poor durability when laundered. Other durable water repellent developments are the encapsulation of waxes or fatty acids from plant extracts. While these newly developed hydrocarbon durable water repellent finishes have good water repellency, they cannot prevent oil saturation (Holmquist et al. 2016).
		Dendrimeric durable water repellents	This type of repellent is based on hyperbranched polymeric structures that consist of ester or polyurethane segments (Holmquist et al. 2016). During drying on the surface of the textile, these highly branched polymers self-organize to form a continuous polymeric film. The surface of dendrimers can be modified with fatty acids, per- or polyfluoroalkyl groups, or polyalkylsiloxanes to achieve repellent properties.
		Inorganic nanoparticle durable water repellents	This type of repellent mimics the repellent nanostructures of the lotus plant's leaves. Inorganic nanoparticle surfaces are also modified to provide hydrophobicity and adherence to the fiber surface (Holmquist et al. 2016).
Coatings, Paints, and Varnishes**	PFAS are added to coatings to provide resistance to corrosion, weathering, abrasion and scratching, UV resistance, and durability. They are used in roof coatings to lower the temperature of roofs and aid in energy efficiency	Polyurethane	Coatings, Paint, Varnish Wind turbine blade coating, polyurethane also protects the blades from sand and rain erosion, bird fouling, and help maintain the efficiency of the blades

PFAS Use	Concern	Alternatives	Current Uses and Limitations of Alternatives
	of buildings. PFAS in varnishes are used on floors and countertops. They can be applied to wood or PVC surfaces and natural stone (marble, travertine, granite).		
		HDPE-based products that contain ceramic and nano aluminum oxide	Coatings
		PVC	Coatings
		Polyolefin	Coatings
		Epoxy powders	Coatings, Paint, Varnish Wind turbine blade coating, epoxy powders also protects the blades from sand and rain erosion, bird fouling, and help maintain the efficiency of the blades
		Silica-based coatings	Paints Coatings in electronics, however, fluoropolymers can be applied in thinner layers compared to non-PFAS alternatives and are more water repellent
		Polyamides and polyethylene terephthalate	Solar panel coatings, however, these coatings do not confer the same degree of UV and moisture protection as the fluoropolymers currently in use
		Acrylic	Water-based latex paint, Varnish
		Vinyl	Paint, Varnish
		Propylated naphthalenes	Marine paint
		Polystyrene-based formulations	Paint, Varnish

Sources: Lehmann et al. 2000; Holmquist et al. 2016; Chong and Li 2017; Cousins et al. 2019; Teli et al. 2020; OECD 2020, 2022, Health Canada 2015.
** Additional detail about the applications of PFAS in coatings, paints, and varnishes is provided in Table 2.2-3 above.

2.2.5 Additional Product Bans

2.2.5.1 Plastic Bag Clips

2.2.5.1.1 Proposed Measure(s)

The City may ban the manufacture, distribution, offer, provision, and sale of plastic bag clips to reduce the input of these products into the City's waste stream.

2.2.5.1.2 Rationale for Proposed Measure(s)

Plastics bag clips or tags (also called bread tags) come in the form of small, flat, hard plastics that are commonly used to keep bread, bakery goods, and produce bags closed[24]. Single-use plastic bag clips are very common in food packaging, and are used as a surface to print prices, dates, and codes. Small format grocery packaging including caps and other items smaller than 40 mm accounts for 10% of the plastic packaging market by weight and poses an issue for grocery store waste reduction efforts (UNEP 2022). Single-use plastic bag clips are most often made of polystyrene (resin identification code 6), although some are made of materials that are technically recyclable. However, regardless of plastic type, most MRFs are not equipped to sort items smaller than 3 inches and therefore the plastic bag clips are not sorted to a recycling stream. Therefore, these plastic clips are not recyclable within the City.

There are several alternatives to a single-use plastic bag clips currently on the market, including the following:

- Paper-based single-use bag clips. Kwik Lok's FibreLok is the predominant replacement, made from 100% post-consumer paper-based material (U.S. Plastics Pact 2023).
- Twist-ties. Twist-ties are flexible strips made from steel wire and a covering made of plastic and/or paper (metallic or plain), bound by an adhesive. Wireless polymer twist-ties are also available. The covering of a twist tie may be dyed, and additional tags may be attached.
- Bag seal tape. Tape composed of either paper or plastic (often PP) is wrapped several times by machine around the plastic bag. Once the seal of the tape is broken, the bag cannot be completely closed without another form of closure.
- Heat sealing. A tamper-resistant seal is formed with two edges of the plastic bags with food items. Once the seal is broken, the bag cannot be completely closed without another form of closure.

[24] The small, single-use plastic bread clips are not the same product as "chip clips", which are significantly more durable, larger, typically operated with a hinging mechanism, and are meant for repeated use.

2.2.5.2 Aerosol String (Silly String)

2.2.5.2.1 Proposed Measure(s)

Aerosol string was specifically banned per Los Angeles Municipal Code (LAMC) Section 56.02 in Hollywood on Halloween due in part to environmental concerns. The City may expand the existing ban to apply year-round to the entire City.

2.2.5.2.2 Rationale for Proposed Measure(s)

Aerosol string (trademarked name Silly String), a colorful aerosol foam made of plastic derivatives, is not biodegradable and is a source of microplastics in stormwater when used in outdoor settings.

Silly String was patented in the 1970s by Wham-O Manufacturing (Drahl 2016). The current formula (e.g., the solvent and surfactant within the can) is proprietary information. Shaking the can mixes the solvent and the rest of the ingredients to form a temporary blend of plastics, minerals, deionized water, and propellants. Generally, aerosol string products contain the following ingredients:

- Surfactant. Surfactants are detergents and are amphiphilic (e.g., both hydrophobic and hydrophilic). The attraction-repulsion combination helps glue the molecules in the solution together so that the string is both solid and cohesive, but also sticky. The surfactant in Silly String is a trade secret ingredient. A possible surfactant is sorbitan trioleate (Drahl 2016).
- Deionized water, solvent. The water and trade secret solvent are mixed with the rest of ingredients during shaking. Both the water and the solvent evaporate quickly outside of the can, but the foamy solids are left behind in string form (Palmer 2015).
- 1,1,1,2-Tetrafluoroethane is a propellant and compressed liquid. When the nozzle on the can is pressed, the pressure drop inside the can causes the liquid to boil and vaporize, thus expanding and pushing the other ingredients out of the can.
- Polyacrylic resin is the plastic component of aerosol string. The resin is mixed into the can as a powder to create a viscous solution. Once the plastic is propelled into the air, it immediately forms a sturdy exoskeleton which will last for weeks if not disturbed (Palmer 2015).
- Talc, made up of primarily magnesium, silicon, and oxygen, is an absorbent mineral that fills the resin skeleton giving the string its fluffy body. Silicone fluids such as dimethyl siloxane make the finished streamers of string easy to peel off their ultimate landing place (Drahl 2016).
- Isopropyl alcohol and ammonia create shelf-life stability by preventing the growth of bacteria and can erosion.

Aerosol strings are not a recyclable form of plastic waste and are not biodegradable. If the strings are cleaned up at all, they are generally treated as trash. Any aerosol string that is not collected as trash is subject to environmental degradation whereby the plastic components break down to become microplastics that run off into storm drains and other waterways. Alternatives to silly string include biodegradable confetti poppers, paper decorations, or bubbles.

2.2.5.3 Plastic Sandbags

2.2.5.3.1 Proposed Measure(s)

In order to reduce this source of plastics and microplastics in the environment, the City may ban the manufacture, distribution, offer, provision, rental, and sale of plastic sandbags and instead allow only sandbags that can readily decompose into natural materials in the environment without causing harm.

2.2.5.3.2 Rationale for Proposed Measure(s)

Sandbags are used for a variety of purposes including stormwater erosion and sediment control, flooding, and general construction. Due to their low cost and small storage footprint, sandbags made from woven polypropylene fabric are the most commonly used type of sandbags. Sandbags are typically left in the environment to degrade and are a source of plastic debris and microplastics in the environment. When exposed to sunlight for extended periods, plastic sandbags will degrade into microplastics where they remain in terrestrial and aquatic environments. These bags also cause aesthetic damage in coastline areas; temporary erosion structures made of plastic sandbags are prone to becoming litter.

The City of Malibu banned the distribution, sale, and use of plastic sandbags under the Malibu Municipal Code, Chapter 9.30 with exemptions for protection of property from hazards on an emergency basis and for emergency purposes by first responders as needed to abate the emergency until other means of protection can be employed.

Substitute materials for plastic sandbags include the following:

- Burlap is made from plant fibers, mostly commonly from the jute plant, but also hemp or flax. Burlap sandbags can provide the same erosion and flooding protection provided by polypropylene and other plastic based sandbags. Natural fibers deteriorate over several months when exposed to sunlight and can be composted or placed in the organics bin for curbside collection. Jute has been used far longer than synthetic materials in sandbag construction.
- Cotton/canvas.
- Combinations of the above materials are increasing: the use of composite fibers provide high performance qualities with a mix of benefits from natural and synthetic sources.

The Los Angeles Fire Department (LAFD) provides up to 25 PP plastic sandbags per household in the City; all City fire stations have sandbags ready year-round, and many also provide free sand to fill the bags. There are no current guidelines in the City or other local municipalities for post-storm sandbag disposal.

2.2.5.4 Lighter-than-air Balloons

2.2.5.4.1 Proposed Measure(s)

The City of Los Angeles may ban the distribution, offer, provision, sale, and release of lighter-than-air balloons (e.g., those filled with helium).

2.2.5.4.2 Rationale for Proposed Measures

Lighter-than-air balloons pose a threat to wildlife and livestock, and those made of conductive material can also be a fire hazard when contacting transmission lines. Lighter- than- air balloons travel hundreds or even thousands of miles when released and eventually fall back to land or water as litter (O'Brien 2020). California state law has been recently amended to phase out conductive balloon materials (AB 847; see Appendix A, Section 1.1.8 for a full description).

Other cities in California have also addressed balloon pollution, including Laguna Beach, Encinitas, Malibu, Glendale, Hermosa Beach, and Solana Beach. These actions range from restricting the release of balloons to full bans on all types of balloons. For example, the Encinitas City Council passed an ordinance to prohibit the sale, distribution, and intentional release of lighter-than-air balloons within the city (Ordinance 2022-01). The City of Glendale passed a prohibition on the sale of Mylar® balloons except when they are filled with air (not helium) and affixed or mounted to a post at the point of sale (Ordinance No. 5953; passed in 2020).

The City of Laguna Beach passed an ordinance prohibiting the sale, public use, and distribution of all balloons, which was modified from the original staff recommended ordinance that restricted only certain types of balloons. Thus, balloons filled with air instead of helium are covered by the ordinance. The new ordinance bans the sale, public use, and distribution of all balloons within the city and bans the use of any balloon at any city facility or city-sponsored event, or any event held in a public area. The ordinance does not apply to balloons being used on private property and does not prohibit the purchase of balloons from outside of the city (Hall 2023).

Modern balloons are made from materials such as rubber, latex, polychloroprene, metalized plastic, or nylon fabric. The two most common types of balloons are a polyester film (biaxially-oriented PET, known more commonly by the trade name Mylar® (owned by DuPont)) and latex (O'Brien 2020). Mylar® balloons cause thousands of power outages every year when they come into contact with power lines or circuit breakers (Scauzillo 2019). The metallic coating on current balloons is highly conductive when it contacts electrical equipment leading to short circuits, outages, and explosions that can bring down power lines and potentially lead to severe injuries, fires, and property damage. Southern California Edison (SCE) recorded 802 balloon-related power outages in 2022, impacting 1.1 million customers (SCE 2023).

While Mylar®/foil balloons are known to be non-biodegradable, latex balloons are often marketed as being "green" or "biodegradable" due to being made of natural products of rubber-producing plants. However, this can be misleading, because even though latex balloons contain natural latex, pure latex needs to be vulcanized with sulfur and requires the addition of many other compounds to manufacture high-quality, long-lasting balloons. Therefore, latex balloons still take years to break down. Gilmour and Lavers (2021) demonstrated that latex balloons do not meaningfully degrade in freshwater, saltwater, or compost conditions within 16 weeks[25].

[25] Industrial composting standards (ASTM D6400-23) require that a material completely disintegrate after 12 weeks, and that the product not be distinguishable from the surrounding soil to be considered biodegradable (Gilmour and Lavers 2020).

One of the most common reasons for releasing balloons intentionally is as a remembrance of someone. Alternatives to this use include floating flowers or flower petals down a calm stream; planting trees or gardens; sponsoring a bench or memorial at a local park; or lighting candles or luminarias.

Parties and events often feature brightly colored, eye-catching, kinetic, or otherwise vibrant aesthetics to capture the festive mood. There are many alternatives to lighter-than-air balloons that provide similar visuals, including the following: flags, banners, kites, pinwheels, tissue paper pompoms, bubbles, chalk decorations, paper chains, and eco confetti (e.g., made of petals, leaves, paper bits).

2.2.5.5 Single-use E-cigarettes and Vape Cartridges

2.2.5.5.1 Proposed Measure(s)

To reduce the entrance of these products into the City's waste stream, the City may prohibit the sale of single-use e-cigarettes and vape cartridges within the City. Replacement products for single-use e-cigarettes and vape cartridges would include rechargeable and refillable cartridges, which are designed to be reused.

2.2.5.5.2 Rationale for Proposed Measure(s)

The term "e-cigarettes" encompasses a wide variety of devices that are known as vapes, mods, tanks, and pod systems, as well as a variety of brands. A variety of e-cigarette types are available, some which are designed to be used only once (disposable) and others which are rechargeable and/or refillable. These product types are described below:

- Disposable e-cigarettes/vape pens are designed to be used one time only. These devices are not rechargeable or refillable and are discarded when the product runs out of charge or e-liquid. A typical disposable vape pen contains plastic, copper, and a lithium-ion battery. The lifespan of a disposable e-cigarette depends on the e-liquid capacity and the battery life, which is designed to provide power for the duration of the e-liquid capacity. Once either is depleted, the disposable e-cigarette cannot be recharged or used further. A typical disposable vape pen comes ready-filled with 2 milligrams of e-liquid, approximately 600 puffs, and a maximum of 2% nicotine (House of Commons Library 2022).
- E-cigarettes with prefilled or refillable cartridges are a type of rechargeable e-cigarette or vaping product designed to be used multiple times. E-liquid comes in prefilled or refillable cartridges, which may contain various substances including nicotine, cannabis, flavoring, and solvents. The cartridge is attached to a battery pen which contains the battery. Prefilled cartridges vary in volume and are not designed to be refilled; and depending on customer use, the lifespan of these also varies. Prefilled cartridges would be considered single-use, and therefore not allowed under the Program.
- Tanks or Mods: A type of rechargeable e-cigarette or vaping product designed to be used multiple times. These allow users to customize the substance in the device (U.S. Department of Health and Human Services n.d.).

The concentrated nicotine and e-waste residuals present in e-cigarettes pose potential biohazard risks. The hard plastics, lithium-ion batteries, and electronic circuit boards require disassembly, sorting, and further recycling and disposal. When littered or improperly discarded, broken devices can leach heavy metals (including mercury, lead, and bromines), battery acid, and nicotine into the environment

(Hendlin 2018). The disposable, single-use e-cigarettes contain e-waste elements that are similar to those of reusable e-cigarettes but are used only for a short period of time before becoming spent (about 400 puffs or 20 to 40 cigarettes' worth of vapor). The e-waste from disposable and refillable devices is similar in terms of the primary components, but refillable ones last much longer, and require changing out only the e-liquid cartridge or flavored pod (Hendlin 2018).

Disposable e-cigarettes contain electronic components. As a result, they are considered e-waste and should not be disposed of in regular waste bins. The U.S. Food and Drug Administration states that all e-cigarette waste and e-liquid waste should be handled as household hazardous waste (Earth911 2023). However, e-cigarettes and vape pens are not allowed at the City's Household Hazardous Waste Collection Centers, also known as S.A.F.E. Centers (Solvents/Automotive/Flammables/Electronics), which are where batteries would normally be recycled (LASAN 2023b). Because most disposable e-cigarettes are not designed to be taken apart easily, the lithium-ion batteries are generally not removed and recycled at the proper battery recycling locations, and instead end up as hazardous waste in landfills or as litter in the City. Under certain conditions, lithium-ion batteries can catch fire or explode, therefore improper disposal of batteries can harm consumers and sanitation workers.

The U.S. Food and Drug Administration issued an enforcement policy, which became effective February 2020, prohibiting the sale of flavored prefilled e-cigarette cartridges. This policy does not apply to tobacco-and menthol-flavored prefilled cartridges, e-liquids, or single-use disposable e-cigarettes (CDC Foundation 2023). Following this enforcement policy, between February 2020 and March 2023, unit shares of disposable e-cigarette devices increased from 26 to 53%, and those for prefilled cartridges decreased from 74 to 47%.

Between February 2020 and March 2023, the monthly sale of disposable e-cigarette/vape cartridges increased from 4 million units to 11.9 million units. Disposable e-cigarettes make up over half (51.1%) of the e-cigarette/vape market with approximately 166.1 million units sold in 2022 (CDC Foundation 2023). These single-use cartridges are not recyclable and end up in the City's landfills and are littered.

2.2.5.6 Single-use Printer Cartridges

2.2.5.6.1 Proposed Measure(s)

Single-use printer cartridges are not recyclable within the City. Therefore, the City may prohibit the distribution, offer, provision, and sale of single-use printer cartridges within the City. The sale of printer cartridges made by manufacturers that have a take-back program as well as those that are remanufactured (i.e., reused) would be allowed.

2.2.5.6.2 Rationale for Proposed Measure(s)

Printer cartridges vary based on the type of printer supported. Laser printers, which are common in offices, use toner cartridges, and inkjet printers, which are commonly used at home, use inkjet cartridges. A third type of printer, called an ink tank printer, does not require the use of cartridges and instead includes integrated ink tanks that are refillable (HP 2023). Those are not included in the Program and are not discussed further.

Printer cartridges fall into the following three general categories based on how they are produced:

- Original equipment manufacturer cartridge: These are name brand cartridges that are produced by the same manufacturer as the printer being used. Some examples include brands like Hewlett Packard, Canon, Epson, and Xerox. Most large printer manufacturers have take-back programs for their brand of cartridge, but do not accept other brands (Ding et al. 2020).
- Remanufactured cartridge: These are original equipment manufacturer cartridges that have been professionally cleaned, refilled, and tested by a third-party remanufacturer for comparable print quality as the branded original cartridge. Remanufacturers rely on recycling programs to obtain the original spent cartridges, which reduces the number of cartridges that are disposed of and end up in landfills. Remanufactured cartridges typically cost less than original equipment manufacturer ones because they require less new components to produce. Remanufacturing is also referred to and sometimes better known as “refilling” (Sahni et al. 2010).
- Generic, compatible cartridge: This is a new printer cartridge built by a manufacturer other than the printer manufacturer, which uses new materials and/or components for production. These cartridges are designed to be compatible with a specific brand name product. These non-branded compatible cartridges are not accepted at printer manufacturer take-back recycling programs, which generally only accept their brand of cartridges.

Large printer and cartridge manufacturers have developed collection programs that allow customers to return used original equipment manufacturer printer cartridges at local collection locations and postal networks (Ding et al. 2020). In the case of Hewlett Packard, the recycled plastic from empty cartridges is used to create new original HP branded products, although the range of post-consumer recycled content in the Hewlett Packard toner cartridges is highly variable, from 0 to 80% (HP Planet Partners 2023). Canon USA collects Canon-branded ink cartridges with the help of FedEx offices, where customers can recycle used cartridges for free, and provides a mail back option if customers choose to provide postage (Canon USA 2023). Printer cartridges produced by major printer manufacturers with take-back recycling programs would be allowed under the Program.

In addition to manufacturer recycling programs, there is also a printer cartridge remanufacturing industry that serves to reduce downstream waste through recycling and remanufacture of printer cartridges. However, these remanufacturing companies are reliant on recycled cartridges in order to continue producing remanufactured cartridges. The generic, compatible cartridges are not used in the remanufacturing industry and therefore limit the supply of available recycled cartridges those remanufacturers have available to them[26].

The original printer cartridge manufacturer designs cartridges to be used once by the consumer, and the number of times a cartridge can be refilled by the manufacturer varies. One estimate is that printer cartridges can be refilled an average of between five and seven times before replacing, and up to 97% of the materials that make up a printer cartridge can be recycled or reused (A Greener Refill 2009 as cited in Ding et al. 2020). A used toner cartridge can be remanufactured up to four times depending on the type and condition (State of Washington Department of Ecology 2009). However, even with many

[26] Planet Green Cartridges, a remanufacturing company, provided a scoping comment, noting that the remanufacturing industry is being affected by the proliferation of single-use generic, compatible cartridges, which must be thrown away after use.

available recycling options, an estimated 375 million empty printer cartridges are thrown away in the United States every year (Vasudevan et al. 2012).

Unlike original equipment manufacturer and remanufactured printer cartridges, the generic compatible printer cartridges may not be able to be recycled for reuse. Unless a third-party company labels a printer cartridge as recyclable and accepts it in a take-back recycling program, these compatible cartridges would be considered single-use and would not be allowed under the Program. Once spent, single-use printer cartridges become plastic waste that ends up in landfills. Only printer cartridges with company take-back programs or those that are reused as part of the remanufacturing process would be allowed under the Program.

2.2.6 Formation of Working Groups and Additional Studies

As aspects of the Program are implemented, the City may form various working groups to evaluate the efficacy of implemented policies for reducing waste and explore additional ways to eliminate single-use products and waste in the City, including conducting additional studies to support implementation of additional regulations or projects not currently contemplated as part of the Program.

At this time, none of the working groups or studies described in this section are subject to CEQA and are not analyzed further in this PEIR. They are identified to clearly disclose that there may be additional elements in the future similar in nature to those currently proposed under the Program, and if they require CEQA analysis, they may tier from this PEIR.

2.2.6.1 Zero Waste in Food or Beverage Facilities

City departments may establish a working group along with external stakeholders to facilitate zero waste measures in restaurants. These measures may include, but not be limited to, the following:

- Review and revise Los Angeles building codes;
- Provide space planning guidelines to allow adequate storage space for reusables;
- Mandates for dishwashers or sufficient sinks for hand washing, garbage disposals, and on-site food waste processing equipment;
- Evaluate options for shared dishwashing and storage spaces and other equipment within malls, food courts, and areas with a high concentration of restaurants as a means of reducing costs; and
- Evaluate funding sources for building retrofits - to add dishwashers, sinks, storage space, etc.

2.2.6.2 Extended Producer Responsibility Program Support

The City may coordinate with EPR organizations, other jurisdictions, and businesses to review single-use reduction proposals; to design and help implement take-back programs that are adopted; and offer management/oversight services for take-back programs as needed.

2.2.7 Public Outreach and Education

The City may launch a city-wide public outreach and education campaign to raise awareness of plastic pollution and the impact of single-use products. The public relations campaign would educate residents and businesses on how to reduce their waste, encourage other sustainable practices such as reusing and fixing products, and how to recycle and compost properly. The campaign would engage residents through various media to reinforce knowledge and behavior.

At this time, public outreach and education are not subject to CEQA and are not analyzed further in this PEIR. They are identified to clearly disclose that there may be additional elements in the future similar in nature to those currently proposed under the Program, and if they require CEQA analysis, they may tier from this PEIR.

2.3 Downstream Measures

As the City implements the various upstream measures to reduce the production and use of single-use products within the City as described in Section 2.1, it is anticipated that use of alternative reusable, compostable, and recyclable materials to plastics would increase throughout the City. Therefore, while the City anticipates a decrease in single-use materials entering the City's waste stream and requiring disposal in landfills, it also anticipates that it would need to increase its capacity to handle compostable and recyclable replacement materials. The City may also seek to develop new facilities to handle trash/waste to avoid landfill disposal; expand or upgrade existing facilities to increase and/or improve processing capabilities; and/or develop new facilities to enable the repair and reuse of materials (e.g., washing stations for reusable foodware, table linens). Therefore, the City may have the need to develop, expand, or upgrade the following new facilities and infrastructure:

- Facilities to handle compostable materials (i.e., "green bin facilities");
- Facilities to handle recyclable materials (i.e., "blue bin facilities");
- Facilities to handle trash/waste disposal (i.e., "black bin facilities");
- Bottle refilling/hydration stations; and
- Foodware and linen washing facilities.

The City may also coordinate with other local jurisdictions, agencies, and businesses to establish new and/or improved recycling and composting capabilities for currently unrecyclable single-use items (e.g., plastic films) and establish regional consistency for composting and recycling. At this stage of the Program, specific locations for these facilities have not been identified. For the purposes of the analysis of construction-related impacts provided in this PEIR, the City assumes that only one downstream facility would be constructed at a time (i.e., multiple sites would not be constructed simultaneously).

As part of the development of the *City of Los Angeles Solid Waste Integrated Resources Plan: A Zero Waste Master Plan* (SWIRP; City of Los Angeles 2013), LASAN conducted an intensive stakeholder-driven process that included 256 public outreach meetings with over 3,000 stakeholders. The Recovering Energy, Natural Resources, and Economic Benefit from Waste for Los Angeles Plan (also known as the RENEW LA Plan) set the City on the path to zero waste, leading to the development of the SWIRP. The SWIRP included detailed assessment of the City's current solid resources facilities, and through numerical modeling and facility analysis, projected the likely range and size of new facilities that may be required to obtain the City's goal of becoming zero waste. The downstream Program description provided in this section draws from the SWIRP for the types, sizes, and capacities for facilities that may be required by successful implementation of the Program. Specifically, Section 4 of the Phase 2 Report in the SWIRP is used as the source supporting the description of downstream Program elements, and as substantial evidence supporting the analysis of impacts of construction and operation of downstream facilities (Catalyst 2024). The SWIRP is incorporated by reference in this PEIR according to the State CEQA Guidelines Title 14 Section 15150. It is available online at www.lacitysan.org/ceqa, and a hard copy is available in the City of Los Angeles, Public Works Building, 1149 S. Broadway Los Angeles, CA 90015.

2.3.1 Green Bin Facilities

Green bin facilities are those that process items that are allowed in the City's green bins, including yard trimmings, food scraps, and other compostable materials (i.e., food-stained paper; paper egg cartons, napkins, towels, plates, and to-go boxes; pizza boxes; and wooden and 100% fiber-based utensils).

2.3.1.1 Anaerobic Digestion Facilities

Anaerobic digestion converts organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. These facilities process food scraps, food-soiled paper, and other organics. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility. A typical anaerobic digestion facility would process 200 to 500 tons of waste per day. A new facility would have a footprint of approximately 5 to 10 acres (City of Los Angeles 2013).

2.3.1.2 Aerobic Composting and Mulching Facilities

An aerobic composting facility collects, grinds, mixes, piles, and supplies sufficient moisture and air to organic materials to speed natural decay. The finished product of a composting operation is compost, which is suitable for incorporating into topsoil and for growing plants. Compost technologies include the following:

- Windrow – compostable material is piled in long rows and regularly turned to enhance aerobic activity and control temperature and moisture.
- In-vessel – compostable material is placed in enclosed reactors (metal tanks, concrete bunkers or plastic tubes or "ag bags") where airflow and temperature can be controlled through perforated pipes buried in the material.
- Aerated static pile – compostable material is placed in piles on perforated pipes under removable covers, and fans are used to push or pull air through the pipes to control the composting process.

Yard trimmings can be processed into mulch[27] at a chip-and-grind/mulching facility. This type of facility typically includes minimal processing (chipping, grinding, and possibly screening) of the feedstock to produce a mulch product or to prepare wood as fuel for biomass power plants.

A typical composting and mulching facility processes 100 to 1,000 tons of material per day. A new facility would have a footprint of approximately 15 to 60 acres (City of Los Angeles 2013).

[27] Mulch is a shredded or chipped organic material placed on top of soil as a protective layer.

2.3.2 Blue Bin Facilities

Blue bin facilities are those that process source-separated recyclables, including materials recovered from LASAN's blue bin program and source-separated commercial recycling. Acceptable items in the City's blue bins include glass bottles and jars, aluminum/tin foil, cardboard boxes, steel and tin cans, scrap metal, mixed paper, and plastics with resin identification codes 1, 2 and 5. Other facilities for source-separated materials are also included in this category, including Resource Recovery Centers for self-hauled materials and construction and demolition debris processing facilities.

2.3.2.1 Clean Materials Recovery Facilities

Clean MRFs receive and process source-separated recyclables from residential curbside blue bin recycling programs and commercial recycling programs. Clean MRFs process the materials through receiving, sorting, baling, storing, and shipping of the City-collected materials into recyclable material and contamination and preparing the recyclables for marketing by commodity type. Clean MRFs typically recover traditional recyclable materials, including newspaper, cardboard, mixed paper, aluminum cans, bi-metal cans, plastic bottles, mixed plastics, and glass containers. Typical contaminants include food scraps, auto parts, yard trimmings, wood, dirt, and garbage.

A typical clean MRF would process 50 to 600 tons of blue bin material per day. A new facility would have a footprint of approximately 5 to 10 acres (City of Los Angeles 2013).

2.3.2.2 Resource Recovery Centers/Parks

Resource Recovery Centers are small centers for drop-off of hard to recycle items, including mattresses, large blocks of EPS foam, and textiles. Resource Recovery Parks (neighborhood take-back centers) are places where materials can be dropped off for donation or buyback and co-locates reuse, recycling and composting, processing, manufacturing, and distribution activities. They are often located in industrially zoned areas.

A typical resource recovery center processes 10 to 200 tons of material per day. A new facility would have a footprint of approximately 2 acres (City of Los Angeles 2013).

2.3.2.3 Construction and Demolition Materials Processing Facilities

Construction and demolition materials processing facilities receive and process construction and demolition debris, including asphalt, concrete, Portland cement, brick, lumber, wallboard, roofing material, ceramic tile, plastic pipe, and associated packaging. Typical commodities produced include gypsum, clean wood, ferrous metal, aluminum, and inert material (including engineered fill).

A typical construction and demolition materials processing facility processes 50 to 500 tons of material per day. A new facility would have a footprint of approximately 10 acres (City of Los Angeles 2013).

2.3.3 Black Bin Facilities

Black bin facilities are those that process residual waste from residential black bins, commercial solid waste sources, or residual waste from processing facilities. Black bin facilities process materials that are not recyclable or compostable in the City (i.e., garbage/trash).

2.3.3.1 Mixed Material Processing Facilities

A mixed material processing facility (also known as a dirty MRF) sorts recyclable material from residual waste from residential and commercial sources. These facilities can also be adapted to sort or remove different materials to prepare residual waste for composting, advanced thermal recycling, and other alternative technologies. Desired loads include residual waste from residential and commercial generators, and undesirable loads include concentrated amounts of construction and demolition materials or concentrated amounts of wet materials, such as restaurant food.

A typical mixed material processing facility processes 200 to 400 tons of waste per day. A new facility would have a footprint of approximately 5 to 7 acres (City of Los Angeles 2013).

2.3.3.2 Advanced Thermal Recycling Facilities

Advanced thermal recycling uses complete combustion of organic carbon-based materials in an oxygen-rich environment. The combustion bottom ash and the combustion fly ash, along with the air pollution control system fly ash, are treated to produce products that can be beneficially reused. Specifically, advanced thermal recycling facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. The hot exhaust gases flow through a boiler, where steam is produced for driving a steam turbine-generator, producing electricity. Exhaust air is treated with advanced pollution control technologies that remove air pollutants to meet clean air emissions standards, and cooled exhaust gas flows through emissions control systems before being exhausted through stacks into the atmosphere. By-products include the recovery of ferrous and non-ferrous metals from the bottom ash. The fly ash and bottom ash can be separated, and the bottom ash can be reused as landfill cover, processed for road base, or other beneficial uses.

A typical advanced thermal recycling facility processes 500 to 2,000 tons of waste per day. A new facility would have a footprint of approximately 5 to 15 acres (City of Los Angeles 2013).

2.3.3.3 Non-combustion Thermal Technologies Facilities

Non-combustion thermal technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. These facilities use an external heat source to heat waste to high temperatures in a low oxygen environment. This causes the waste to decompose and produce synthesis gas. Synthesis gas consists primarily of hydrogen, carbon monoxide, and carbon dioxide. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials. Ideal feedstock for these facilities includes mixed paper, plastics, and other dry organics.

Gasification[28] is used at the commercial scale for coal, and plasma arc technology[29] is used at the commercial scale to treat hazardous and radioactive wastes. These technologies are still emerging as methods to treat residual waste.

A typical non-combustion thermal technology facility processes 100 to 500 tons of waste per day. A new facility would have a footprint of approximately 2 to 7 acres (City of Los Angeles 2013).

2.3.4 Water Bottle Refilling/Hydration Stations

The City may implement measures to require or incentivize the installation of water bottle refilling/hydration stations at City-owned facilities and on City-owned property throughout the City. These stations may include upgrades of existing water fountains to include a water bottle refilling station or installation of new stations.

2.3.5 Foodware and Linen Washing Facilities

The City may implement measures to require or incentivize the development of washing facilities (for foodware, including reusable bottles and linens) within restaurants, food courts, or food truck locations, or at centralized locations throughout the City.

2.3.6 Regional Market Development - Increase Material Reuse and Recycling by Manufacturers and Businesses

The City may coordinate with other local agencies, jurisdictions, and businesses, including material recycling, composting, and disposal companies/facilities, to help establish improved standards and capability for recyclability, composability, and reusability within the City and regionally. This regional market development would expand the City's ability to recycle and reuse currently unmarketable single-use items, such as plastic films, clamshells, and black plastics and implement programs or coordinate with other regional agencies and jurisdictions to improve upon the region's ability to recycle and reuse various items.

The City may form a working group composed of other local jurisdictions, solid resources management organizations, and major economic development organizations to do the following:

- Survey existing regional manufacturers about their current feedstocks, feedstock specifications and purchase volumes, suppliers, and the possibility of converting from virgin to recycled feedstock; identify barriers to conversion; assist in providing feedstock samples/streams and identifying suppliers; coordinating help and support to pilot projects;

[28] Gasification is the thermal conversion of organic carbon-based materials that involves the partial oxidation through the use of an indirect, external source of heat, high pressure, and in a limited supply of air/oxygen (less than is needed for complete combustion).
[29] Plasma arc technology uses an electrical discharge to heat gas, typically air, oxygen, nitrogen, hydrogen, or argon, or combinations of these gases. The heated gas, or plasma, can then be used for welding, cutting, melting, or treating waste materials.

- Launch pilot programs with small start-up businesses that seek to utilize materials from the City's waste stream into marketable products; identify barriers; and coordinate and help support pilot projects; and
- Allocate funding into uses for major waste stream components such as low-grade plastics (i.e., resin identification codes 3, 4, 6, and 7) that lack markets.

2.3.7 Waste Standards Consistency

Similarly, the City may coordinate with other local agencies, jurisdictions, and businesses, including material recycling, composting, and disposal companies and facilities, to help establish regional consistency in recyclable and compostable standards for all disposable products of any material.

SECTION 3 Environmental Analysis

This section examines the potential environmental impacts of the proposed Program and alternatives. The following resource areas are analyzed in detail in this section:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

3.1 Approach to Environmental Analysis

The CEQA Guidelines (Title 14, CCR, Section 15151) address the adequacy of analysis of an EIR:

> "An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

Title 14, CCR, Section 15204 of the CEQA Guidelines continues:

> "The adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project. CEQA does not require a lead agency to conduct every test or perform all research, study, and experimentation recommended or demanded by commentors. When responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR."

The approach to environmental analysis in this PEIR complies with this guidance. Each environmental resource section first describes the environmental setting, or baseline condition, to establish the existing conditions that may be affected by implementation of the Program. The CEQA Guidelines (Title 14, CCR, Section 15000 et seq.) specify that the environmental setting focuses on those aspects that may be affected by the Program, so that the description of the setting is sufficient to support the impact analysis. The baseline environmental setting is that which existed at the time the NOP was published.

The regulatory framework relevant to each environmental resource category is described to establish the regulatory protections in place for each resource category. Significance criteria are identified for each environmental resource category. The significance criteria serve as benchmarks for determining if components of the Program or an alternative would result in a significant effect when evaluated against the environmental baseline conditions. Significance criteria may be numerical, such as water quality objectives or noise ordinance limits, or narrative thresholds.

The impacts of the Program are defined as direct or indirect physical changes to the environmental setting that are attributable to Program elements. As the upstream and downstream elements are identified and analyzed separately, the distinction between direct and indirect impacts are similarly distinguished. The direct impacts of upstream Program elements are driven by the removal or reduction of the Program component, while indirect effects are driven by the market and user’s response to the removal through adoption of alternate materials, replacement behavior or new practices. Downstream Program elements include the potential for construction of new facilities. The ground-disturbing activity and physical changes to the environment for operation and construction of new or modified facilities drive the direct impacts of these elements of the Program. The indirect impacts of downstream Program elements are driven by the reasonably foreseeable responses of the area to the facility.

Impacts of each of the proposed upstream and downstream measures are determined relative to the significance criteria, taking into account that all measures would be required to comply with the existing regulatory framework. Some resources areas lend themselves to scientific mathematical analysis and significance thresholds are then based on quantitative analysis. For some resources areas, significance thresholds are established by regulatory agencies. For other resources areas that are more qualitative or are entirely dependent on the immediate setting, a discrete, quantitative threshold is not generally feasible, and the “substantial adverse change in physical conditions” is applied as the significance criterion. These significance criteria presented herein are based on the CEQA Guidelines Appendix G Checklist and the 2006 L.A. CEQA Thresholds Guide (City of Los Angeles 2006). Subject matter expert opinion in each environmental resource analysis is applied to either combine these thresholds or to add to them. A Thresholds Memorandum has been prepared for the proposed Program to substantiate thresholds used in the Draft EIR (Catalyst 2024). The significance thresholds are based on a variety of factors, including existing local, state, and federal laws, ordinances, regulations, and standards; administrative practices of other public agencies; and professional standards as applied to the resource area. Consistent with current general practice, the Appendix G checklist is used to tailor the questions to satisfy the individual needs of the Program analysis (OPR n.d.).

For those impacts that are determined potentially significant, feasible mitigation measures to avoid or minimize potential impacts are described. An analysis is then conducted to determine the level of significance with incorporation of the described mitigation measures. A significant effect on the environment means “…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project…" (CEQA Guidelines Section 15382). Mitigation measures are applied for impacts that are significant after compliance with the regulatory framework (Title 14, CCR, Section 15000 et seq.). This PEIR considers five levels of significance for potential effects, as follows:

- **Beneficial Impact.** The Program would result in an overall improvement to the existing baseline condition.
- **No Impact.** The Program would not have any measurable environmental impact on the environment.
- **Less Than Significant Impact.** The Program may have the potential for affecting the environment, although these impacts would be below levels or thresholds that the City or other responsible agencies consider to be significant.
- **Less Than Significant Impact with Mitigation.** The Program may have the potential to generate impacts that will have a significant impact on the environment. However, the level of impact may be reduced to levels that are less than significant with the implementation of mitigation measures.
- **Significant and Unavoidable Impact.** The Program may result in environmental impacts that are significant and cannot be reduced to levels that are less than significant even with the implementation of mitigation measures.

In this PEIR, the potential environmental impacts of the upstream measures and downstream measures are evaluated separately from one another because the nature and impact mechanisms of these measures are inherently different. For example, the upstream measures do not involve ground-disturbing activities or construction; the impact mechanism is the need for alternative materials in the case of bans on certain types of plastics, or the expected effects of EPR measures. Upstream measures can therefore be analyzed at a project level of analysis. In contrast, for downstream measures, the specific locations for new or expanded facilities are not known. Accordingly, environmental impacts for downstream measures are determined by identifying the number, type, and size of downstream facilities that are reasonably foreseeable outcomes of the Program. These factors were derived from the substantial evidence provided in the City of Los Angeles SWIRP (2013), which has been incorporated by reference in this PEIR. The construction and operating characteristics for the relevant facilities in the SWIRP were used as substantial evidence supporting the analytical framework for the PEIR impact analysis of downstream program elements. New, independent quantitative analysis was conducted for the Program's downstream elements to ensure that current impact models, significance thresholds, and mitigation measures are applied in this PEIR. Next, the impact mechanisms of construction and operation are analyzed: for example, expected noise levels or expected air emissions, or other physical changes due to the downstream elements of the Program that have the potential to impact an environmental resource category. Finally, the impact analysis determines regulatory compliance measures and, if necessary, mitigation measures that would render the bounding level impact less than significant.

The basis for the description of the Program elements, both upstream and downstream, and the findings of the analyses, are supported by substantial evidence as defined in the CEQA Guidelines (Title 14, CCR, Section 15384):

> (a)"Substantial evidence" as used in these guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence.
> (b) Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

Specific substantial evidence for the impact analysis of the upstream elements is cited where relevant in the document. This is also true for downstream elements, although underlying the downstream Program description and impact analysis is also based on the extensive substantial evidence provided in the SWIRP (City of Los Angeles 2013), which included detailed assessment of the City's current solids facilities, and a thorough numerical modeling and facility analysis that projected the likely range and size of new facilities that may be required as the City moves toward its zero waste goals.

Each environmental resource section will be focused on those aspects that may be affected by the impact mechanism, such as alternative materials for upstream bans on plastic types, or ground-disturbing activity for downstream. For those aspects of resource categories that are not affected by the impact mechanism, a rationale statement for that conclusion is provided. For those instances where multiple proposed Program elements would have the same or a similar potential effect on a particular resource category, the impact statements are combined. In contrast, when a specific Program element would result in a unique impact, it is analyzed individually to determine whether the impact is significant or less than significant. The impact summary table at the beginning of each resource area states the most significant impact level determined for the upstream and downstream measures and lists the mitigation measures as necessary for each upstream and downstream impact statement.

For those environmental resource sections with substantial quantitative analysis (i.e., air quality, energy, GHG, noise, transportation), the impact analysis approach is as follows. The analysis begins with foundational impact considerations that apply to all of the CEQA checklist questions. Following this foundation, the most over-arching CEQA checklist question (typically the first) includes an environmental impact table that addresses the impact of each Program element individually. Quantitative analysis for Program elements is provided using best available data. When data for a Program element are not available, a qualitative analysis is provided. As necessary in the impact table, reference is also made to the foundational impact considerations, and, in some cases, other resource sections, to provide as complete a description as feasible within the table. If the analysis for a specific element is too long to capture within the table, further element-specific analysis is provided after the table.

3.1.1 Use and Limitations of Life Cycle Assessment

Some elements of the Program include bans on certain types of plastic products or on materials used for goods. One of the tools that has been developed to help compare the environmental footprint of different materials is a Life Cycle Assessment (LCA). The use of LCAs in this PEIR is to interlink and evaluate unanticipated consequences of specific alternative materials which may be used instead of those products that the Program proposes to ban. LCAs use simplified, standardized methods (e.g., ISO 14040: 2006, 14044:2006) to measure and compare the environmental impacts of a product system through their entire life cycle: from the raw material extraction and manufacturing processes, to the end of life of a product including final disposal. The results of an LCA can help quantify specific environmental attributes of the different products, such as the amount of water or energy used in the production process. LCAs provide value in highlighting hotspots along a value chain (i.e., showing areas of highest potential impact) and trade-offs between different impacts. For instance, a new alternative might have fewer climate impacts (typically presented as global warming potential [GWP]) but have greater impacts on other environmental resources such as water use or land degradation impacts.

CEQA guidance does not require LCA of energy and GHG emissions (CEQA Guidelines Section 15145) and the OPR removed the term “lifecycle” from CEQA Guidelines in 2010 (California Natural Resources Agency 2009). OPR guidelines recognize the difficulty of quantifying the various input factors to an LCA. According to the Statement of Reasons for removing “lifecycle”, the California Natural Resources Agency determined that production of goods is usually too far removed from use to attribute responsibility of upstream emissions to an individual project, and the supply chain for each of the thousands of products consumed is often complex and can vary with time (California Natural Resources Agency 2009). In addition, market conditions play a large role in LCA: plants open and close, mines play out, resources are substituted, manufacturing techniques change, new products are introduced, and technologies advance. Predictions about future market conditions are generally speculative and therefore difficult to assess with accuracy (CEQA Guidelines Section 15145). Finally, production facilities for alternative materials are often not new impacts but part of the existing conditions and regulated under existing permits.

While LCAs are not required in CEQA analyses and can be potentially speculative in the CEQA context, this PEIR summarizes the findings from published LCAs where applicable to a particular resource category. LCAs provide context to the analysis of impacts and support the goal of better understanding and disclosing potential effects stemming from replacements for those products which the Program proposes to ban. LCAs provide additional context for the environmental impacts of material replacement including reuse and recycling by accounting for the inputs and outputs of materials, energy, and emissions throughout the life cycle stages. Certain relevant impact areas, like littering, are not part of standardized LCA methodology, resulting in an unquantified global impact of plastic pollution in the context of this PEIR. Given the number and variety of published LCAs relevant to the Program, the remainder of this subsection describes the limitations in the use of LCA in general, as well as the limitations of their potential use in CEQA impact assessment.

A primary limitation of comparing LCA results is a sensitive dependence on the initial assumptions made in a study’s methodology, especially where behavioral variation cannot be captured. For example, the number of washes assumed for a reusable drinking cup is an important driver of the LCA and could vary from washing in hot water after each use by hand, to washing rarely by dishwasher along with other utensils. This factor of energy demands during the use phase is one of the main “hotspots” in the relative environmental footprint of reusable materials and the assumption made in the LCA for this factor entirely changes the results in comparison to single-use plastics. The same sensitivity can be observed in LCAs for textiles: the number of times a garment is worn is a driver of the overall LCA performance, alongside consumer transportation choices. Reuse schemes are often behaviorally driven, resulting in a wide range of baseline scenarios and break-even points in LCA literature. Initial assumptions also play a role in LCAs comparing material goods; for example, single-use glass bottles can have high production impacts when compared to low material usage of thin-walled single-use plastic bottles, but when a glass bottle is reused, with the emissions associated with production distributed across each use, the overall impact shrinks for reusable glass bottles as the number of uses rises. An assumption made on how many times reuse occurs could skew comparative results.

Additional variation within LCAs exists in defining the scope and geographic boundaries of the system under study, also known as a life cycle inventory. This step of LCA methodology determines what life cycle stages, processes, inputs, outputs, and impacts to include or exclude from the analysis. These choices are made based on the specific goal and scope of the published study, and differing scopes can lead to misleading outcomes.

A literature review of many LCAs for plastic packaging as part of the impact assessment for Zero Waste Europe (ZWE 2020) and United Nations Environment Program analysis (UNEP 2021) both emphasized the limitations of LCA studies when assessing the environmental performance of a product or system. They note that LCA studies depend on a variety of assumptions and scenarios regarding specific process parameters including: product design, transport processes, material types, a product's use phase, and the system in which it is integrated. This step can ignore the realities of disposal scenarios where environmental leakage results in plastic waste deposited in terrestrial and aquatic environments. Waste generation, littering potential, and the real-world factors of recyclability (e.g., availability of recycling infrastructure and/or demand for recycled materials) are some of the highlighted gaps in LCA analysis as identified by the Zero Waste Europe literature review. Geographic context is also frequently missing from an LCA but is important for CEQA analysis, such as the manufacturing of plastics overseas with use and disposal carried out in Los Angeles.

Circular economy principles are not readily captured in LCA bounding methodology, where waste management strategies such as reuse, recycling, and energy recovery are multifunctional systems which fulfill the dual functions of 1) waste management and 2) production of a secondary material or recovered energy. Deciding which environmental impacts to assign to different functions brings up several allocation problems. While the first function of recycling corresponds to the end-of-life of the analyzed product system (e.g., a single-use cup), the second function corresponds to the beginning of another product system (e.g., a single-use bottle with recycled content). The way in which the impacts and benefits of recycling are allocated to the first life cycle (the cup made with virgin materials) and the second (the bottle made of recycled materials) is not currently standardized, and different approaches can be found in the literature (ZWE 2020).

Overall, LCAs are useful for providing context related to environmental issues and identification of impact hot spots, however the characterization of some environmental impacts is not universally applicable, and relevant impact categories may not be covered. Like previously exemplified, impacts from littering or effects of microplastics released to the marine environment are seldom included in LCAs of plastic bottles and their alternatives. Beyond the limitations in the analytical tool itself, it is not easy to communicate the results of an LCA study. The LCA categories are broad and encompass multiple impacts, such as eutrophication of waterways. It can be difficult for decision-makers to choose, for example, between an existing high level of GHGs or a reduction in GHG emissions with adverse effects on water quality and biodiversity. Therefore, in the CEQA impact assessment in this PEIR, some primary input data to LCAs are used for quantification, and the overall results of relevant LCAs are provided as additional sources of environmental impact information to provide further context to the findings.

3.1.2 Program Elements Not Analyzed in this PEIR

At this time, none of the working groups and studies or public outreach and education (upstream measures described in Sections 2.2.6 and 2.2.7, respectively) are subject to CEQA as they do not require a discretionary action or decision. In addition, they would be conducted under the normal operating procedures of City agencies and would have no environmental impacts. Similarly, the downstream measures of forming working groups and coordinating with other entities for regional market development as well as establishing waste standards consistency with other local entities (described in Sections 2.3.6 and 2.3.7, respectively) are not subject to CEQA nor would they result in any environmental impacts. Therefore, these upstream and downstream Program elements are not analyzed further in this PEIR. They are identified to clearly disclose that there may be additional elements in the future similar in nature to those in the Comprehensive Plastics Reduction Program, and if they require CEQA analysis, they may tier from this PEIR.

3.2 Aesthetics

This section describes the existing aesthetics and visual characteristics of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on aesthetics in the City. Table 3.2-1 summarizes impacts on aesthetics that could result from implementation of the Program or alternatives.

Table 3.2-1. Summary of Aesthetics Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Have a substantial adverse effect on a scenic vista?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Upstream: Less than Significant	None
	Downstream: No Impact	None
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Upstream: No Impact	None
	Downstream: Less than Significant	MM AES-2: Lighting
e) Create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment MM AES-3: Shading Reduction

3.2.1 Environmental Setting

3.2.1.1 Scenic Vistas

The City encompasses 472 square miles of land area, containing 214 square miles of hills and mountains. Primarily a desert basin, the area is surrounded by the San Gabriel Mountain range and divided by the Santa Monica Mountains. The Verdugo and Santa Susana Mountains bound the City on the north and the Palos Verdes Hills and Pacific Ocean are on the south and west. The topography rises from sea level to 5,074 feet at Sister Elsie station (also known as Mount Lukens) in the San Gabriel Mountain foothills in Tujunga. The Santa Monica Mountains are the most visible feature from many areas of the City. The most prominent topographic landforms exist within the Program Area such as the San Gabriel Mountains and Santa Susana Mountains to the north, the Santa Monica Mountains across the middle of the City, and the Palos Verdes Hills and Pacific Ocean on the south and west. The Los Angeles River and its associated tributaries and flood plains are also prominent topographic features (City of Los Angeles 1996).

According to the Conservation Element of the City of Los Angeles General Plan, scenic views or vistas are the panoramic public view access to natural features, including views of the ocean, striking or unusual natural terrain, or unique urban or historic features. Public access to these views is from park lands, privately and publicly owned sites, and public rights-of-way (City of Los Angeles 1996).

3.2.1.2 Scenic Highways

A small section of the state-designated scenic highway, Topanga Canyon Blvd (Route 27) runs through the southwestern edge of the City. The National Scenic Byway of Arroyo Seco Historic Parkway – Route 110 runs through northeast Los Angeles from the intersection with Route 101 to Pasadena (Caltrans 2023).

There are over 70 city-designated scenic highways throughout the Program Area, including sections of Mulholland Dr, Santa Monica Blvd, Sunset Blvd, Wilshire Blvd, and Ventura Blvd. The City's General Plan Mobility Element Appendix B contains the complete list of City-designated scenic highways (City of Los Angeles 2016).

3.2.2 Regulatory Framework

3.2.2.1 Federal

3.2.2.1.1 National Scenic Byways Program

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was established under the Intermodal Surface Transportation Efficiency Act of 1991 and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities.

3.2.2.2 State

3.2.2.2.1 Caltrans State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to protect scenic highway corridors from changes that could diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code Section 260 et seq. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a city or county nominates an eligible scenic highway for official designation, it defines the scenic corridor, which is land generally adjacent to and visible to a motorist on the highway.

3.2.2.3 Local

3.2.2.3.1 City of Los Angeles General Plan

Framework Element

- Objective 3.1: Accommodate a diversity of uses that support the needs of the City's existing and future residents, businesses, and visitors.
  - Policy 3.1.4: Accommodate new development in accordance with land use and density provisions of the General Plan Framework Long-Range Use Diagram.
- Objective 3.2: Provide for the spatial distribution of development that promotes an improved quality of life by facilitating a reduction of vehicular trips, vehicle miles traveled, and air pollution.
  - Policy 3.2.4: Provide for the siting and design of new development that maintains the prevailing scale and character of the City's stable residential neighborhoods and enhance the character of commercial and industrial districts.

Conservation Element

Section 15: Land Form and Scenic Vistas Policy.

Objective: protect and reinforce natural and scenic vistas as irreplaceable resources and for the aesthetic enjoyment of present and future generations.

- Policy: continue to encourage and/or require property owners to develop their properties in a manner that will, to the greatest extent practical, retain significant existing land forms (e.g., ridge lines, bluffs, unique geologic features) and unique scenic features (historic, ocean, mountains, unique natural features) and/or make possible public view or other access to unique features or scenic views.
  - Program 1: Permit processing, enforcement and periodic revision, especially environmental review, grading, large lot zoning, clustering of structures, building height limits and other project design and construction methods for protecting natural terrain and features and protecting public view access.

- Program 2: Planning and construction of roads, utilities, and other public projects, especially projects that are within or impact natural terrain and/or scenic areas.

Open Space Element

– Goal: To conserve unique natural features, scenic areas, cultural and appropriate historical monuments for the benefits and enjoyment of the public.

– Goal: To provide an open space system which provides identity, form, and a visual framework to the City.

– Goal: To conserve and/or preserve those open space areas containing the City's environmental resources including air and water.

  - Objective: To identify unique natural features, scenic areas and historical sites which are desirable for preservation.

  - Objective: To emphasize the importance of, and to preserve open space and natural features in private and public development.

    - Policy: The amount of earth moved in grading operations within desirable open space areas should be limited and closely controlled. Aesthetic consideration should be incorporated into the City's approval of grading plans in these areas.

Mobility Element

Policy 2.6 – Scenic Highways. Ensure that future modifications to any scenic highway do not impact the unique identity or characteristic of that scenic highway.

Community Plans

Community-specific scenic vistas are detailed in each of the 35 community plans, which establish neighborhood-specific goals and implementation strategies to achieve the broad objectives laid out in the City's General Plan. Many of the plans contain policies and programs to protect hillside and/or scenic views.

3.2.2.3.2 Los Angeles Municipal Code

The following aesthetics related regulations in the LAMC would be applicable to the construction of a new downstream facility:

– Chapter 1, Article 2, Sec. 12.13.5 A 3, and Sec. 12.14 A, and Sec. 12.18 B 5(b) and (d) – All activities, including storage, in the "C1.5" Zone, and certain activities in the "C2" Zone, shall be conducted wholly within an enclosed building. Open storage areas in the "MR2" Zone shall be enclosed on all sides with a solid wall not less than eight feet in height sufficient to screen the use from public view.

– Chapter 1, Article 2, Sec. 12.19 A 1(4)(2), and 12.20 A 1(e) – Automobile dismantling yards, junkyards, and certain types of storage in the "M2" or "M3" Zones shall be enclosed within a building or an eight-foot solid masonry wall.

– Chapter 1, Article 2, Sec. 12.21 A 6(d) and (e), and (i) – Public and private parking areas shall be enclosed by a wall, except in the "M2" and "M3" Zones, along an alley, public parking area, or a "P," "PB," "C" or "M" Zone. Unimproved or non-parking portions of parking lots shall be landscaped.

- Chapter 9, Article 3, Sec. 93.0117. No exterior light source may cause more than two footcandles (21.5 [lux] lx) of lighting intensity or generate direct glare onto exterior glazed windows or glass doors; elevated habitable porch, deck, or balcony; or any ground surface intended for uses such as recreation, barbecue or lawn areas or any other property containing a residential unit or units.
- Chapter 1, Article 2, Sec. 12.21 A5(k). All lights used to illuminate a parking area shall be designed, located, and arranged so as to reflect the light away from any streets and any adjacent premises.
- Chapter 1, Article 2, Sec. 12.21.1 – Building heights and setbacks shall not exceed the maximum heights identified per zoning district in this section.
- Chapter 4, Article 6 – Oak trees meeting certain requirements shall be relocated or replaced.
- City of Los Angeles Landscape Ordinance, No. 170,978, as amended, and Guidelines – Updates the City's requirements for landscaping at new buildings, based on a point system.

3.2.3 Impact Assessment

3.2.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to aesthetics. The Program would have a significant impact to aesthetics if the Program would:

a. Have a substantial adverse effect on a scenic vista.
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.
e. Create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with aesthetics resulting from a project on a case-by-case basis. The Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

- Impact Criterion a)
    - The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished;
    - The amount of natural open space to be graded or developed;

- The degree to which proposed structures in natural open space areas would be effectively integrated into the aesthetics of the site, through appropriate design, etc.;
- The degree of contrast between proposed features and existing features that represent the area's valued aesthetic image; and
- The nature and quality of recognized or valued views (such as natural topography, settings, man-made or natural features of visual interest, and resources such as mountains or the ocean).

– Impact Criterion b)

- Whether the project affects views from a designated scenic highway, corridor, or parkway;
- The extent of obstruction (e.g., total blockage, partial interruption, or minor diminishment); and
- The extent to which the project affects recognized views available from a length of a public roadway, bike path, or trail, as opposed to a single, fixed vantage point.

– Impact Criterion c)

- The change in ambient illumination levels as a result of project sources; and
- The extent to which project lighting would spill off the project site and affect adjacent light-sensitive areas.

– Impact Criterion e) has been added to address the following L.A. CEQA Thresholds Guide:

- If shadow-sensitive uses would be shaded by project-related structures for more than three hours between the hours of 9:00 a.m. and 3:00 p.m. Pacific Standard Time (between late October and early April), or for more than four hours between the hours of 9:00 a.m. and 5:00 p.m. Pacific Daylight Time (between early April and late October).

3.2.3.2 Program

3.2.3.2.1 Upstream Measures

Impact Criterion a) Would the project have a substantial adverse effect on a scenic vista?

Impact Criterion b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

As described in Section 3.2.1.1., the Conservation Element of the City of Los Angeles General Plan describes scenic vistas as the panoramic public view access to natural features, including views of the ocean, striking natural terrain, or unique urban or historic features. The objective of the Conservation Element is to protect and reinforce natural and scenic vistas as irreplaceable resources and for the aesthetic enjoyment of present and future generations. The Program's upstream measures do not involve any construction activities nor demolition of existing structures that contribute to the visual characteristics of an area and would have no adverse physical effects on scenic vistas within the City or scenic resources within a state scenic highway, within the City. One of the objectives of the Program is to reduce the overall volume of plastic litter that is prevalent throughout the City. The majority of the data on littered materials within the City is from cleanups of beaches, which provide scenic views and value throughout the City. Local information from LA River Watershed trash cleanups indicates that plastics comprise a higher percentage of littered materials in the Program Area than alternatives, with plastic accounting for 35% of trash collected while paper accounted for 14%, metal for 5%, and glass for 4% (Council for Watershed Health 2023). Through the reduction of litter, the upstream measures would align with the Conservation Element objective by protecting scenic vistas from being adversely affected by litter and preserving the aesthetic enjoyment of these areas for the public. In general, measures that reduce the use of single-use plastics would reduce the potential for these items to be littered throughout the City, including scenic vistas and along state scenic highways, and therefore provide a beneficial impact on scenic resources and aesthetics in the City. Table 3.2-2 provides an impact analysis related to aesthetics for each upstream measure.

Table 3.2-2. Analysis of Upstream Measures – Aesthetic Impacts

Measure	Aesthetics Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Plastic bottles have been one of the top ten items collected on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988 (California Coastal Commission 2020) and were the third-most collected item worldwide during Ocean Conservancy beach cleanups in 2021 (Ocean Conservancy 2022). While most plastic water bottles are recyclable, the recycling rate of PET bottles and jars in the U.S. was only 2018 in 29.1% (USEPA 2023). It is estimated that 29.1 to 51.8 billion PET bottles entered the aquatic environment in 2018, representing 5.7% to 10.2% of all PET bottles used by consumers (Oceana 2022). A ban on single-use plastic water bottles would increase the use of alternative materials and reusable containers, many of which are recyclable or compostable in the City (e.g., aluminum cans, cardboard boxes/cartons, and glass). These items also have the potential to be littered – glass and aluminum beverage bottles were the seventh- and ninth-most frequently collected items during California beach clean ups from 1988-2020 (Coastal Commission 2020). Glass pieces were the eighth-most collected item by the Council for Watershed and Pasadena City College during trash cleanups throughout the LA River Watershed between September 2020 and December 2021, but the origin of the glass was not identified, and aluminum/cans were not in the top 15 list of most collected items (Council for Watershed Health 2023). However, the ban would also increase the use of reusable water bottles, which have a low likelihood of being littered. Littering reduces the scenic value of designated scenic vistas and is a City-wide concern. Therefore, a ban on single-use plastic water bottles would have a beneficial impact on aesthetics.	Beneficial Impact
Plastic Bottle Policies: Refillable Plastic Bottles	More than one-quarter of all plastic bottles and jugs in California (i.e., over 3 billion bottles) are not recycled but end up as trash (Packaging Strategies 2020). Plastic bottles and jugs used for food, personal care products, and home care products are not frequently littered items. Therefore, mandating the sale of refillable plastic bottles would have a less than significant impact on aesthetics.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	As noted above, plastic beverage bottles are commonly littered and adversely affect the visual characteristics of the City. Plastic beverage bottles were the fifth-most collected trash item by the Council for Watershed and Pasadena City College during trash cleanups throughout the LA River Watershed between September 2020 and December 2021, accounting for 3.5% of all trash collected (Council for Watershed Health 2023). A study completed by the non-	Beneficial Impact

Measure	Aesthetics Impact Analysis	Significance Conclusion
	governmental organization Oceana estimates that a 10% increase in the share of soft drink beverages sold in refillable bottles could decrease marine plastic pollution by up to 22% (Schroeer et al. 2020). An increase in refillable plastic bottles would result in less littering of single-use plastic bottles, which would have a beneficial impact on scenic views and the aesthetics of the City.	
Plastic Bottle Policies: Leashed Lids	Even though plastic bottle caps and lids are commonly made of HDPE or PP, which are recyclable within the City, due to their small size they are not able to be processed at the City's MRFs. They are also commonly littered items. Bottle caps and lids have been the third-most collected item on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988, accounting for over 9% of all debris/litter collected (California Coastal Commission 2020). Plastic bottle caps were the fifth-most collected item during the Ocean Conservancy's coastal cleanups worldwide in 2022 (Ocean Conservancy 2022). Bottle caps were the eleventh-most collected trash item by the Council for Watershed and Pasadena City College during trash cleanups throughout the LA River Watershed between September 2020 and December 2021 (Council for Watershed Health 2023). Requiring the lid to be leashed to the plastic bottle would ensure that the lid is recycled along with the bottle, which can be processed by a MRF, and that it is not littered. Therefore, a requirement for leashed lids would reduce potential plastic litter in the City and have a beneficial impact on scenic views and aesthetics overall in the City.	Beneficial Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	Single-use plastic beverage holder rings are not recyclable in the City and may end up as litter even when properly disposed of due to their light weight. Alternatives include rigid plastics made of HDPE, paperboard/cardboard that are recyclable, and unbleached plant fibers that are compostable in the City. These alternative products may also end up as litter and impact the aesthetic quality of scenic views and vistas. Therefore, a ban on single-use plastic beverage holder rings would have a less than significant impact on aesthetics.	Less than Significant
Foodware Policies: Dine-In Services	Disposable foodware items are amongst the most littered items in California: the categories of food wrappers/containers; cups, plates, forks, knives, and spoons; and straws/stirrers were the second-, fifth-, and sixth-most common items, respectively, collected on beaches during the California Coastal Commission annual "Cleanup Day" between 1988 and 2020, comprising approximately 19% of items collected over that period. Between 2011-2020, the number of cups, plates, forks, knives, and spoons collected during these events ranged from approximately 22,000 to over 45,000 annually. During that same time period, approximately 17,000 to 33,000 straws were collected annually. In 2021, volunteers cleaned up 5,817 pounds of trash and 156 pounds of recyclables from Los Angeles County beaches (California Coastal Commission 2023). In 2021, straws/stirrers were the sixth-most commonly collected items during beach clean ups conducted by the International Coastal Cleanup in California, with 13,291 collected off of California beaches (Ocean Conservancy 2022). Food wrappers, plastic straw wrappers, single-use containers, straws/stirrers and plastic utensils were the third-, ninth-, twelfth-, thirteenth-, and fifteenth-most collected trash item by the Council for Watershed and Pasadena City College during trash cleanups throughout the LA River Watershed between September 2020 and December 2021 (Council for Watershed Health 2023).	Beneficial Impact

Measure	Aesthetics Impact Analysis	Significance Conclusion
	Disposable plastic food service ware is challenging to process at MRFs due to food residue and small size. While disposable foodware for dine-in services is likely to be properly placed in trash bins by consumers or restaurant staff, even when disposable foodware is properly disposed of, it can easily become litter because it is light-weight and can blow out of waste and recycling bins, transport containers, and landfills. Litter in the City's communities, especially in public recreation areas like the beach, is detrimental to the aesthetic value of the City's shared spaces. A ban on disposable foodware for dine-in services would reduce the amount of disposable foodware used, disposed of, and littered in the City. Therefore, the ordinance is expected to have a beneficial impact on aesthetics.	
Foodware Policies: Single-Use To-Go Foodware	As noted above, single-use foodware items are amongst the most littered items throughout the state. Requiring to-go food service providers to offer reusable foodware would remove single-use products from the City's waste stream and the chance that they are littered and adversely affect aesthetics. Requiring compostable and recyclable foodware would result in a reduction of single-use plastic to-go foodware, but compostable and recyclable products can also be littered and negatively impact aesthetic qualities of the City. For example, while food wrappers were the third-most collected trash item by the Council for Watershed and Pasadena City College during trash cleanups throughout the LA River Watershed between September 2020 and December 2021, paper/cardboard (type of product not specified) was the fourth-most collected item (Council for Watershed Health 2023). Similarly, a requirement for post-consumer recycled content in plastic to-go foodware would not influence the potential for littering of these products. Therefore, single-use to-go foodware policies would have a less than significant impact on scenic views and vistas in the City.	Less than Significant
Foodware Policies: Bioplastic Ban	Foodware made from bioplastics is not compostable or recyclable within the City and therefore ends up as trash and has the potential to be littered. While a ban on bioplastic single-use foodware and food contact products could result in substitution behavior with reusable products, it is more likely that businesses and consumers would use alternative single-use products that may or may not be recyclable or compostable within the City. Therefore, a ban on foodware and food-contact products made from bioplastics would have a less than significant impact on scenic views and vistas and aesthetic resources overall in the City.	Less than Significant
Foodware Policies: Meal Kit reuse and Recycling	As meal kits are typically used in the home, most waste associated with them is disposed of as household trash or recycling, and their components are not commonly littered. Therefore, requiring meal kit manufacturers to create an EPR program to collect these items would have a less than significant impact on the aesthetic qualities of scenic views and vistas of the City.	Less than Significant
Foodware Policies: City Reusable Foodware Pilot Projects	As noted above, single-use foodware is a major source of litter in the City. Implementation of reusable foodware pilot projects would make it easier for restaurants and food carts to procure reusable foodware, thereby reducing the use of disposal foodware that may be littered within the City. This would have a small but beneficial impact on aesthetics of scenic views and vistas in the City.	Beneficial Impact

Measure	Aesthetics Impact Analysis	Significance Conclusion
Foodware Policies: Plastic Tea Bags	The plastic components of tea bags are not compostable or recyclable in the City; thus, they end up contributing to solid waste and end up in the City's landfills. However, they are not a commonly littered item within the City. Therefore, a ban on plastic tea bags would have a less than significant impact on scenic views and vistas and aesthetic resources in the City.	Less than Significant
Foodware Policies: Beverage Pods	Beverage pods are not a typically littered item, but they must be disposed of as waste and end up in the City's landfills. Therefore, a measure implementing an EPR program for manufacturers of plastic single-use beverage pods would decrease inputs of these materials into the City's landfills but would not impact litter and scenic views in the City. Therefore, a measure implementing EPR for beverage pods would have a less than significant impact on scenic views and vistas and aesthetics resources of the City.	Less than Significant
Textile Policies: Textile Disposal	The purpose of requiring textile manufacturers and retailers to establish an EPR program for unused textiles is to reduce the waste and landfilling of usable textiles. The measure would require manufacturers and retailers to recycle returned or unused clothing and would have no impact on scenic views and vistas and aesthetic resources of the City.	No Impact
Textile Policies: Washing Machine Microfiber Filtration	Microplastics removed by a microfiber filter on washing machines are not visible to the naked eye, and do not contribute to aesthetic degradation in the City. Therefore, a requirement for microfiber filtration on washing machines would have no impact on scenic views and vistas in the City.	No Impact
PFAS Ban	A ban on PFAS in certain products would not impact the types of products used and potentially littered in the City. The same types of products would be available, they would just be required to be manufactured without PFAS. Therefore, a ban on PFAS in certain products would have no impact on scenic views and vistas in the City.	No Impact
Additional Product Bans: Plastic Bag Clips	Plastic bag clips have not been identified as a commonly littered item in the City, but they are too small to be successfully captured in MRFs, causing them to be landfilled. Some replacement products such as paper-based clips are accepted for recycling in the City, while others, including twist-ties or plastic tape, would still be landfilled. Therefore, a measure banning plastic bag clips would have a less than significant impact on scenic views and vistas and aesthetics resources of the City.	Less than Significant
Additional Product Bans: Aerosol String	Aerosol string is often used outdoors for celebrations and very rarely cleaned up by users during such events (LAPD 2004). Releasing aerosol string outdoors creates adverse aesthetic impacts within the City as it is difficult to clean up and dispose of properly and users often litter the cans as well. The cost to the City to clean up following Halloween celebrations in Hollywood exceeded $200,000; leading to a Halloween aerosol string ban being passed in 2004 (LAPD 2004). Additionally, aerosol string contains dyes that may stain light colored surfaces (e.g., vehicles, buildings, signs, clothing) if not promptly cleaned up. Aerosol string is non-biodegradable and presents an aesthetic nuisance until it is cleaned up or breaks down. Banning aerosol string would have a beneficial impact on scenic views and vistas and aesthetics in the City.	Beneficial Impact

Measure	Aesthetics Impact Analysis	Significance Conclusion
Additional Product Bans: Plastic Sandbags	Plastic sandbags are primarily used outdoors. If they are left in place after use, they degrade and become litter and a source of plastic pollution in the City. The primary alternative for plastic sandbags is burlap, often made from jute fibers, and has been shown to degrade fully within 100 days (Singh 2023). Therefore, the replacement use of biodegradable bags would reduce potential plastics in the environment. Because less plastic would be left outside, a measure banning plastic sandbags would have a beneficial impact on scenic views and vistas and the aesthetic resources of the City.	Beneficial Impact
Additional Product Bans: Lighter-Than-Air Balloons	When lighter-than-air balloons are released into the environment on purpose or accidentally, they can travel far distances and get stuck in vegetation, on power lines, and along ditches, beaches, fields, and many other places viewed by the public. Latex balloons do not meaningfully degrade in freshwater or saltwater, or under compost conditions within 16 weeks (Gilmour and Lavers 2021), and mylar/foil balloons never biodegrade. A ban on lighter-than-air balloons would reduce the amount of balloon debris that originates in the City and therefore would have a beneficial impact on scenic views and vistas and aesthetics in the City.	Beneficial Impact
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	Single-use e-cigarettes and cartridges are not recyclable and end up in the City's landfills and as litter. During Heal the Bay's Coastal Cleanup Month in September of 2021, smoking accessories were the tenth-most collected items from the cleanup sites (Heal the Bay 2021). In 2019, e-cigarette waste accounted for 19% of nicotine and cannabis related litter found in various school parking lots in San Francisco (Mock and Hendlin 2019). The proposed measure to prohibit the sale of these single-use devices would reduce the entrance of these products into the City's waste stream, thereby reducing the number that have the potential to end up as litter within the City. Replacement products include rechargeable e-cigarettes and refillable cartridges, which could be reused multiple times. Therefore, the Program would have a beneficial impact on the visual quality of public views by reducing potential for litter.	Beneficial Impact
Additional Product Bans: Single-Use Printer Cartridges	Single-use printer cartridges are not accepted for recycling through the City's solid resources collection program and therefore contribute to the plastic waste stream, ending up in landfills, but they are not a source of litter within the City. A ban on these single-use cartridges would result in replacement products that can either be recycled through take-back printer manufacturer programs or through the remanufacturing process. Therefore, the proposed measure would have a less than significant impact on aesthetic resources in the City.	Less than Significant

Impact Criterion c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The Program would be located throughout the urbanized City of Los Angeles. The Program's upstream measures would not alter any zoning within the City nor would they adversely affect scenic quality in the City, as described in Table 3.2-2. The Program would reduce the volume of single-use plastics in circulation in the City that could be littered in the City as well as reduce inputs into the City's landfills.

Therefore, they would not conflict with the framework, open space, conservation, or mobility elements of the City's General Plan (listed in Section 3.2.2.3.1 above) but rather would help the City meet its goals and objectives of protecting scenic and aesthetic resources. The Program would reduce the most commonly found pieces of litter around the City which altogether would improve the visual character of the City. The Program also supports the L.A.'s Green New Deal (also referred to as the 2019 Sustainable City pLAn; City of Los Angeles 2019), which lays out the following targets for waste management:

- Increase landfill diversion rate to 90% by 2025; 95% by 2035; and 100% by 2050.
- Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028.
- Eliminate organic waste going to landfill by 2028.
- Increase proportion of waste products and recyclables productively reused and/or repurposed within L.A. County to at least 25% by 2025; and 50% by 2035.

Therefore, the upstream measures would have a ***less than significant impact*** regarding regulations governing scenic quality.

Impact Criterion d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Impact Criterion e) Would the project create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings?

The Program's upstream measures would not result in any construction activities, building of new facilities, or installation of any lighting throughout the City. Therefore, the upstream measures would have ***no impact*** on light and glare or shading.

3.2.3.2.2 Downstream Measures

Impact Criterion a) Would the project have a substantial adverse effect on a scenic vista?

While the specific locations of downstream facilities are not currently known, they would be constructed in commercial, industrial, or public facility lands zoned for their use (see Table 3.12-2 in Section 3.12 below for a list of zoning categories and permitted uses). Downstream facilities would be large buildings (advanced thermal recycling complexes can be up to 15 acres with stacks up to 250 feet tall (City of Los Angeles 2013)) that could be visible from scenic vistas, even if constructed in areas of permitted use, and could have a substantial adverse effect on a scenic vista, depending on the overall size and orientation of the facility. Downstream facilities would be constructed in accordance with the height limitations outlined within LAMC Section 12.21.1 through 12.21.5. Further, depending on the location of the downstream facility, it would need to conform to the policies of the applicably Community Plan, including the policies specific to visual resources and community character. However, downstream facilities may still impede existing public views of scenic vistas, which would conflict with the following Conservation Element policy regarding scenic vistas: "Continue to encourage and/or require property owners to develop their properties in a manner that will, to the greatest extent practical, retain significant existing land forms (e.g., ridge lines, bluffs, unique geologic features) and unique scenic features (historic, ocean, mountains, unique natural features) and/or make possible public view or other access to unique features or scenic views." The City would implement **MM AES-1** to assist in site selection for potential future downstream facilities, determine the potential visual impacts of a facility, and ensure that visual impacts are avoided or minimized. If the impacts cannot be reduced to less than significant levels, that location would be avoided. Accordingly, impacts from construction and operation of new downstream facilities would be ***less than significant with mitigation.***

Impact Criterion b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

While the specific locations of downstream facilities are not currently known, the City would not construct and operate a new facility in a location that would damage scenic resources within a state scenic highway. Therefore, there would be ***no impact***.

Impact Criterion c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The City would not construct and operate new downstream facilities in nonurbanized areas such as lands identified as open space. Downstream facilities would be located in urbanized areas zoned for their use (commercial, industrial, or public facility zones) and would require a conditional use permit. The City would implement **MM AES-1** to assist in site selection for potential future downstream facilities, determine the potential visual impacts of a facility, and ensure that visual impacts to visual character in nonurban areas are avoided or minimized and that facilities comply with zoning regulations and any other regulations governing scenic quality. If the impacts cannot be reduced to less than significant levels, that location would be avoided. Accordingly, impacts from construction and operation of new downstream facilities would be ***less than significant with mitigation.***

Impact Criterion d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Downstream facilities would not be constructed of reflective material that would cause glare. Exterior night-time lighting would be used for safety and security purposes. As downstream facilities would be located in commercial, industrial, and public facility zones, where night-time lighting exists, it is not expected that a new facility would cause a measurable increase in ambient illumination levels as a result of project sources or contain lighting that would spill off the project site and affect adjacent light-sensitive areas. Therefore, impacts from downstream facility construction and operation on light and glare would be ***less than significant***. The City would implement **MM AES-2** to further minimize lighting impacts and ensure that lighting is shielded and pointed away from sensitive land uses.

Impact Criterion e) Would the project create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings?

Although downstream facilities would be located in commercial, industrial, and public facility zones, if a proposed facility is greater than 60 feet tall and located at a distance within three times the height of the proposed structure to a shadow-sensitive use, the potential exists that the project shading would degrade the visual character or quality of the site surroundings which could result in a significant impact. The City would implement **MM AES-1** and **MM AES-3** to ensure that impacts due to shading are ***less than significant with mitigation***.

MITIGATION MEASURE(S)

MM AES-1: Visual Impact Assessment. Prior to the approval of any future facility, the City would conduct a Visual Impact Assessment in accordance with the Caltrans Visual Impact Assessment Handbook (2023) or equivalent guidance., which consists of first identifying the existing/baseline visual quality of the surrounding environment and landscape visual character, including any scenic resource within the area of visual effect of the facility, and viewers and neighbors that could be impacted by the facility. Fieldwork and/or project impact visualizations preparation would then be used to assess visual compatibility, contrast, evaluate visual change, assess viewer sensitivity and viewpoint sensitivity, evaluate visual sensitivity, and determine visual impact of the facility. For most projects in which a visual change is determined to be moderate and unlikely to be controversial, a basic descriptive assessment using the preparers' best professional judgement is sufficient. For projects where the visual change is expected to be clearly noticeable with moderate to high public concern or where extensive public review is anticipated, an advanced assessment shall be conducted in which impacts to each of the metrics listed above is quantified, resulting in an overall score of anticipated impact, from -9 (extremely highly adverse) to +9 (extremely highly beneficial). If the VIA indicates a negative score/adverse visual impact, then it would include mandatory provisions for the design of the downstream facility to minimize or avoid visual impacts. Design requirements could include use of certain paint colors to minimize contrast, revegetation around the facility, or screening to avoid undesirable views. If the VIA concludes that visual impacts of a downstream facility cannot be reduced or avoided to a below moderate level, then the facility shall be re-sited to a location absent of significant and unavoidable visual impacts.

MM AES-2: Lighting. Lighting used during daytime or night-time construction and operation shall be shielded and directed downward to avoid any light spill onto surrounding land uses including natural habitat areas, open water, and residential areas.

MM AES-3: Shading Reduction. For buildings greater than 60 feet tall and located at a distance within three times the height of the proposed structure to a shadow-sensitive use, the Visual Impact Assessment outlined in MM AES-1 would include an evaluation of if the shadow-sensitive uses would be shaded by project-related structures for more than three hours between the hours of 9:00 a.m. and 3:00 p.m. Pacific Standard Time (between late October and early April), or for more than four hours between the hours of 9:00 a.m. and 5:00 p.m. Pacific Daylight Time (between early April and late October). If so, the design of the structure would be altered to be less than 60-feet-tall, adjusted on-site to be further from shadow-sensitive land uses, or relocated to be further from shadow-sensitive uses.

3.3 Agriculture and Forestry Resources

This section describes the existing agriculture and forestry resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on agriculture and forestry in the City. Table 3.3-1 summarizes impacts on agriculture and forestry that could result from implementation of the Program or alternatives.

Table 3.3-1. Summary of Agriculture and Forestry Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM AG-1: Farmland replacement/ easement
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Upstream: No Impact	None
	Downstream: Less than Significant	None
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Upstream: No Impact	None
	Downstream: No Impact	None
d) Result in the loss of forest land or conversion of forest land to non-forest use?	Upstream: No Impact	None
	Downstream: No Impact	None
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Upstream: No Impact	None
	Downstream: No Impact	None

3.3.1 Environmental Setting

3.3.1.1 Agricultural Resources

The California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) prepares maps and statistical data for analyzing land use impacts on California's agricultural resources. The FMMP categorizes agricultural production potential based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. There are four types of important farmland designated in California:

- Prime farmland – Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- Farmland of statewide importance – Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland – Farmland of lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of local importance – Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

The FMMP also designates "Grazing Land" as land on which the existing vegetation is suited to the grazing of livestock and "Other Lands" as land that does not meet the criteria of any of the other categories.

While approximately 10% of the City (30,362 acres) is zoned for agricultural use (Figure 3.3-1 and Figure 3.3-2; City of Los Angeles 2021), only 478 acres are categorized as important farmland (254 acres of prime farmland and 224 acres of unique farmland) (California Department of Conservation [CDOC)] 2023) (Table 3.3-2; Figure 3.3-3).

Table 3.3-2. Important Farmland in the Program Area (2023)

FMMP Category	Acreage
Urban and Built-up Land	242,132
Grazing Land	6,664
Prime Farmland	254
Farmland of Statewide Importance	0
Unique Farmland	224
Water	1,248
Other Land	49,160
Area Not Mapped	3,726
Total	303,409

Source: CDOC 2023

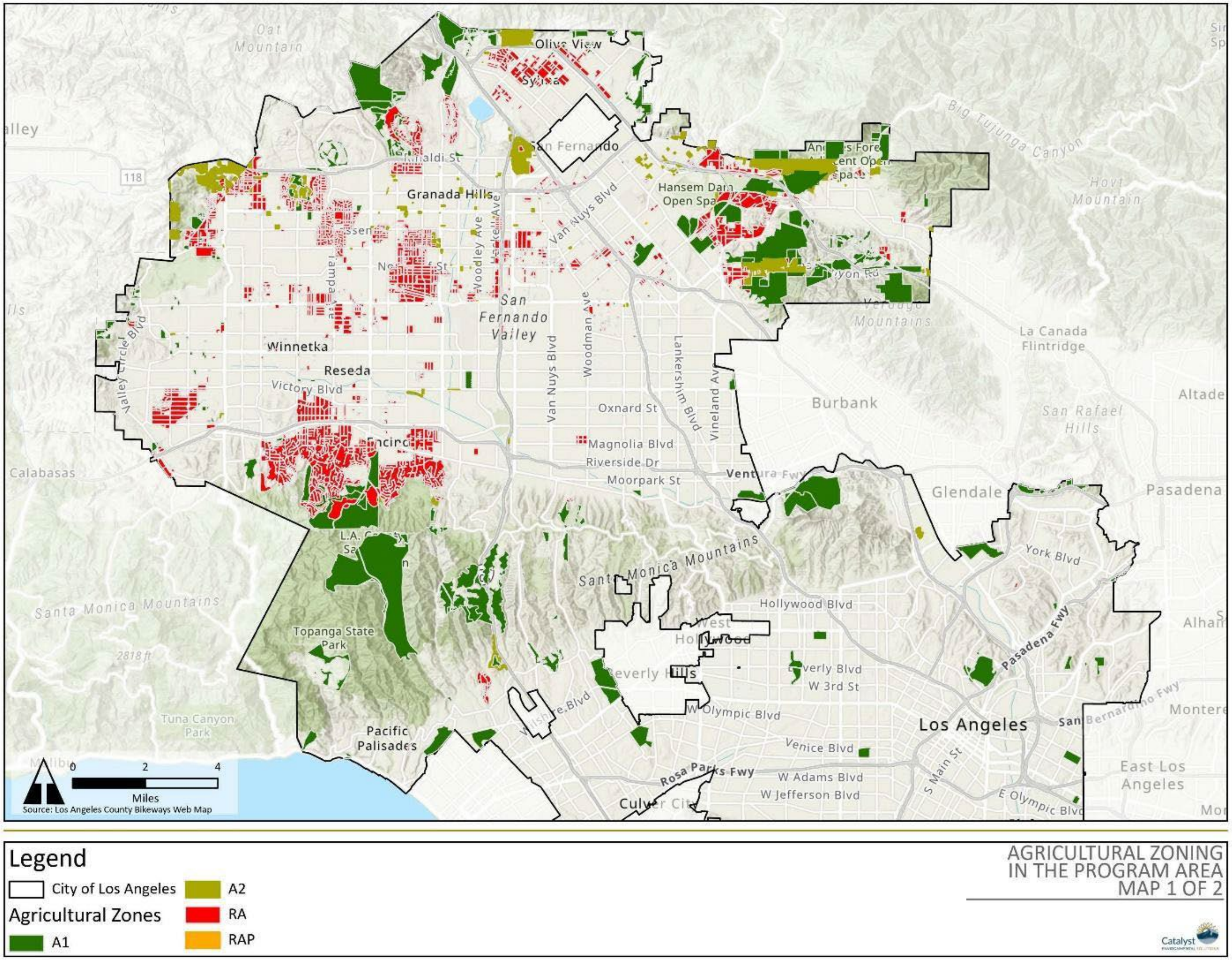


Figure 3.3-1. Agricultural Zoning in the Program Area (1 of 2)

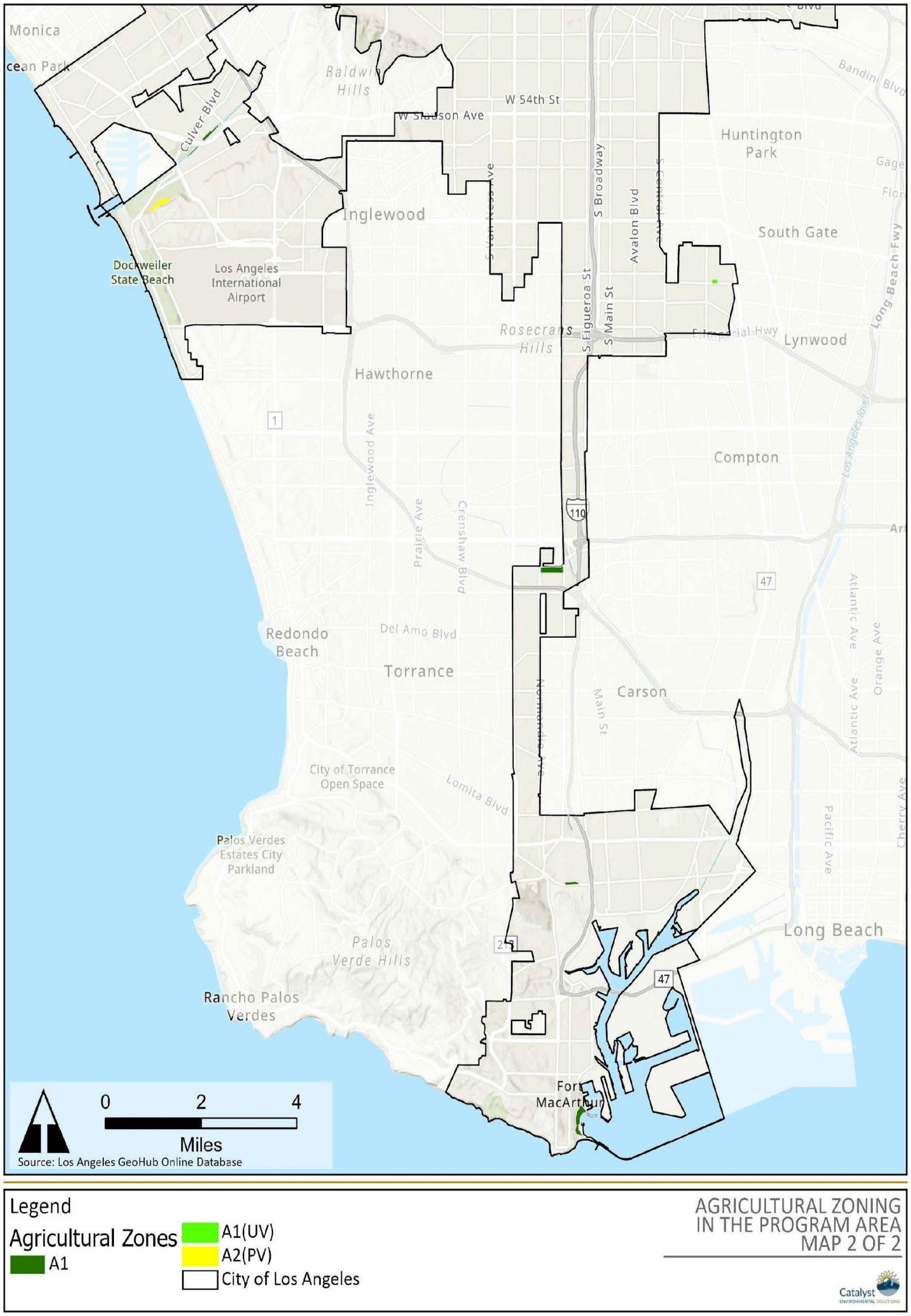


Figure 3.3-2. Agricultural Zoning in the Program Area (2 of 2)

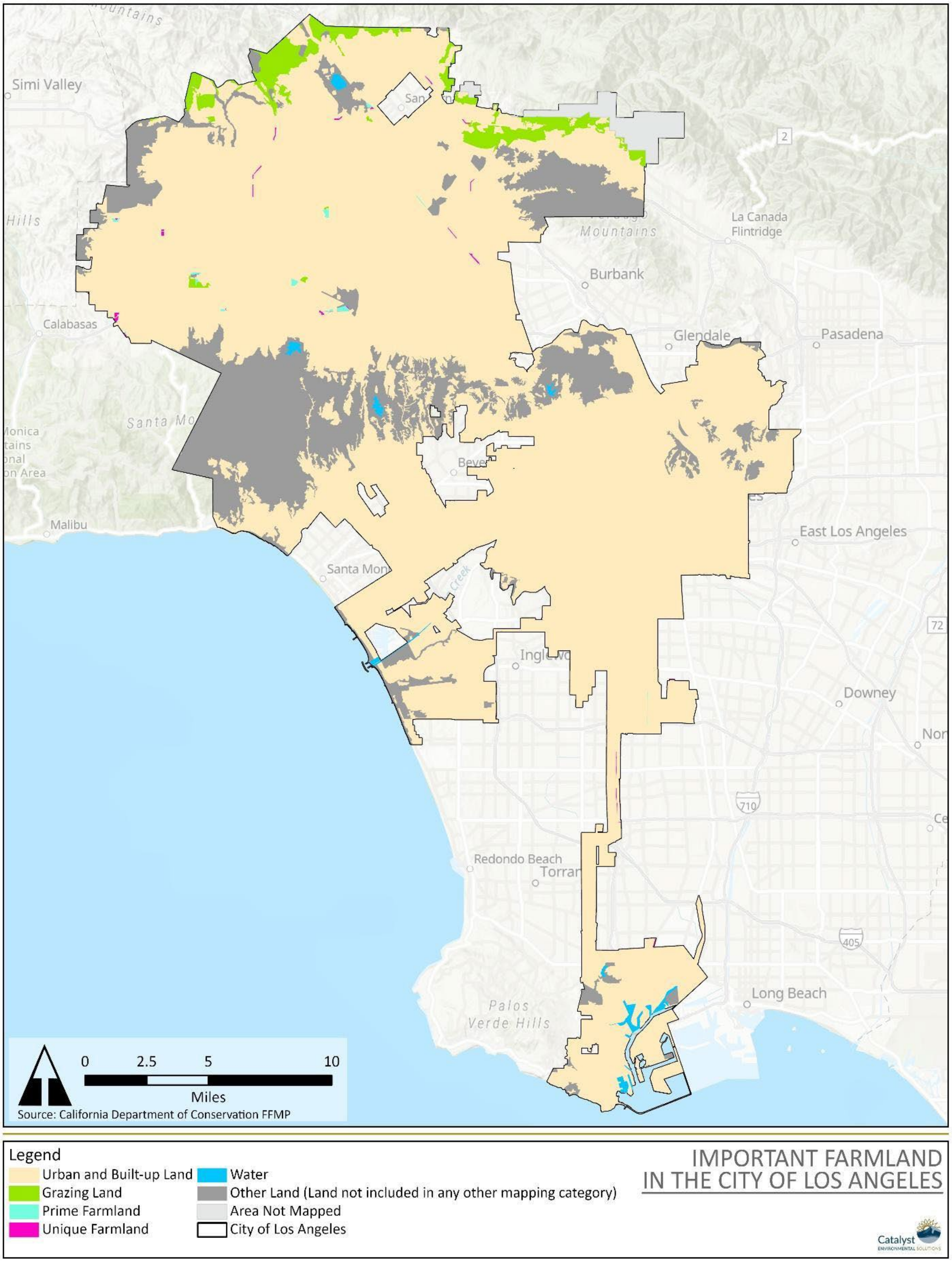


Figure 3.3-3. Important Farmland in the Program Area

3.3.1.2 Forestry Resources

Forestry resources within California provide wood and related products for municipal and industrial needs as well as invaluable habitat for wildlife, areas for recreation, and a source of carbon sequestration. Approximately 3,700 acres of the Program Area overlap with the Angeles National Forest in the northwest corner of the City. The Program Area contains other areas of forested land, such as willows and cottonwoods in riparian areas of the City's mountainous areas, and small areas such as the willow forests in the Hansen Dam Wildlife Preserve and near Harbor Lake.

There is no timberland or timberland zoned Timberland Production in the City.

3.3.2 Regulatory Framework

3.3.2.1 Federal

There are no applicable federal requirements related to agriculture and forestry that would apply to the Program.

3.3.2.2 State

3.3.2.2.1 California Farmland Mapping and Monitoring Program

The California Department of Conservation, under the Division of Land Resource Protection, has established the FMMP, which monitors the conversion of the state's farmland to and from agricultural use. The FMMP maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every 2 years. The FMMP map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. Public Resources Code Section 21060.1 defines "Agricultural land" for the purposes of assessing environmental impacts using the FMMP. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides guidance for the analysis of agricultural and land use changes throughout California.

3.3.2.2.2 Williamson Act

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, create an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. There are no Williamson Act Contract lands in the Program Area.

3.3.2.2.3 California Public Resources Code Definitions

The Public Resources Code Section 12220(g) defines "Forest land" as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

The Public Resources Code defines "Timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others.

The California Government Code Section 51104(g) defines "Timberland production zone" as an area which has been zoned pursuant to California Government Code Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in California Government Code Section 51104(h).

3.3.2.3 Local

3.3.2.3.1 City of Los Angeles General Plan

Conservation Element

Goal 1: a city that preserves, protects and enhances its existing natural and related resources.

– Objective: Retain, to the extent feasible, the last remaining agricultural features of the city as part of the city's heritage and economy.
    - Policy: Continue to encourage the retention of parcels in agricultural and low density land use and zoning categories that will encourage their retention in agricultural and related uses.

– Objective: retain the forests as primary watershed, open space and recreational resources for the region.
    - Policy: continue to support the preservation and protection of Angeles Forest and Santa Clarita Woodlands.

3.3.3 Impact Assessment

3.3.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to agriculture and forestry.[30] The Program would have a significant impact to agriculture and forestry if the Program would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).

[30] The L.A. CEQA Thresholds Guide does not address agriculture and forestry impacts.

d. Result in the loss of forest land or conversion of forest land to non-forest use.

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

3.3.3.2 Program

3.3.3.2.1 Upstream Measures

Impact Criterion a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non- agricultural use?

Impact Criterion b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The Program upstream measures would not alter any land use or zoning within the City. Further, there are no Williamson Act contract lands within the City. Therefore, the upstream measures would have ***no impact*** with respect to agriculture and forestry resources Impact Criteria (a) and (b).

Impact Criterion c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

Impact Criterion d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

There is no zoned forest land, timberland, or timberland zoned Timberland Production in the City. Therefore, the Program upstream measures would not have any impacts on these land use types. The Program upstream measures would not alter any land use or zoning within the City and would not result in the loss or conversion of forest land. Therefore, the upstream measures would have ***no impact*** with respect to agriculture and forestry resources Impact Criteria (c) and (d).

Impact Criterion e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The Program upstream measures would not result in any ground-disturbing activity or changes in existing land use, or conversion of land use types within the City. Therefore, the upstream measures would have ***no impact*** with respect to agriculture and forestry resources Impact Criterion (e).

3.3.3.2.2 Downstream Measures

Impact Criterion a) Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

At this time, the specific location(s) of downstream facilities have not been identified. The potential for these future facilities to convert important farmland to non-agricultural use or be located on lands zoned for agricultural use is unknown. There are no Williamson Act contract lands within the City, so downstream facilities would not impact these lands. In the unlikely event that a future site is proposed at a location that is designated under the FMMP as important farmland, there is the potential for a significant impact. When a future downstream facility is proposed, implementation of **MM AG-1** would ensure that impacts to important farmland are ***less than significant with mitigation***.

Impact Criterion b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract?

There are no Williamson Act contract lands within the City, so downstream facilities would not impact these lands. The construction of downstream facilities is not a permitted use within agricultural zoning in the City (permitted uses include one-family dwellings, parks, playgrounds, community centers, golf courses, and agricultural uses). If a downstream facility is proposed within the agriculturally zoned areas, the City or another applicant would be required to obtain a zoning variance or a conditional use permit prior to construction. The discretionary review would evaluate whether the Project would be detrimental to the public welfare or adjacent properties, or the potential for adverse effects to any element of the General Plan. Therefore, in the unlikely event that a downstream facility is proposed in an area zoned for agricultural use, regulatory compliance would require a subsequent environmental review, and the impacts would be ***less than significant***.

Impact Criterion c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

Impact Criterion d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

There is no zoned forest land, timberland, or timberland zoned Timberland Production in the Program Area. Therefore, construction and operation of the Program downstream facilities would not have any impact on these land use types. While there are small forested areas in the Program Area, most are in recreation areas, state parks, or mountainous areas in which downstream facilities would not be built. It is anticipated that downstream facilities would be sited in industrial or commercial zones and would not result in the loss or conversion of forest land. Therefore, the downstream measures would have ***no impact*** with respect to agriculture and forestry resources Impact Criteria (c) and (d).

Impact Criterion e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The downstream facilities would not involve other changes in addition to those analyzed above that would impact farmland or forest land use or conversion in the City. Therefore, the downstream measures would have ***no impact*** with respect to agriculture and forestry resources Impact Criterion (e).

MITIGATION MEASURE(S)

MM AG-1: Farmland replacement/easement. Downstream facilities shall not be located on Prime Farmland or Unique Farmland to the extent possible. If facilities are constructed on such farmland, impacts to the farmland shall be mitigated at a 1:1 ratio with soil and farming conditions equivalent or superior to the state-designated farmland that would be converted, and this farmland shall be set aside in perpetuity. Alternatively, funds may be provided to a local, regional, or statewide organization or agency whose purpose includes the acquisition and stewardship of agricultural easements, to be earmarked for the purchase of permanent, irreversible agricultural easements at a 1:1 ratio of the converted farmland. Proof of agricultural land acquisition or fee payment shall be provided to the City of Los Angeles Department of City Planning.

3.4 Air Quality

This section describes the existing air quality of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on air quality in the City. Table 3.4-1 summarizes impacts on air quality that could result from implementation of the Program or alternatives.

Table 3.4-1. Summary of Air Quality Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Conflict with or obstruct implementation of the applicable air quality plan?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None
c) Expose sensitive receptors to substantial pollutant concentrations?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None

3.4.1 Environmental Setting

The Program Area is located within the South Coast Air Basin (SCAB). The South Coast Air Quality Management District (SCAQMD) is the agency with jurisdiction and responsibility for ensuring that air quality in the SCAB meets state and federal standards.

Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the SCAB. Air pollutant emissions within the SCAB are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources occur at an identified location and are usually associated with manufacturing and industry. Examples of point sources are boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and produce many small emissions. Examples of area sources include residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hair spray. Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, race cars, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and suspended in the air during high winds.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of various pollutants to protect public health and welfare. These pollutants are referred to as “criteria air pollutants” because of the specific standards, or criteria, which have been adopted for them. The federal and State standards have been set at levels considered safe to protect public health, including the health of “sensitive” populations, such as asthmatics, children, and the elderly with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

In addition to criteria pollutant emissions, another issue of concern related to air quality is odors. Odors are substances in the air that pose a nuisance to nearby land uses such as residences, schools, daycare centers, and hospitals. Odors are typically not a health concern but can interfere with the use and enjoyment of nearby property. Odors may be generated by a wide variety of sources. The odor associated with decomposing organic material (such as plants removed from ponds and left to decay) may also be considered to be objectionable. Objectionable odors created by a facility or operation may cause a nuisance or annoyance to adjacent populations.

3.4.1.1 Criteria Pollutants

A criteria air pollutant is any air pollutant for which ambient air quality standards (criteria) have been set by the USEPA (National Ambient Air Quality Standards [NAAQS]) or the California Air Resources Board (CARB) (California Ambient Air Quality Standards [CAAQS]). The presence of these pollutants in ambient air is generally due to numerous diverse and widespread sources of emissions, and air quality standards have been established for these pollutants to protect public health. Criteria pollutants include ozone (O_3), fine particulate matter ($PM_{2.5}$), respirable particulate matter (PM_{10}), carbon monoxide (CO), nitrogen dioxide (NO_2), lead (Pb), sulfur dioxide (SO_2), visibility-reducing particles, sulfates, and hydrogen sulfide (H_2S). Table 3.4-2 shows the federal and state air quality standards for criteria pollutants. The sections below provide additional details about each of these criteria pollutants.

Table 3.4-2. Ambient Air Quality Standards

Pollutant	Averaging Period	Federal Standard	California Standard
Ozone (O_3)	1 hour	Revoked	0.09 ppm (180 µg/m^3)
	8 hour	0.07 ppm (137 µg/m^3)	0.070 ppm (137 µg/m^3)
Respirable Particulate Matter (PM_{10})	24 hour	150 µg/m^3	50 µg/m^3
	Annual	Revoked	20 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 hour	35 µg/m^3	none
	Annual	12 µg/m^3	12 µg/m^3
Carbon Monoxide (CO)	1 hour	35 ppm (40 mg/m^3)	20 ppm (23 mg/m^3)
	8 hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
Nitrogen Dioxide (NO_2)	1 hour	0.100 ppm (188 µg/m^3)	0.18 ppm (339 µg/m^3)
	Annual	0.053 ppm (100 µg/m^3)	0.030 ppm (57 µg/m^3)
Lead (Pb)	30 Day Average	--	1.5 µg/m^3
	Rolling three-month period, evaluated over a three-year period	0.15 µg/m^3	--
Sulfur Dioxide (SO_2)	1 hour	0.075 ppm (196 µg/m^3)	0.25 ppm (655 µg/m^3)
	3 hour	0.5 ppm (1300 µg/m^3)	--
	24 hour	0.14 ppm (for certain areas)	0.04 ppm (105 µg/m^3)
Hydrogen Sulfide (H_2S)	1 Hour	--	0.03 ppm (42 µg/m^3)
Sulfates	24 hour	--	25 µg/m^3
Vinyl Chloride	24 hour	--	0.010 ppm (26 µg/m^3)
Visibility-Reducing Particles	8 hour	--	Extinction coefficient of 0.23 per kilometer (visibility of 10 miles or more due to particles when relative humidity is less than 70%)

Source: CARB 2023a; Notes: ppm = part(s) per million; µg/m^3 = microgram(s) per cubic meter; mg/m^3 = milligram(s) per cubic meter

3.4.1.1.1 Ozone

O_3 is formed in the atmosphere by a series of complex chemical reactions and transformations in the presence of sunlight. Oxides of nitrogen (NO_X) and reactive organic gases are the principal constituents in these reactions. O_3 is a pungent, colorless, toxic gas and is a primary component of smog.

O_3 is known as a secondary pollutant because it is formed in the atmosphere through a complex series of chemical reactions, rather than emitted directly into the air. The major sources of NO_X in California are motor vehicles and other combustion processes. The major sources of reactive organic gases in California are motor vehicles and the evaporation of chemical solvents and fuels.

O_3 is a strong irritating gas that can chemically burn and cause narrowing of airways, forcing the lungs and heart to work harder to provide oxygen to the body. People most likely to be affected by O_3 include the elderly, the young, athletes, and those who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis.

3.4.1.1.2 PM_{10}

PM_{10}, or fugitive dust, consists of particulate matter (fine dusts and aerosols) that is 10 microns or smaller in aerodynamic diameter. For reference, 10 microns is about 1/7th the width of a human hair. When inhaled, particles larger than 10 microns are generally caught in the nose and throat and do not enter the lungs. PM_{10} gets into the large upper branches of the lungs just below the throat, where they are caught and removed (by coughing, spitting, or swallowing).

The primary sources of PM_{10} include dust, paved and unpaved roads, diesel exhaust, acidic aerosols, construction and demolition operations, soil and wind erosion, agricultural operations, residential wood combustion, and smoke. The amount of fugitive dust created by such activities is dependent largely on the type of soil, type of operation taking place, size of the area, degree of soil disturbance, soil moisture content, and wind speed. Secondary sources of PM_{10} include tailpipe emissions and industrial sources. These sources have different constituents and therefore, varying effects on health. Airborne particles absorb and adsorb toxic substances and can be inhaled and lodged in the lungs. Once in the lungs, the toxic substances can be absorbed into the bloodstream and carried throughout the body. PM_{10} concentrations tend to be lower during the winter months because meteorology greatly affects PM_{10} concentrations. During rainfall events, concentrations are relatively low, and on windy days, PM_{10} levels can be high. Photochemical aerosols, formed by chemical reactions with man-made emissions, may also influence PM_{10} concentrations.

When fugitive dust particles are inhaled, they can travel easily to the deep parts of the lungs and may remain there, causing respiratory illness, lung damage, and even premature death in sensitive people. Fugitive dust may also be a nuisance to those living and working nearby. Dust blown across roadways can lead to traffic accidents by reducing visibility. Fugitive dust can soil and damage materials and property, such as fabrics, vehicles, and buildings. Particulates deposited on agricultural crops can lower crop quality and yield. Additionally, fugitive dust can lead to the spread of San Joaquin Valley Fever, a potential health hazard caused by a fungus that lives in certain soil types throughout California.

3.4.1.1.3 $PM_{2.5}$

$PM_{2.5}$ is a mixture of particulate matter (fine dusts and aerosols) that is 2.5 microns or smaller in aerodynamic diameter. For reference, 2.5 micrometers is approximately 1/30th the size of a human hair, so small that several thousand of these particles could fit on the period at the end of this sentence. $PM_{2.5}$ can travel into the deepest portions of the lungs where gas exchange occurs between the air and the bloodstream. These particles are very dangerous because the deepest portions of the lungs have no efficient mechanisms for removing them. If these particles are soluble in water, they pass directly into the bloodstream within minutes. If they are not soluble in water, they are retained deep in the lungs and can remain there permanently.

$PM_{2.5}$ particles are emitted from activities such as industrial and residential combustion processes, wood burning, and from diesel and gasoline-powered vehicles. They are also formed in the atmosphere from gases such as SO_2, NO_X, ammonia, and volatile organic compounds (VOCs) that are emitted from combustion activities, and then become particles as a result of chemical transformations in the air (secondary particles).

Exposure to $PM_{2.5}$ increases the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death. Other effects include increased respiratory stress and disease, decreased lung function, alterations in lung tissue and structure, and alterations in respiratory tract defense mechanisms.

3.4.1.1.4 Carbon Monoxide

CO is a common colorless, odorless, highly toxic gas. It is produced by natural and anthropogenic combustion processes. The major source of CO in urban areas is incomplete combustion of carbon containing fuels (primarily gasoline, diesel fuel, and natural gas). However, it also results from combustion processes, including forest fires and agricultural burning. Over 80% of the CO emitted in urban areas is contributed by motor vehicles. Ambient CO concentrations are generally higher in the winter, usually on cold, clear days and nights with little or no wind. Low wind speeds inhibit horizontal dispersion, and surface inversions inhibit vertical mixing. Traffic-congested intersections have the potential to result in localized high levels of CO. These localized areas of elevated CO concentrations are termed CO “hotspots”. CO hotspots are defined as locations where ambient CO concentrations exceed the CAAQS (20 parts per million [ppm], 1-hour; 9 ppm, 8-hour).

When inhaled, CO does not directly harm the lungs; rather, it combines chemically with hemoglobin, the oxygen-transporting component of blood and diminishes the ability of blood to carry oxygen to the brain, heart, and other vital organs. Red blood cells have 220 times the attraction for CO than for oxygen. This affinity interferes with the movement of oxygen to the body’s tissues. Effects from CO exposure include headaches, nausea, and death. High levels of CO in a concentrated area can result in asphyxiation.

3.4.1.1.5 Nitrogen Dioxide

NO_2 is formed in the atmosphere primarily by the rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. It is a reddish-brown gas with an odor similar to that of bleach. NO_2 participates in the photochemical reactions that result in O_3. The greatest source of NO, and subsequently NO_2, is the high-temperature combustion of fossil fuels such as in motor vehicle engines and power plant boilers. NO_2 and NO are referred to collectively as NO_X.

NO_2 can irritate and damage the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections such as influenza. Negative health effects are apparent after exposure to NO_2 levels as low as 0.11 ppm for a few minutes. This level of exposure may elicit or alter sensory responses. Higher concentrations (0.45 – 1.5 ppm) may cause impaired pulmonary function, increased incidence of acute respiratory disease, and difficult breathing for both bronchitis sufferers and healthy persons.

3.4.1.1.6 Lead

Lead is a bluish-gray metal that occurs naturally in small quantities. Pure lead is insoluble in water. However, some lead compounds are water soluble. Lead and lead compounds in the atmosphere often come from fuel combustion sources, such as the burning of solid waste, coal, and oils. Historically, the largest source of lead in the atmosphere resulted from the combustion of leaded gasoline in motor vehicles. However, with the phase-out of leaded gasoline, concentrations of lead in the air have substantially decreased. Industrial sources of atmospheric lead include steel and iron factories, lead smelting and refining, and battery manufacturing. Atmospheric lead may also result from lead in entrained dust and dirt contaminated with lead.

Acute health effects of lead include gastrointestinal distress (such as colic), brain and kidney damage, and even death. Lead also has numerous chronic health effects, including anemia, central nervous system damage, reproductive dysfunction, as well as effects on blood pressure, kidney function, and vitamin D metabolism. The USEPA’s Office of Air Quality Planning and Standards ranks lead as a “high concern” pollutant based on its severe chronic toxicity.

3.4.1.1.7 Sulfur Dioxide

SO_2 is a colorless gas with a sharp, irritating odor. It can react in the atmosphere to produce sulfuric acid and sulfates, which contribute to acid deposition and atmospheric visibility reduction. It also contributes to the formation of PM_{10}. Most of the SO_2 emitted into the atmosphere is from the burning of sulfur-containing fossil fuels by mobile sources, such as marine vessels and farm equipment, and stationary fuel combustion.

SO_2 irritates the mucous membranes of the eyes and nose, and may also affect the mouth, trachea, and lungs, causing sore throat, coughing, and breathing difficulties.

3.4.1.1.8 Toxic Air Contaminants

Toxic air contaminants (TACs), also referred to as hazardous air pollutants, are air pollutants (excluding O_3, CO, SO_2, and NO_2) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunction, neurological disorders, heritable gene mutations, or other serious or irreversible acute or chronic health effects in humans. TACs are regulated under different federal and State regulatory processes than O_3 and the other criteria air pollutants. Health effects of TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TACs generally consist of four types: 1) organic chemicals such as benzene, dioxins, toluene, and perchloroethylene; 2) inorganic chemicals such as chlorine and arsenic; 3) fibers such as asbestos; and 4) metals such as mercury, cadmium, chromium, and nickel. These air contaminants are defined by the USEPA, the State of California, and other governmental agencies. Currently, more than 900 substances are regulated TACs under federal, state, and local regulations.

TACs are produced by a variety of sources, including industrial facilities such as refineries, chemical plants, chrome plating operations, and surface coating operations; commercial facilities such as dry cleaners and gasoline stations; motor vehicles, especially diesel-powered vehicles; and consumer products. TACs can be released as a result of normal industrial operations, as well as from accidental releases during process upset conditions.

Health effects from TACs vary with the type of pollutant, the concentration of the pollutant, the duration of exposure, and the exposure pathway. TACs usually get into the body through inhalation, though they can also be ingested or absorbed through the skin. Adverse effects on people tend to be either acute or chronic. Acute effects result from short-term, high levels of airborne toxic substances. These effects may include nausea, skin irritation, cardiopulmonary distress, and even death. Chronic effects result from long-term, low-level exposure to airborne toxic substances. Effects can range from relatively minor to life-threatening. Less serious chronic effects include skin rashes, dry skin, coughing, throat irritation, and headaches. More serious chronic effects include lung, liver, and kidney damage; nervous system damage; miscarriages; genetic and birth defects; and cancer. Many TACs can have both carcinogenic and non-carcinogenic health effects.

3.4.1.2 Existing Regional Air Quality

The air quality within the SCAB is primarily influenced by meteorology and a wide range of emissions sources, such as dense population centers, heavy vehicular traffic, and industry. The SCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High Pressure System. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into Riverside and San Bernardino counties. In the winter, the greatest pollution problem is the accumulation of CO and NO_X due to low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_X to form photochemical smog. The Air Quality Index is an indicator of overall air quality, taking into account criteria pollutant concentrations. In 2022, the City recorded 64 days for “Unhealthy for Sensitive Groups”, 29 days as “Unhealthy”, and 1 day as “Very Unhealthy”, with no days reported as “Hazardous” (USEPA 2023).

Measurements of ambient concentrations of the criteria pollutants are used by the USEPA and CARB to assess and classify the air quality of each air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national and state standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in “attainment.” If the pollutant exceeds the standard, the area is classified as a “nonattainment” area. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated “unclassified.”

The Los Angeles County portion of the SCAB is designated by the USEPA as a nonattainment area for ozone, lead, and $PM_{2.5}$; an attainment area for PM_{10}; and an attainment/unclassified area for NO_2. The SCAB is designated by CARB as a state-level nonattainment area for ozone, $PM_{2.5}$, and PM_{10} and as an attainment area for lead, CO, NO_2, and SO_2. Table 3.4-3 shows the attainment status of the SCAB for the federal and state standards.

The SCAQMD divides the SCAB into 38 source receptor areas in which 42 monitoring stations currently operate to monitor concentrations of air pollutants in the region. The City includes areas located in six source receptor areas (1, 2, 3, 4, 7, and 12) (SCAQMD 2008). Given the large geographic region of the proposed Program, an extensive listing of the air quality monitoring data collected at each SCAQMD monitoring station located within the Program Area is not provided in this PEIR. As individual projects are not assessed separately in this PEIR, the presentation of the air quality data collected by monitoring stations relevant to each project associated with the proposed Program is more applicable for inclusion in the environmental documents for future individual Program projects.

Table 3.4-3. South Coast Air Basin Attainment Status

Pollutant	Attainment Status	
	NAAQS	CAAQS
Ozone (O_3)	Extreme Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2)	Unclassified/Attainment	Attainment
Sulfur Dioxide (SO_2)	Unclassified/Attainment	Attainment
Carbon Monoxide (CO)	Unclassified/Attainment	Attainment
Particulates (as PM_{10})	Attainment	Nonattainment
Particulates (as $PM_{2.5}$)	Serious Nonattainment	Nonattainment
Lead (Pb)	Nonattainment (Los Angeles County Portion)	Attainment

Source: SCAQMD 2022a

3.4.1.3 Sensitive Receptors

Certain population groups are considered more sensitive to air pollutants than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardiorespiratory diseases such as asthma and bronchitis. Sensitive receptors (land uses) indicate locations where such individuals are typically found, namely schools, day care centers, hospitals, convalescent homes, residences of sensitive persons, and parks with active recreational uses.

Persons engaged in strenuous work or physical exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses such as parks are also considered sensitive due to the greater exposure to ambient air quality conditions, and because the presence of pollution detracts from the recreational experience.

Given that the Program Area is the entirety of the City of Los Angeles, individual downstream facilities that may be proposed are likely to be located within proximity to sensitive uses such as residences, schools, hospitals, daycare centers, etc.

3.4.2 Regulatory Framework

3.4.2.1 Federal

3.4.2.1.1 Clean Air Act

The Clean Air Act (CAA) governs air quality in the United States and is enforced by the USEPA. The USEPA is also responsible for establishing the NAAQS. As required by the CAA, the NAAQS have been established for seven major air pollutants: CO, NO_2, O_3, $PM_{2.5}$, PM_{10}, SO_2, and Pb. Primary standards set limits to protect public health, including the health of at-risk populations such as people with pre-existing heart or lung disease (such as asthmatics), children, and older adults. Secondary standards set limits to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings. The CAA requires the USEPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for primary standards based on whether the NAAQS have been achieved. The USEPA has classified the SCAB as a nonattainment area for O_3, $PM_{2.5}$, and Pb and an attainment/maintenance area for PM_{10}, CO, and NO_2.

In addition to the criteria pollutants, the air toxics provisions of the CAA require the USEPA to develop and enforce regulations to protect the public from exposure to airborne contaminants that are known to be hazardous to human health. In accordance with CAA Section 112, the USEPA establishes National Emission Standards for Hazardous Air Pollutants. The list of hazardous air pollutants or air toxics includes specific compounds that are known or suspected to cause cancer or other serious health effects.

3.4.2.2 State

3.4.2.2.1 California Clean Air Act

In addition to being subject to the requirements of the CAA, air quality in California is also governed by the California Clean Air Act (CCAA). In California, the CCAA is administered by CARB at the State level and by the air quality management districts and air pollution control districts at the regional and local levels.

The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. The CCAA requires CARB to designate areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard and are not used as a basis for designating areas as nonattainment. Under the CCAA, the Los Angeles County portion of the SCAB is designated as a nonattainment area for O_3, $PM_{2.5}$, and PM_{10}. Nonattainment areas must develop an emission inventory as the basis of a State Implementation Plan (SIP) that demonstrates how they will attain the standards by specified dates.

3.4.2.2.2 Off-Road Engine Standards

CARB regulates mobile sources of air pollution in the State of California. Self-propelled, off-road construction equipment is considered a vehicle, as defined by the California Vehicle Code. A vehicle may have an engine that both propels the vehicle and powers equipment mounted on the vehicle. As such, vehicles are generally exempt from regulation by local air districts. However, not included in exemption provisions is any equipment mounted on a vehicle that would otherwise require a permit per SCAQMD's rules and regulations.

Federal Tier 1 standards for off-road diesel engines were adopted as part of the California requirements for 1995. Federal Tier 2 and Tier 3 standards were adopted in 2000 and selectively apply to the full range of diesel off-road engine power categories. Both Tier 2 and 3 standards include durability requirements to ensure compliance with the standards throughout the useful life of the engine (40 CFR Sections 89.112, 13; CCR Section 2423).

On May 11, 2004, the USEPA signed the final rule implementing Tier 4 emission standards, which are to be phased-in over the period between 2008 and 2015 (69 Federal Register 38957-39273, 29 June 2004). The Tier 4 standards require that PM and NO_X emissions be further reduced by approximately 90%. Such emission reductions can be achieved through the use of advanced control technologies –including advanced exhaust gas after treatment similar to those required by the 2007–2010 standards for highway diesel engines.

3.4.2.2.3 Assembly Bill 2588

The Air Toxic "Hot Spots" Information and Assessment Act (AB 2588), as amended by SB 1731, requires operators of certain stationary sources to inventory air toxic emissions from their operations and, if directed to do so by the local air district, prepare a Health Risk Assessment (HRA) to determine the potential health impacts of such emissions. If the health impacts are determined to be "significant" (greater than 10 per 1 million exposures or non-cancer hazard index greater than 1.0), each facility operator must, upon approval of the HRA, provide public notification to affected individuals. The SCAQMD uses this data to place each facility into high, intermediate, and low priority categories. When considering the ranking, the potency, toxicity, quantity, volume, and proximity of the facility to receptors are evaluated by an air district. Facilities with prioritization scores less than or equal to 1 are categorized as low priority, and facilities with scores greater than or equal to 10 are categorized as high priority, which are required to prepare site-specific health risk assessments. Corresponding to the assigned priority score, each facility is assigned a program status, such as: Code: A - Priority Score > 10; B - 10< Risk <50; C - 50< Risk <100; D - Risk >100; E - Unprioritized; F - 1< Risk <10; G - exempt or out of business. Activities conducted at solid waste disposal facilities are subject to the requirements of AB 2588.

3.4.2.2.4 Airborne Toxics Control Measures

On July 22, 2004, the CARB initially adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial motor vehicles and subsequently amended it on October 20, 2005, October 19, 2009, December 12, 2013, and September 9, 2021. This Airborne Toxic Control Measure is set forth in Title 13, CCR, Section 2485, and requires, among other things, that drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, not idle the vehicle's primary diesel engine longer than 5 minutes at any location. On July 26, 2007, the CARB adopted a regulation to reduce diesel particulate matter (DPM) and NO_X emissions from in-use (existing) off-road heavy-duty diesel vehicles in California (Title 13, CCR Section 2449). Such vehicles are used in construction, mining, and industrial operations. In November 2022, CARB approved amendments to the off-road regulation as part of the 2022 State Strategy for the State Implementation Plan. The amendments will achieve additional NO_X and PM reductions and enhance enforceability of the regulation. This regulation supplements existing tiered emission standards for off-road diesel engines in California. LASAN service trucks with gross vehicle weight ratings over 10,000 pounds are subject to this regulation.

3.4.2.2.5 Portable Equipment Registration Program

The statewide Portable Equipment Registration Program establishes a uniform program to regulate portable engines and portable engine-driven equipment units. Once registered, engines and equipment units may operate throughout the State of California without the need to obtain individual permits from local air districts. Owners or operators of portable engines and certain types of equipment can register their units under the Portable Equipment Registration Program to operate their equipment anywhere in the State.

3.4.2.3 Local

3.4.2.3.1 SCAQMD

The 1977 Lewis Air Quality Management Act merged four air pollution control districts to create the SCAQMD to coordinate air quality planning efforts throughout southern California. It is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards. Programs include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. The SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

The SCAQMD monitors air quality over its jurisdiction of 10,743 square miles, including the SCAB, which covers an area of 6,745 square miles and is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. The SCAB includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The SCAQMD also regulates the Riverside County portion of the Salton Sea Air Basin and Mojave Desert Air Basin.

All areas designated as non-attainment under the CCAA are required to prepare plans showing how they will meet the air quality standards. The SCAQMD prepares the Air Quality Management Plan (AQMP) to address CAA and CCAA requirements by identifying policies and control measures. The Southern California Association of Governments (SCAG) assists by preparing the transportation portion of the AQMP. On December 2, 2022, the SCAQMD adopted its 2022 AQMP, which is now the legally enforceable plan for meeting the 24-hour $PM_{2.5}$ strategy standard (SCAQMD 2022b). The AQMP also incorporates the transportation strategy and transportation control measures from SCAG's adopted 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Plan. SCAG is required by law to ensure that transportation activities in its jurisdiction "conform" to, and are supportive of, the goals of regional and state air quality plans to attain the NAAQS. The RTP/SCS includes transportation programs, measures, and strategies generally designed to reduce vehicle miles traveled (VMT), which are contained in the AQMP. The SCAQMD combines its portion of the AQMP with those prepared by SCAG.

In addition to criteria pollutants, the SCAQMD also regulates air toxics. A cornerstone of its work was the development of the Multiple Air Toxics Exposure Study. The monitoring program measured a broad list of air pollutants, including both gases and particulates, and estimated the risk of cancer from breathing toxic air pollution throughout the region. The most recent Multiple Air Toxics Exposure Study (MATES V) found that the average cancer risk in Los Angeles County from carcinogenic air pollutants was 462 per million (SCAQMD 2021).

In its role as the local air quality regulatory agency, the SCAQMD also provides guidance on how environmental analyses should be prepared. This includes recommended thresholds of significance for evaluating air quality impacts. To determine whether air quality impacts from the proposed Program or Alternatives may be significant, impacts will be evaluated and compared to the criteria in Table 3.4-4 and 3.4-5. If impacts equal or exceed any of the criteria in Tables 3.4-4 and 3.4-5, they will be considered significant.

Table 3.4-4. SCAQMD Air Quality Mass Daily Significance Thresholds

Pollutant	Mass Daily Thresholds (lbs/day)	
	Construction	Operation
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
Oxides of sulfur (SO_X)	150	150
CO	550	550
Lead	3	3

Source: SCAQMD 2023; lbs=pounds

Table 3.4-5. SCAQMD Air Quality Thresholds of Significance – Toxic Air Contaminants and Odor

Pollutant	Construction/Operation
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402

SCAQMD is currently in the process of developing an "Air Quality Analysis Guidance Handbook" to replace the SCAQMD CEQA Handbook. Until the Air Quality Analysis Guidance Handbook becomes available, the SCAQMD provides supplemental information to assist in air quality analysis. Specifically, the SCAQMD provides Localized Significance Thresholds (LSTs) for projects that are 5 acres or less. To provide a conservative assessment, the LSTs of source receptor area Zone 12 – South Central Los Angeles, were used to evaluate the localized air quality impacts since this source receptor area has the most stringent thresholds in the City. In addition, each individual project site is considered a 2-acre construction site for the purpose of comparing to the relevant LSTs. Since the potential downstream facility sites span several source receptor areas, the most conservative emissions thresholds for all source receptor areas located 25 feet from individual project sites as summarized in Table 3.4-6, are used to determine whether air quality impacts from the proposed Program may be significant.

Table 3.4-6. Emission Localized Thresholds of Significance for Construction and Operation (2-Acre Project Site in Source Receptor Area-12, 25 Meters from Sensitive Receptor)

Pollutant	Localized Significance Thresholds (lbs/day)	
	Construction	Operation
NO_x	65	65
CO	346	346
PM_{10}	7	2
$PM_{2.5}$	4	1

Source: SCAQMD 2008

The SCAQMD has established various rules to manage air quality in the SCAB, including Rules 402 and 403. Rule 402 (Nuisance) states that a person should not emit air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Rule 403 (Fugitive Dust) controls fugitive dust through various requirements including, but not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, and maintaining effective cover over exposed areas.

3.4.2.3.2 City of Los Angeles General Plan

The Air Quality, Mobility, Safety, and Health Elements of the City's General Plan includes several goals that aim to improve air quality to increase energy efficiency through land use and transportation planning; the use of renewable resources and less-polluting fuels; and the implementation of conservation measures including passive methods such as site orientation and tree planting (Los Angeles 2003, 2016, 2021a, 2021b). The applicable goals, objectives, and policies of the four Elements are summarized below.

Air Quality Element

Goal 1: Good air quality and mobility in an environment of continued population growth and healthy economic structure.

- Objective 1.1: It is the objective of the City of Los Angeles to reduce air pollutants consistent with the Regional Air Quality Management Plan (AQMP), increase traffic mobility, and sustain economic growth citywide.
- Objective 1.3: It is the objective of the City of Los Angeles to reduce particulate air pollutants emanating from unpaved areas, parking lots, and construction sites.
  - Policy 1.3.1: Minimize particulate emissions from construction sites.
  - Policy 1.3.2: Minimize particulate emissions from unpaved roads and parking lots which are associated with vehicular traffic.

Goal 4: Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.

- Objective 4.1: It is the objective of the City of Los Angeles to include the regional attainment of ambient air quality standards as a primary consideration in land use planning.
- Objective 4.2: It is the objective of the City of Los Angeles to reduce vehicle trips and vehicle miles traveled associated with land use patterns.
  - Policy 4.2.3: Ensure that new development is compatible with pedestrian, bicycles, transit, and alternative fuel vehicles.
  - Policy 4.2.4: Require that air quality impacts be a consideration in the review and approval of all discretionary projects.
  - Policy 4.2.5: Emphasize trip reduction, alternative transit, and congestion management measures for discretionary projects.
- Objective 4.3: It is the objective of the City of Los Angeles to ensure that land use plans separate major sources of air pollution from sensitive receptors such as schools, hospitals, and parks.

Goals 5: Energy efficiency through land use and transportation planning, the use of renewable resources and less polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting.

- Objective 5.1: It is the objective of the City of Los Angeles to increase energy efficiency of City facilities and private developments.
  - Policy 5.1.4: Reduce energy consumption and associated air emissions by encouraging waste reduction and recycling.
- Objective 5.2: It is the objective of the City of Los Angeles to have a portion of the City's service fleet be comprised of alternative fuel powered vehicles, subject to availability of funding, and practical feasibility.
  - Policy 5.2.1: Reduce emissions from its own vehicles by continuing scheduled maintenance, inspection and vehicle replacement programs; by adhering to the State of California's emissions

testing and monitoring programs; by using alternative fuel powered vehicles wherever feasible, in accordance with regulatory agencies and the City Council policies.

- Objective 5.3: It is the objective of the City of Los Angeles to reduce the use of polluting fuels in stationary sources.
  - Policy 5.3.1: Support the development and use of equipment powered by electric or low-emitting fuels.

Safety Element

Goal 1: Hazard Mitigations. A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to hazards is minimized.

- Objective 1.2: Confront the global climate emergency by setting measurable targets for carbon reduction that are consistent with the best available methods and data, center equity and environmental justice, secure fossil free jobs, and foster broader environmental sustainability and resiliency
  - Policy 1.2.8: Industrial Emissions and Air Quality Monitoring: In keeping with the Air Quality Element, ensure that every Angeleno can breathe clean, healthy air by addressing air pollution from all sources, with a particular emphasis on prioritizing the health and wellbeing of overburdened families and delivering environmental justice.

Mobility Element

Chapter 4: Clean Environments & Healthy Communities relevant objectives are as follows:

- Objective 5.7: Reduce the number of unhealthy air quality days to zero by 2025.

Health Element

Chapter 5: An Environment Where Life Thrives relevant objectives are as follows:

- Objective 5.1: Reduce air pollution from stationary and mobile sources; protect human health and welfare and promote improved respiratory health.
- Objective 5.7: Promote land use policies that reduce per capita greenhouse gas emissions, result in improved air quality and decreased air pollution, especially for children, seniors, and others susceptible to respiratory diseases.

3.4.3 Impact Assessment

3.4.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to air quality. The Program would have a significant impact to air quality if the Program would:

a. Conflict with or obstruct implementation of the applicable air quality plan.
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

c. Expose sensitive receptors to substantial pollutant concentrations.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The City has not adopted specific Citywide significance thresholds for air quality impacts. However, because of the SCAQMD's regulatory role in the SCAB, this City refers to the screening criteria, significance thresholds, and analysis methodologies in the SCAQMD CEQA Handbook to assist in evaluating projects proposed within the City. Accordingly, as detailed in Section 3.4.2.3.1 above, the SCAQMD provides Air Quality Significance Thresholds to assess the impact of project-related air pollution emissions. Table 3.4-3 above presents these significance thresholds. There are separate thresholds for construction-related and operational emissions. A project with daily emission rates below these thresholds is considered to have a less than significant effect on regional air quality and to not make a considerable contribution to a cumulative impact. Further, SCAQMD provides LSTs for projects that are five acres or less. To provide a conservative assessment, the LSTs of source receptor area Zone 12 – South Central Los Angeles, were used to evaluate the localized air quality impacts since this source receptor area has the most stringent thresholds in the City. In addition, each individual project site is considered a 2-acre construction site for the purpose of comparing to the relevant LSTs. Since any construction and operation of sites associated with implementation of the proposed Program are currently unknown, the most conservative emissions thresholds for all source receptor areas located 25 feet from the Project sites as summarized in Table 3.4-6 (above), are used to determine whether air quality impacts from the proposed Program may be significant. If the emissions exceed the screening level thresholds in the lookup tables, the site would have the potential to result in significant local impacts and the SCAQMD recommends air quality dispersion modeling to assess impacts to nearby sensitive receptors.

3.4.3.2 Methodology

Emissions associated with construction and operation activities of downstream facilities were forecasted using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.18, the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model, published by CARB, include the Pavley standards and Low Carbon Fuel standards. The model also identifies project design features, regulatory measures, and control measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District, the San Joaquin Valley Air Pollution Control District, and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction and operational emissions quantification, which forms the basis for the impact analysis of downstream facilities.

3.4.3.2.1 Facility Size Assumptions

As detailed in Section 3.1, Approach to Environmental Analysis, the SWIRP included detailed assessment of the City's current solid waste management facilities, and through numerical modeling and facility analysis, projected the likely range and size of new facilities that may be required. Land use data and assumptions for building size and project lot size, as provided in the SWIRP, used for CalEEMod input are presented in Table 3.4-7.

Table 3.4-7. Land Use Data for CalEEMod Input

Facility Type	Land Use Subtype	Building Size (square feet)	Project Lot Site (acres)
Green Bin Facilities			
Anaerobic Digestion	General Heavy Industry	180,000	7
Aerobic Composting and Mulching	General Heavy Industry	1,600	30
Blue Bin Facilities			
Clean Materials Recovery	General Heavy Industry	180,000	7
Resource Recovery	General Heavy Industry	52,000	2
Construction and Demolition Materials Processing	General Heavy Industry	180,000	10
Black Bin Facilities			
Mixed Materials Processing	General Heavy Industry	155,000	6
Advanced Thermal Recycling	General Heavy Industry	260,000	10
Non-Combustion Thermal Technologies	General Heavy Industry	130,000	5

3.4.3.2.2 Construction Assumptions

Since specific construction data for each of the proposed facility types is not available at this time, the analysis of emissions associated with construction activities relies on CalEEMod defaults for off-road construction equipment type, count, fuel type, engine tier, hours of operation, load factor, and fleet average age, which were developed based on data from similar land development projects. This includes assumptions on typical construction duration and equipment that would be used. The equipment used during project construction was assumed to be the same for the construction of each facility type and is summarized in Table 3.4-8.

CalEEMod defaults were also used for trip types, trips per day, trip length, and fleet mix for mobile source emissions associated with project construction (refer to Table 3.18-5 provided in Section 3.18, Transportation, and additional fleet mix assumptions provided in Appendix C).

Table 3.4-8. Project Construction Equipment Summary

Construction Phase	Equipment Type	Fuel Type	Engine Tier[1]	Number per Day	Hours per Day
Grading	Excavators	Diesel	Average	1	8
	Graders	Diesel	Average	1	8
	Rubber Tired Dozers	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	3	8
Building Construction	Cranes	Diesel	Average	1	7
	Forklifts	Diesel	Average	3	8
	Generator Sets	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	3	7
	Welders	Diesel	Average	1	8
Paving	Pavers	Diesel	Average	2	8
	Paving Equipment	Diesel	Average	2	8
	Rollers	Diesel	Average	2	8
Architectural Coating	Air Compressors	Diesel	Average	1	6
Trenching	Excavators	Diesel	Average	2	8
	Other General Industrial Equipment	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	1	8

Notes:[1] The average engine tier is the fleetwide average engine tier statewide for the calendar year.

3.4.3.2.3 Operations Assumptions

The assumptions for the types of off-road and stationary equipment used during project operation are summarized in Table 3.4-9. This estimate of emissions associated with operations incorporates the assumption that the number of operational equipment is scaled based on the average between the incoming and outgoing material predicted for each facility:

- An average of 0 - 300 tons per day (tpd) would be equivalent to one set of operational off-road equipment;
- An average of 301 - 600 tpd would be equivalent to two sets of operational off-road equipment; and
- An average of 601 - 900 tpd would be equivalent to three sets of operational off-road equipment.

In addition, one emergency generator and/or fire pump were assumed to be present at select facilities. As applicable, diesel emergency engines were assumed to normally operate up to 1 hour per day and up to 50 hours per year for planned routine maintenance and testing. The typical ratings for these engines is assumed, with a rating of 200 horsepower (hp) for generators and 50 hp for fire pumps.

For the advanced thermal recycling technology, a 1 million British Thermal Unit (BTU) per hour gas-fired boiler/process heater was included as a stationary source, operating 24 hours per day. For the non-combustion thermal technology facility, a 1 million BTU per hour synthesis gas fired internal combustion engine-generator was included as a stationary source, also operating 24 hours per day. These stationary sources, and the emergency engines, would be subject to applicable SCAQMD rules and regulations, as discussed in Section 3.4.3.2.4.

Emissions for operational off-road equipment such as on-site diesel fueled "grinders/shredders/screens" and "roll-off vehicles" are also included in the CalEEMod emissions estimates and are classified in CalEEMod as "other general industrial equipment" and "other materials handling equipment," respectively, because CalEEMod does not specifically list material "grinders/shredders/screens" or "roll-off vehicles" as off-road equipment types. For emissions estimation purposes, it was assumed that facilities would operate 6 days per week, 8 hours per day (closed Sundays). All future operational off-road equipment was assumed to be equipped with Tier 4 Final engines.

Table 3.4-9. Project Operational Equipment Summary

Facility Type	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours per Day
Green Bin Facilities					
Anaerobic Digestion	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1
Aerobic Composting and Mulching	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2	8
	Forklifts	Diesel	Tier 4 Final	2	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	2	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	2	8
Blue Bin Facilities					
Clean Materials Recovery	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8

Facility Type	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours per Day
	Emergency Generator	Diesel	Average	1	1
Resource Recovery	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
Construction and Demolition Materials Processing	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Emergency Generator	Diesel	Average	1	1
Black Bin Facilities					
Mixed Material Processing	Tractors/Loaders/Backhoes	Diesel	Average	1	8
	Forklifts	Diesel	Average	1	8
	Other Material Handling Equipment	Diesel	Average	1	8
	Emergency Generator	Diesel	Average	1	1
Advanced Thermal Recycling	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3	8
	Forklifts	Diesel	Tier 4 Final	3	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	3	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	3	8
	Boiler/Heater	Natural Gas	Rule Compliant	1	24
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1
Non-Combustion Thermal Technologies	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8

Facility Type	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours per Day
	Internal Combustion Engine	Syngas (Biogas)	Rule Compliant	1	24
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1

Notes: [1] The average engine tier is the fleetwide average engine tier statewide for the calendar year.

For the estimate of mobile-source emissions associated with operations, the total trips per day occurring at each facility during project operation is detailed in Table 3.18-6 provided in Section 3.18, Transportation, which was used to calculate the fleet mix. For operation of the various types of facilities, CalEEMod aggregates mobile sources into two broad categories (typical fuel types assumed, diesel or gasoline):

- Heavy Mobile (medium-heavy and heavy-heavy duty predominately diesel trucks [MHDT, HHDT]); and
- Light Mobile (light duty gasoline automobiles and trucks [LDA, LDT1, LDT2]).

3.4.3.2.4 Regulatory Compliance Control Measures

The control measures selected in CalEEMod were selected because these measures are needed to comply with SCAQMD rules, regulations, and guidelines. These measures only affect the PM and VOC emissions of the construction phase, and VOC and GHG emissions of the operational phase.

CalEEMod outputs present the emissions results as unmitigated and mitigated when additional controls are selected in the model. These Best Management Practices (BMPs) will be employed to minimize fugitive dust during construction of downstream facilities, and watering and sweeping is reflected in the "mitigated" PM_{10} and $PM_{2.5}$ emissions shown in CalEEMod output file (Appendix C). Although labeled as "mitigated" emissions, these controls are BMPs required by SCAQMD Rule 403 and hence do not require a mitigation measure to be implemented. Table 3.4-10 shows the measures that are applied to project construction.

Similarly, the BMPs for the operational phase of the Project are project features and therefore the operation of the downstream facilities does not require a mitigation measure to be implemented. Table 3.4-11 shows the measures that are applied to project operation.

In addition to the control features shown in Table 3.4-10 and 3.4-11, construction and operation of downstream facilities would be required to comply with the applicable SCAQMD rules, including but not limited to:

- **Rule 404, Particulate Matter - Concentration:** Rule 404 sets concentration limits for PM_{10} emissions based on process flow rate.
- **Rule 407, Liquid Gas & Air Contaminants:** Rule 407 sets concentration limits for CO and sulfur compounds that any person is discharging into the atmosphere from any equipment.
- **Rule 409, Combustion Contaminants:** Rule 409 sets concentration limits for any equipment combustion contaminants being discharged into the atmosphere.

- **Rule 431.1, Sulfur Content of Gaseous Fuels:** The purpose of Rule 431.1 is to reduce SO_X emissions from the burning of gaseous fuels in stationary equipment requiring a permit to operate by the SCAQMD.
- **Rule 474, Fuel Burning Equipment – Oxides of Nitrogen:** Rule 474 sets concentration limits for NO_X discharged into the atmosphere from non-mobile fuel burning and steam generating equipment.
- **Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines:** The purpose of Rule 1110.2 is to reduce NO_X, VOCs, and CO from engines rated over 50 brake horsepower.
- **Rule 1146.2, Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters:** The purpose of Rule 1146.2 is to reduce NO_X emissions from natural gas-fired water heaters, boilers, and process heaters that have a rated heat input capacity less than or equal to 2,000,000 BTU) per hour.

Table 3.4-10. Project Construction Control Features Summary

Source	Control Measure	Reduction or Limit
Construction	Water Exposed Surfaces 3x Daily	74% PM Reduction
	Water Unpaved Construction Roads	55% PM Reduction
	Sweep Paved Roads	9% PM Reduction
	Use Low-VOC Paints for Construction	VOC Emission Factor Limit: 50 g/L

Table 3.4-11. Project Operation Control Features Summary

Source	Control Measure	Reduction or Limit
Area (Operations)	Use Low-VOC Cleaning Supplies	--
	Use Low-VOC Paints	VOC Emission Factor Limit: 50 g/L
Water	Low-flow Bathroom Faucet	30% Reduction in Water Use
	Low-flow Kitchen Faucet	11% Reduction in Water Use
	Low-flow Toilet	13% Reduction in Water Use
	Low-flow Shower	11% Reduction in Water Use
	low-flow urinal	12% Reduction in Water Use

3.4.3.2.5 Health Risk Assessment

From the eight facility types reviewed for this PEIR, the Advanced Thermal Recycling facility was identified as the scenario with the most truck trips per day, and thus the greatest potential for DPM emissions (CARB 2022). Therefore, a mobile source HRA was conducted using an Advanced Thermal Recycling facility as a conservative assessment for all eight scenarios.

The HRA was conducted in accordance with SCAQMD Modeling Guidance for American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (SCAQMD 2006), Risk

Assessment Procedures (SCAQMD 2017), and the OEHHA Air Toxics Hot Spots Program Guidance Manual (OEHHA 2015).

The air dispersion model used for this HRA is AERMOD. AERMOD is a steady state plume dispersion model that incorporates air dispersion calculations based on planetary boundary layer turbulence structure and scaling concepts. Using emission rates, exhaust parameters, terrain characteristics, and meteorological inputs, AERMOD calculates downwind pollutant concentrations at specified receptor locations. For this facility, the results from the AERMOD runs were imported into an HRA program for further processing and analysis. AERMOD is recommended by both the USEPA and SCAQMD for stationary source air dispersion modeling projects. The air dispersion modeling methodology was based extensively on the SCAQMD's HRA guidelines (SCAQMD 2017). This methodology is described in detail in Appendix C.

The programmatic HRA health risk calculations were performed using the HARP2 Air Dispersion Modeling and Risk Tool [version 22118] (CARB 2023b). The period-averaged ground level concentrations that were determined for each source using AERMOD were imported into HARP2 and were then used to estimate the long-term cancer health risk from DPM to an individual.

A description of the health risk indices and associated calculations conducted in HARP2 is provided below. Since DPM is the only TAC in this programmatic HRA, and only carcinogenic toxicity values are documented for DPM, only cancer risk assessments were conducted.

Cancer Risk

Cancer risk is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of exposure to TACs over a period of time. Cancer risk at all receptors was estimated over a 30-year period, representing an individual's high-end residency time.

Residential receptor cancer risk estimates were calculated using the CARB's Risk Management Policy (RMP), "RMP Using the Derived Method," and off-site workplace cancer risk estimates used the "OEHHA Derived" calculation method. The RMP uses high-end breathing rates (95th percentile) for children from the 3rd trimester through age 2 and 80th percentile breathing rates for all other ages for residential exposures (CARB and CAPCOA 2015). The "OEHHA Derived" method uses high-end exposure parameters for the top two exposure pathways and mean exposure parameters for the remaining pathways for cancer risk estimates. The "RMP Using the Derived Method" combines the two approaches.

Projected Cancer Risk with 2045 Zero-Emission Mobile Sources

In support of the City of Los Angeles sustainability goals of 100% fleet electrification, LASAN is looking to electrify their fleet of solid waste collection vehicles by 2035. To illustrate the relative health impacts associated with a decrease in mobile source emissions, a residential receptor cancer risk prediction was also calculated based on the mobile source truck emissions linearly decreasing to zero. For a conservative analysis, an assumption that the fleet would not be fully converted until 2045 is used herein. Table 3.4-12 provides details on mobile source emission reductions. In this case, a Tier 2 Exposure Duration of 5 years was selected in HARP2 starting at the 3rd trimester and sequentially re-run five times in 5-year increments. The 5-year cancer risks were then summed to yield the 2025-2055 30-year cancer risk. A similar scaling was conducted for worker receptors, but for a 25-year duration with a 16-year-old start age.

Table 3.4-12. 2045 Zero-Emission Mobile Source Scaling

Receptor Type	Age Group	Corresponding Years	Mobile Source Emissions
Residential	3rd Trimester – 5 years old	2025 -2030	100%
	5 – 10 years old	2030 – 2035	75%
	10 – 15 years old	2035 – 2040	50%
	15 – 20 years old	2040 – 2045	25%
	20 – 25 years old	2045 – 2050	0%
	25 – 30 years old	2050 – 2055	0%
Worker	16 – 21 years old	2025 -2030	100%
	21 – 26 years old	2030 – 2035	75%
	26 – 31 years old	2035 – 2040	50%
	31 – 36 years old	2040 – 2045	25%
	36 – 41 years old	2045 – 2050	0%

3.4.3.3 Program

3.4.3.3.1 Upstream Measures

Impact Criterion a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact Criterion b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Air quality impacts associated with the implementation of the upstream Program policies are primarily related to the following:

- Transition to alternative materials associated with bans; and
- Change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse or take-back programs (refer to Section 3.18, Transportation, for additional detail on transportation requirements, associated trips, and change in VMT).

Specifically, for analysis of alternative materials associated with bans, the manufacturing process of alternative products such as paper, glass, or other plastic products can vary as would the associated air emissions. These would be dependent on the manufacturing process, input materials, and origin of the raw materials anywhere in the world. By eliminating the use of certain products, the Program would result in less manufacturing of the banned products but would increase the manufacture of substitute products. Life cycle emissions include indirect emissions associated with materials manufacture. However, these indirect emissions involve numerous parties, each of which is responsible for emissions of their particular activity. Because the origin of the raw materials purchased is not known, the manufacturing information for those raw materials is also not known, and specific suppliers are variable, calculation of life cycle emissions would be speculative. Thus, for the purposes of analyzing air quality, manufacturing emissions of criteria and toxic air pollutants are not included in this analysis because information is not known, and the proposed Program does not propose any change to any manufacturing processes. The California Natural Resources Agency (2009) found that life cycle analyses were not warranted for project-specific CEQA analysis in most situations.

Accordingly, the evaluation of air quality impacts associated with implementation of upstream measures focuses on the associated change in consumption, disposal, and associated vehicle trips. Table 3.4-13 provides an analysis of potential impacts that could result from implementation of the upstream policies and programs associated with the Program relative to air quality. Additional discussion for select policies (i.e., policies with potential impacts that warrant additional in-depth analysis) follows the table. As shown in Table 3.4-13, several of the policies and programs associated with the Program would result in a shift in materials disposed as waste to recyclable or compostable materials. As further discussed in Section 3.18, Transportation, additional truck trips are not expected under these scenarios since trucks are already coming to pick up the three bins and the change would be the quantity of material in each bin. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown but could range from negligible if return logistics is at locations the consumer would travel to in any case, to a relatively minor increase (refer to Section 3.18, Transportation). As discussed in detail below, the nature of these policies is such that they would not conflict with or obstruct implementation of the applicable air quality plan.

Table 3.4-13. Analysis of Upstream Measures – Air Quality Impacts

Measure	Air Quality Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	The ban of single-use plastic bottles would result in an increase in the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, as well as non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. This policy would likely lead to a reduction in materials placed in blue or black bins and would not result in a change in LASAN service truck trips. Use of alternative materials could result in an increase in the weight and volume of products, which could result in additional shipment trips and associated mobile source emissions. However, additional trips are not expected to generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4. The type of materials used for single-use bottles is assumed to have no effect on consumer purchase or transport behavior from the retailer to the consumer. Thus, transport of filled single-use products to the consumer would not change transport behavior at this stage. Similarly, alternative single-use beverage containers that are covered under the California's Beverage Container Recycling Program are assumed to be redeemed for the California Redemption Value (CRV) by the consumer. As such, alternative single-use materials that are redeemed for the CRV are not expected to result in a change in trips under the assumption that movement of recyclable bottles from consumer to secondary processors to manufacturers are comparable to those associated with plastic bottles redeemed for the CRV. For bottles that are not or cannot be redeemed for the CRV, this policy would not result in a significant change in materials placed in blue bins since many replacement products would also be recyclable (i.e., aluminum or glass bottles), but may lead to an increase in materials placed in the black bin (e.g., non-recyclable cartons and pouches). A change in blue bin or black bin truck trips are not expected under this scenario because trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Accordingly, the proposed Program would not emit criteria pollutants above the SCAQMD's established thresholds (Table 3.4-4). Therefore, a ban of single-use plastic water bottles would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant. *This impact is discussed in further detail below*.	Less than Significant
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets and certain jugs be refillable would encourage reuse and refilling of products in the provided refillable containers. The materials used for these refillable containers are assumed to not be significantly different from the containers that are currently used for these products but instead could be refilled at the retailer via bulk dispensing stations. Therefore, this policy is not likely to alter the shipping requirements from the manufacturer or distribution to the retailer except that 25% of the product would be shipped in bulk containers, rather than individually packaged products. Similarly, consumers are assumed to continue to either purchase products in the reusable containers or would participate in product refill programs. Under the refill scenario, consumer trips to the retailer would not change as a result of this policy under the assumption that consumers would return with the empty containers to be refilled at the same retailer that they would have otherwise purchased single-use packaged items.	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
	With respect to end-of-life transportation requirements, this policy would lead to a decrease in the use and disposal of single-use packaging, which would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. As such, implementation of a requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets would not increase VMT as compared with products in single-use packaging. Accordingly, the proposed Program would not emit criteria pollutants above the SCAQMD's established thresholds (Table 3.4-4). Therefore, implementing a requirement that 25% of all plastic bottles and jugs be refillable would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. Overall, the transition to refillable bottles is not expected to result in an increase in VMT. Accordingly, the proposed Program would not emit criteria pollutants above the SCAQMD's established thresholds (Table 3.4-4). Therefore, implementing a requirement that 10% of all beverage bottles be refillable would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Plastic Bottle Policies: Leashed Lids	A range of lid tethering systems have been developed that do not require modification to existing bottle design and filling systems and would not result in a change in trips from the manufacturer to the point of sale or distribution. Further, tethered cap systems would not measurably increase the volume of municipal solid waste and would not result in a perceivable change in materials placed in municipal solid waste collection bins. Therefore, a requirement that all lids on plastic beverage bottles be leashed to the bottle would not result in a change in transportation requirements for these materials. No other sources of air pollutants are identified for this policy. Accordingly, implementing a requirement that all lids on plastic beverage bottles be leashed would not conflict with or obstruct implementation of the applicable air quality plan and no impact would occur.	No Impact
Plastic Bottle Policies: Single-Use Plastic	A ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
Beverage Holder Rings	often made of HDPE (resin identification code 2), which is accepted for recycling within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are accepted for recycling in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited (refer to Section 3.18, Transportation). Depending on the type of material used, this policy may reduce materials placed in black bins (since plastic beverage holders are not recyclable) and increase materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Accordingly, a ban on plastic beverage holder rings is not expected to increase VMT over existing conditions and would not contribute to an increase of associated criteria pollutants. No other sources of air pollutants are identified for this policy. Therefore, a ban on plastic beverage holder rings would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in consumption and use of single-use foodware items which would lead to a decrease in materials placed in blue bins or black bins and may result in an overall decrease in trips associated with solid waste disposal and management. Similarly, a shift toward use of reusable foodware would decrease the consumption of single-use foodware at restaurants which would lead to a corresponding decrease in trips (and associated criteria pollutants) associated with distribution of single-use foodware materials. Therefore, this policy would not increase any trips as a result of its implementation. No other sources of air pollutants are identified for this policy. As such, implementation of this policy would not conflict with or obstruct implementation of the applicable air quality plan and less than significant impacts would occur.	Less than Significant
Foodware Policies: Single-Use To-Go Foodware	Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, and/or all single-use to-go foodware is recyclable or compostable, and/or all single-use to-go foodware contain a minimum of 30% post-consumer recycled content would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Currently, reusable foodware programs are operated either by individual restaurants, where customers return the used containers back to the same restaurant, or as a collective with collection points located at restaurants and cafés as well as at or close to various common destinations for takeaway food, such as hotels and offices, enabling consumers to drop off their reusables while carrying out other errands. Under the collective scenario, system service providers collect items, clean them, and redistribute them back to restaurants and cafés. Cleaning the packaging at the café or restaurant rather than a centralized cleaning model generates fewer trips as compared with a centralized cleaning model delivered by system service providers. It should be noted that this policy may also encourage	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
	customers to bring in their own containers for to-go orders, which would also reduce trips as compared with reusable foodware provided by the restaurant. With respect to customer behavior associated with return of the foodware, there may be no additional trips generated if customers return the foodware the next time they return to the restaurant or while carrying out other errands. Alternatively, customers may make a trip solely to return the containers, resulting in additional VMT as compared with single-use to-go foodware. The relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of customers that make a dedicated trip to return the containers. As an example, assuming 5% of customers make a special trip to return foodware, the additional VMT would be 250 miles for every 1,000 to-go meals for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of customers make a special trip. However, an increase in daily VMT associated with extra trips is not expected to generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4. In addition, a 2020 SIP submission demonstrates that emissions increases from VMT growth are adequately offset by technology improvements and transportation strategies (CARB 2020). Therefore, any associated increase in VMT and associated emissions would not conflict with or obstruct implementation of the applicable 2022 SCAQMD AQMP. No other sources of air pollutants are identified for this policy. As such, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. This shift in materials may increase the materials that can be placed in green bins (i.e., compostable materials) or blue bins (i.e., recyclable materials) but may decrease the volume of materials placed in black bins (i.e., general waste) since bioplastics are not currently accepted for composting or recycling at the existing City-contracted existing facilities. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. The transport of alternative single-use materials to the point of sale or distribution is expected to be comparable to bioplastics as the density and volume of alternative single-use products (e.g., recycled content plastics or paper products) are comparable to bioplastic products. Therefore, this policy would not result in a net change in VMT and associated emissions as compared with PLA products. No other sources of air pollutants are identified for this policy. Accordingly, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant impact.	Less than Significant
Foodware Policies: Meal Kit Reuse and Recycling	Prohibiting the sale of delivery meal kits in the City unless the meal kit manufacturers/providers establish and fund take-back and/or reuse programs for non-recyclable components of their meal kits would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin.	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
	It is assumed that take-back programs would be facilitated from existing operation locations and would not require construction of new facilities. For the implementation of take-back and reuse programs, there would be the potential for an increase in trips to return items to the specified take-back location. Some meal kit providers, such as Imperfect Foods, take back reusable and recyclable packaging when the next delivery is dropped off, thus avoiding extra trips. Other schemes require a customer to schedule pickup of reusable meal kit items from their home. With respect to extra trips associated with return of reusable meal kit components, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance, percentage of extra trips, and whether pickups are coordinated and optimized to reduce VMT. As an example, assuming 5% of meal kits require an extra trip to pick up the reusable components, the additional VMT would be 250 miles for every 1,000 pickups for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of reusable meal kit components require an extra trip. However, an increase in daily VMT associated with extra trips is not expected to generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4. In addition, a 2020 SIP submission demonstrates that emissions increases from VMT growth are adequately offset by technology improvements and transportation strategies (CARB 2020). Therefore, any associated increase in VMT and associated emissions would not conflict with or obstruct implementation of the applicable 2022 SCAQMD Air Quality Plan. No other sources of air pollutants are identified for this policy. As such, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	
Foodware Policies: City Reusable Foodware Pilot Projects	Establishing pilot programs with the goal of reducing plastic pollution and encouraging replacement of single-use foodware with reusable products would result in a decrease in materials placed in blue bins or black bins and would not result in an increase in trips (and associated emissions) associated with distribution of alternative foodware materials. In addition, it is assumed that most food service establishments have the required washing equipment on-site in accordance with CHSC Section 114099. However, it is assumed that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. As this type of modification would be minor, the emissions associated with construction equipment and/or vehicle trips would be insignificant as a result. No other sources of air pollutants are identified for this policy. Therefore, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Foodware Policies: Plastic Tea Bags	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of tea bags constructed of or containing plastic components would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to tea bags with plastic components. No other sources of air pollutants are identified for this policy. Therefore, this policy would not conflict with or obstruct implementation of the applicable air quality plan, and impacts would be less than significant.	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
Foodware Policies: Beverage Pods	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of single-use beverage pods would not result in a change in trips associated with distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to that associated with coffee/beverage pods. No other sources of air pollutants are identified for this policy. Therefore, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Textile Policies: Textile Disposal Policies	Prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would result in less material placed in black bins. For the implementation of take-back/resale/donation programs, textiles would be diverted from the landfill and instead transported to take-back/resale/donation collection points. The transport of processed items to the resale location is assumed to be comparable to transport of new materials to retailers (i.e., resale items are assumed to have comparable weight and volume as new textile items and would not be expected to increase trips or VMT and associated emissions as compared to new items transported from local distributors, or more likely, originating from outside of the City). Similarly, customer behavior is assumed to not be affected by this policy. Accordingly, this policy would result in an overall reduction in VMT and associated emissions relative to the avoided production of similar products (refer also to Section 3.18, Transportation). It is assumed that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. As detailed in Section 3.18, Transportation, operation of these types of programs is not expected to result in an increase in net trips as compared to products made with virgin materials (i.e., reuse schemes would reduce overall VMT associated with production of the avoided virgin products and trips to landfills located outside of the City for textiles that are disposed of). No other sources of emissions are identified for this policy. Therefore, this policy would not generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Textile Policies: Washing Machine Microfiber Filtration	A requirement that washing machines be outfitted with microfiber filtration systems would not result in a change in vehicle trips associated with the distribution, purchase, or disposal of these units. Specifically, new washers sold in the City would be required to be equipped with microfiber filtration systems, which is not expected to result in any change to trips associated with transport of new washers from the manufacturer to the point of sale or distribution. Similarly, retrofit of washers with the necessary filtration would not be expected to increase trips associated with installing the units under the assumption that these units would be purchased and installed in conjunction with other household upgrades and maintenance purchases and activities. Proper care and maintenance of microfiber filtration systems requires that the filter is emptied or replaced periodically. The disposal of spent filters and/or captured materials would increase the amount of material placed in black bins. However, a change in black bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. In addition, consumption and use of these filtration units would not result in a measurable net increase in energy	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
	demand and associated emissions. No other sources of emissions are identified for this policy. Therefore, impacts would be less than significant.	
PFAS Ban	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, rental, and sale of items that contain PFAS would not result in a change in trips (and associated emissions) associated with the distribution, purchase, or disposal of alternative materials/products since it is assumed that alternative materials would have comparable transportation requirements to those that currently contain PFAS. In addition, a ban on PFAS would reduce or eliminate PFAS in chemical fume suppressants, consistent with the SCAQMD Staff commitment to potentially phase out PFAS chemical fume suppressants allowed under Rule 1469 (SCAQMD 2019). No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic bag clips would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic bag clips. No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Additional Product Bans: Aerosol String	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of aerosol string (Silly String™) would not result in a change in trips associated with purchase or disposal of alternative materials/products. No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Sandbags	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic sandbags (with only biodegradable sandbags to be allowed) would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic sandbags. No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Additional Product Bans: Lighter-Than-Air Balloons	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of lighter-than-air balloons would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to lighter-than-air balloons. In addition, a ban on lighter-than-air balloons would incrementally reduce the extraction, production, and transport of helium and thus eliminate the VMT (and associated emissions) related to the	Less than Significant

Measure	Air Quality Impact Analysis	Significance Conclusion
	transport and distribution of helium from primary sources such as those located in Texas, Oklahoma, and Kansas. No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	As detailed in Section 3.18, Transportation, a ban on the sale of single-use e-cigarettes and vape cartridges within the City would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of emissions are identified for this policy. Therefore, this policy would not have the potential to generate emissions above the SCAQMD thresholds and would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use Printer Cartridges	A ban on the distribution, offer, provision, and sale of single-use printer cartridges would result in less material placed in black bins. This policy may increase the participation in printer cartridge take-back programs which would have the potential to increase trips required to transport empty printer cartridges to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the empty cartridge by mail to the recycling facility. Where empty cartridges may be returned or refilled at the point of sale, it is assumed that customers would return/refill empty cartridges the next time they purchase a new cartridge. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of printer cartridges require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of empty printer cartridges require an extra trip for return. However, an increase in daily VMT associated with extra trips is not expected to generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4. In addition, a 2020 SIP submittal demonstrates that emissions increases from VMT growth are adequately offset by technology improvements and transportation strategies (CARB 2020). Therefore, any associated increase in VMT would not generate emissions at levels that would conflict with or obstruct implementation of the applicable 2022 SCAQMD Air Quality Management Plan. No other sources of emissions are identified for this policy. Therefore, this policy would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be less than significant.	Less than Significant

Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban

The ban of single-use plastic bottles would result in an increase in the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, as well as non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. In 2022, 74% of aluminum cans (the most likely alternative container for water due to relative size and weight of other container options) were recycled (with approximately 85% redeemed for CRV at buy back centers) in California as compared to 70% of PET beverage bottles (CalRecycle 2023a). Therefore, this policy would likely lead to a reduction in materials placed in blue or black bins and would not result in a change in LASAN service truck trips.

The manufacturing process for plastic bottles, whether single-use or reusable, results in emissions at the manufacturing plant. Similarly, emissions of airborne pollutants occur during the extraction of raw materials and manufacturing of alternative materials such as aluminum and glass. The amount of emissions varies depending on the type and quantity of bottles produced. However, no change in raw material extraction or manufacturing processes is proposed as part of the Program (i.e., upstream emissions associated with production and distribution of products are addressed by comprehensive regulatory programs focused on the upstream sources of those emissions) and these processes are not analyzed further herein.

Use of alternative materials could result in an increase in the weight and volume of products, which could result in additional shipment trips and associated mobile source emissions. The actual shifts or split in composition between alternative products as a result of a ban on single-use plastic water bottles may vary from year to year and change over time due to influencing factors such as changes in price, product availability, and new products entering the market. For the purposes of a comparative analysis of relative transportation requirements for alternative materials, the study boundary includes transport of empty containers to the filler, filled products from filler to retailer, transport of filled products from retailer to consumer, and transport of empty/consumed products to drop-off locations, MRFs, or landfills.

For single-serving bottles that are manufactured off-site (which is the case for glass bottles or for bottlers who purchase fabricated plastic bottles or alternative container materials), the number of trips required to transport alternative containers to the filler for all options other than glass bottles are assumed to be less than or comparable to trips required for plastic water bottles. This is attributable to the relative low density of empty containers which would result in shipments of cargo that are volume limited (i.e., the volume capacity of a vehicle is filled before the maximum weight limit of the vehicle is reached). As an example, many more units of collapsible containers (e.g., cartons or pouches) can be shipped in a single truck load than empty plastic water bottles that take up much more cargo space.

Glass water bottles are the heaviest of the single-use water bottle options with an average weight of 242 grams for a 12.1-ounce capacity glass bottle compared to 13.3 grams for a 19.9-ounce capacity plastic bottle (Oregon Department of Environmental Quality 2009). One popular supplier in the U.S. reports 212 grams for a 12-ounce glass bottle and 17 grams for a 12-ounce PET plastic bottle (Berlin Packaging 2023a, 2023b). According to this particular supplier of beverage containers, a pallet of 2,200 standard 12-ounce glass bottles including pallet and transit packing materials measures out at approximately 56 inches x 44 inches x 51 inches with a pallet weight of 845 pounds (Berlin Packaging 2023a). A standard 53-foot trailer truck has the capacity for 22 pallets of this size (assuming no stacking) and a maximum cargo weight limit of approximately 48,000 pounds. The total shipment weight of 22 pallets of empty 12-ounce glass bottles would be approximately 18,590 pounds, thus a load of glass bottles would be limited by the volume capacity of the truck instead of weight. To compare the relative shipping requirements of glass bottles versus plastic water bottles, the shipping volume per bottle is compared herein (assuming 12-ounce capacity bottles). Based on information provided by one bottle supplier, shipment of a 12-ounce glass bottle requires roughly 0.03 cubic feet (ft^3) per bottle compared with 0.02 ft^3 for a 12-ounce plastic water bottle (with the difference due primarily to the longer neck and associated relative inefficient shipping volume of glass bottles compared to standard plastic water bottles) (Berlin Packaging 2023a, 2023b). Given these relative shipment volumes, approximately 1.5 times more truck trips would be required to ship empty glass bottles to the filler compared with plastic bottles. The assessment of transportation requirements for shipping filled water bottles from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Bottled water is a dense product, and thus the shipment of bottled water by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled water in glass bottles versus plastic bottles, this analysis assumes a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divides by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle; Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass water bottles compared with plastic water bottles.

The International Bottled Water Association (IBWA) estimates that approximately 15 billion gallons of bottled water were consumed in the U.S. in 2020 (IBWA 2023). This represents approximately 45 gallons (5,760 ounces) of bottled water per person per year. Using 45 gallons per year and a population of 3,822,238 for the City (U.S. Census Bureau 2023), approximately 172,978,286 gallons of bottled water is consumed per year in the City of Los Angeles. Conservatively assuming that all bottled water currently sold in the City of Los Angeles is in single-use PET plastic bottles and using the maximum weight capacity of 48,000 pounds per truckload and total weight of filled 12-ounce PET water bottles of 0.82 pounds, the total number of truck trips to ship 172,978,286 gallons per year in 12-ounce PET water bottles would be roughly 31,424 trips per year (using several assumptions that disregard loading logistics and percentage of loads that are not dedicated to water bottles). Accordingly, replacing all single-use plastic water bottles with glass water bottles would result in an estimated 16,525 additional roundtrips per year (45 roundtrips per day). Many factors contribute to total VMT including trip length and percentage of backhaul trips (i.e., full return loads) versus empty return loads. For comparative purposes, if all trips within the City of Los Angeles are assumed to be 100 miles, the increase in trips associated with glass would represent 1,652,500 additional miles per year (4,527 miles per day) or 0.001 miles per day per capita (i.e., 1,652,500 miles/year ÷ 365 days/year = 4527 miles/day ÷ 3,822,283 City of Los Angeles Population = 0.001 miles per capita per day). Under these assumptions, the additional trips would not generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4 above. Note that this is a bounding-level analysis assuming replacement with glass bottles. As glass is the most impactful of the alternative materials, the actual impacts are anticipated to be less as other alternative materials are considered. In addition, a 2020 SIP submittal demonstrates that emissions increases from VMT growth are adequately offset by technology improvements and transportation strategies (CARB 2020). Therefore, a future increase of 0.001 miles per day per capita would not conflict with or obstruct implementation of the applicable 2022 SCAQMD AQMP.

The type of materials used for single-use bottles is assumed to have no effect on consumer purchase or transport behavior from the retailer to the consumer. Thus, transport of filled single-use products to the consumer would not change transport behavior at this stage. Similarly, alternative single-use beverage containers that are covered under the California's Beverage Container Recycling Program are assumed to be redeemed for the CRV by the consumer. As such, alternative single-use materials that are redeemed for the CRV is not expected to result in a change in trips under the assumption that movement of recyclable bottles from consumer to secondary processors to manufacturers are comparable to those associated with plastic bottles redeemed for the CRV. For bottles that are not or cannot be redeemed for the CRV, this policy would not result in a significant change in materials placed in blue bins since many replacement products would also be recyclable (i.e., aluminum or glass bottles), but may lead to an increase in materials placed in the black bin (e.g., non-recyclable cartons and pouches). A change in blue bin or black bin truck trips are not expected under this scenario because trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin.

Accordingly, the proposed Program would not emit criteria pollutants above the SCAQMD's established thresholds (Table 3.4-4). Therefore, a ban of single-use plastic water bottles would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be ***less than significant***.

<u>Refillable Beverage Bottles</u>

Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. New single-use bottles would then need to be transported from the manufacturer to the bottling plant and from the bottling plant to the retailer. In contrast, empty refillable bottles would be returned to the retailer where they would be picked up and transported to the washing and refilling plant and then transported back into the market, thus avoiding trips associated with transport of virgin and/or recycled materials to the bottle manufacturer and then from the manufacturer to the bottling plant. Reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local/regional basis (PricewaterhouseCoopers AG 2011). The relative VMT of single-use beverage bottles/containers may be significantly influenced by the percentage of recycled post-consumer content used in the bottles/containers. In general, the higher the percentage of recycled content used, the lower the VMT of that particular bottle/container type. This is due to the avoidance of a number of upstream processes involved in the production of new bottles/containers, like the extraction and transportation of virgin materials. The weighted average transportation distance of empty PET bottles to fillers reported by three PET bottle producers were between 150 and 200 miles. Empty container transport distances for aluminum cans and glass bottles were estimated as 150 miles and 600 miles, respectively (Franklin Associates 2023). Refillable bottles are typically washed and refilled at the same location. In addition, refill programs typically maximize transport efficiencies by dropping off filled bottles and backhauling empty containers to be washed and refilled. Accordingly, empty bottles used multiple times as part of a local refilling program would require less VMT per bottle than single-use beverage containers that are manufactured in a centralized bottle manufacturing facility and subsequently transported to the beverage filling location.

The assessment of transportation requirements for shipping filled beverage containers from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Due to the density of liquids, shipment of bottled beverages by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled beverage in glass bottles versus plastic bottles, we assume a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divide by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle) (Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass beverage bottles compared with plastic beverage bottles. As detailed for Single-Use Plastic Water Bottle Ban above, additional trips associated with transport of heavier bottles such as glass, would not have the potential to exceed SCAQMD’s mass daily thresholds. The total VMT associated with all bottled beverages is unknown, however, local refillable systems may promote competition among companies with regional production and distribution structures, resulting in overall shorter trips from bottler to retailer. Although distribution of beverages in heavier refillable containers may require more truck trips, these trips may be shorter than trips associated with transport of beverages in single-use containers that originate from centralized manufacturing and distribution centers. Further, a 2020 SIP submittal demonstrates that increased emissions from VMT growth are adequately offset by technology improvements and transportation strategies (CARB 2020).

Accordingly, the proposed Program is not expected to emit criteria pollutants above the SCAQMD’s established thresholds (Table 3.4-4). Therefore, a requirement that 10% of beverage bottles be refillable, would not conflict with or obstruct implementation of the applicable air quality plan and impacts would be ***less than significant***.

Impact Criterion c) Would the project expose sensitive receptors to substantial pollutant concentrations?

As discussed for Impact Criteria (a) and (b) above, upstream policies may result in an increase in VMT as a result of changes in LASAN operations, distribution of alternative materials, and return logistics associated with reusable products. However, the additional trips would not generate emissions above the SCAQMD mass daily thresholds presented in Table 3.4-4. It is reasonably foreseeable that increased traffic on roadways resulting from the proposed Program could exacerbate existing concentrations of TACs, resulting in a health risk for existing or new sensitive receptors. However, the CARB Diesel Risk Reduction Plan and Air Toxic Control Measures (summarized in Section 3.4.2.2.4) would help reduce future emissions of DPM (the primary TAC of concern in mobile emissions). Additionally, several policies would increase the volume of materials in the blue and green bins and increase diversion from the landfills. Decreasing landfilling results in a decrease of landfill-related emissions. Therefore, a potential beneficial impact may be realized with implementation of policies that divert material from the landfill.

As such, implementation of the proposed Program would not expose sensitive receptors to substantial pollutant concentrations and impacts would be ***less than significant***.

Impact Criterion d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The upstream policies associated with the proposed Program do not propose any change to manufacturing processes or operations at existing facilities. Impacts associated with downstream facility construction and operation are evaluated in Section 3.4.3.3.2 below.

Any net increase in vehicle trips associated with implementation of the proposed Program is not expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions. Therefore, the impact would be ***less than significant***.

3.4.3.3.2 Downstream Measures

Impact Criterion a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

CONSTRUCTION

To evaluate this CEQA criterion, the SCAQMD recommends that lead agencies demonstrate that a project would not directly obstruct implementation of an applicable air quality plan and that a project be consistent with the assumptions upon which the air quality plan is based (typically land-use related, such as resultant employment or residential units). The 2022 AQMP (SCAQMD 2022b) applicable to the Program Area establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state and national air quality standards. A project is consistent with regional planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans. Generally, three sources of data form the basis for the projections of air pollutants in the City of Los Angeles. Specifically, SCAG's Regional Comprehensive Plan and Guide (SCAG 2008) provides regional population forecasts for the region and SCAG's 2020-2045 RTP/SCS (SCAG 2020) provides socioeconomic forecast projections of regional population growth. The City of Los Angeles General Plan is referenced by SCAG in order to assist forecasting future growth in the City of Los Angeles.

Construction of downstream facilities would result in an increase in short-term employment compared to existing conditions. However, these jobs are temporary in nature and would be expected to be filled from the local labor market. Thus, it is not anticipated that a substantial number of construction workers would move to the region to work on the Program. Furthermore, the construction activities are varied and intermittent and would not result in permanent employment opportunities for the region. Therefore, jobs associated with construction of the downstream facilities would not conflict with the long-term employment projections upon which the AQMP is based.

Control strategies as denoted in the AQMP with potential applicability to short-term emissions from construction activities include MOB-08 and MOB-10, which are intended to reduce emissions from on-road and off-road heavy-duty vehicles and equipment by accelerating replacement of older, emissions-prone engines with newer engines meeting more stringent emission standards. Downstream facilities would utilize low-VOC coatings during construction activities to avoid excessive VOC emissions (in accordance with SCAQMD Regulations). Trucks and other vehicles in loading and unloading queues would turn off engines to reduce vehicle emissions during construction activities. Additionally, the downstream facilities associated with the proposed Program would comply with CARB requirements to minimize short-term emissions from on-road and off-road diesel equipment. The Program would also comply with SCAQMD regulations for controlling fugitive dust pursuant to SCAQMD Rule 403 (Fugitive Dust). In addition, with implementation of **MM AQ-1** construction of downstream facilities would be consistent with control strategies MOB-8 and MOB-10 by implementing Tier 4 final construction equipment and therefore implementing more efficient equipment prior to the implementation requirements in the AQMP. Furthermore, as detailed in Impact Criterion (b) below, construction activities would not lead to an exceedance of any applicable air quality standards.

Compliance with these requirements is consistent with and meets or exceeds the AQMP requirements for control strategies intended to reduce emissions from construction equipment and activities. With implementation of **MM AQ-1**, construction of downstream facilities associated with the Program would not conflict with the control strategies intended to reduce emissions from construction equipment, the construction activities would not conflict with or obstruct implementation of the AQMP, and impacts would be ***less than significant with mitigation***.

OPERATION

The AQMP was prepared to accommodate growth, reduce the levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. Projects that are considered consistent with the AQMP would not interfere with attainment because this growth is included in the projections used in the formulation of the AQMP.

The future downstream facilities would be located in the City of Los Angeles. The Project would not result in a direct increase in regional residential population (as it is not a residential project) or a substantial increase in employment (operation downstream facilities would not result in a significant increase in employment compared to existing conditions and is expected to draw from the local labor market). Thus, it is not anticipated that a substantial number of workers would move to the region to work at downstream facilities. The expanded solid waste diversion capacity provided by the downstream facilities would be consistent with the goals of L.A.'s Green New Deal (Sustainable City pLAn 2019), and other regional and state solid waste diversion programs. Further, the downstream facilities would not result in a direct or indirect increase in population and is not anticipated to induce growth beyond current adopted local land use plans. Therefore, operation of downstream facilities would be consistent with the 2022 AQMP, and impacts would be ***less than significant***.

Impact Criteria b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

CONSTRUCTION

Construction would result in a temporary increase in criteria pollutant emissions from engine exhaust during on-road vehicle and truck trips and off-road construction equipment operations, and fugitive dust during earthmoving and demolition activities. Primary criteria pollutants emitted during construction projects are NO_X, VOC, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. As detailed in Section 3.4.3.2, Methodology, CalEEMod was used to estimate emissions associated with construction activities. Detailed CalEEMod inputs and results are provided in Appendix C. Table 3.4-14 summarizes the estimated maximum daily emissions from construction activities for each facility as compared to the applicable SCAQMD threshold.

Table 3.4-14. Project Construction Emissions Summary and Significance Evaluation

Facility Type	ROG (VOC) (lb/day)[1]	NO_X (lb/day)[1]	CO (lb/day)[1]	SO_X (lb/day)[1]	Total PM_{10} (lb/day)[1,2]	Total $PM_{2.5}$ (lb/day)[1,2]
Green Bin Facilities						
Anaerobic Digestion	41.93	18.32	19.96	0.03	3.8	2.15
Aerobic Composting and Mulching	3.61	34.4	31.68	0.06	5.3	2.82
Blue Bin Facilities						
Clean Materials Recovery	41.93	18.32	19.96	0.03	3.8	2.15
Resource Recovery	12.21	15.94	16.17	0.02	3.64	2.05
Construction and Demolition Materials Processing	41.93	18.32	19.96	0.03	3.8	2.15
Black Bin Facilities						
Mixed Material Processing	36.13	18.32	19.96	0.03	3.8	2.15
Advanced Thermal Recycling	60.51	18.32	22.15	0.03	3.8	2.15
Non-Combustion Thermal Technologies	30.32	18.32	19.96	0.03	3.8	2.15
SCAQMD Significance Evaluation	75	100	550	150	150	55
Exceed Threshold?	No	No	No	No	No	No
SCAQMD LST	--	64	346	--	7	4
Exceed LST?	--	No	No	--	No	No

Source: CalEEMod Emissions Summary Reports in Appendix C
Notes:
[1] Mass daily emissions are winter or summer maxima for planned land use
[2] Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust.

As shown in Table 3.4-14, the construction of the downstream facilities would not result in emissions that would exceed the SCAQMD's regional thresholds. The SCAQMD *White Paper on Potential Control Strategies to Address Cumulative Impacts* (2003) addresses cumulative impacts of air pollution and notes that projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant. Specifically, the SCAQMD cumulative significance thresholds are the same as project-specific significance thresholds. Therefore, potential adverse impacts associated with the proposed Program would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for air quality impacts. The court upheld the SCAQMD's approach to utilizing the established significance thresholds to determine whether the impacts of a project would be cumulatively considerable in *Rialto Citizens for Responsible Growth v. City of Rialto* (2012) Cal. App. 4^{th} 899. Thus, it may be concluded that construction of downstream facilities would not significantly contribute to an existing violation of air quality standards for regional pollutants (e.g., ozone) and would not contribute to a significant and unavoidable cumulative air quality impact. In terms of local air quality, the construction of downstream facilities would not produce significant emissions exceeding SCAQMD's LSTs for NO_X, CO, PM_{10}, or $PM_{2.5}$ during the construction phase. Compliance with existing SCAQMD regulations summarized in Section 3.4.2 (Regulatory Framework), including Rule 403, which is designed to reduce fugitive dust emissions, would ensure PM_{10} and $PM_{2.5}$ emissions during site preparation and construction do not exceed localized thresholds recommended by SCAQMD.

Regarding the Program's consistency with AQMP growth assumptions (per SCAQMD's CEQA Air Quality Handbook, Chapter 12, Criterion 2), the projections in the 2022 AQMP for achieving air quality goals are based on the assumptions in SCAG's 2020-2045 RTP/SCS (SCAG 2020) regarding population, housing, and growth trends. Determining whether or not a project exceeds the assumptions reflected in the AQMP involves the evaluation of consistency with applicable population, housing, and employment growth projections. As discussed under Impact Criteria a), construction of downstream facilities would result in an increase in short-term employment compared to existing conditions. However, these jobs are temporary in nature and would be expected to be filled from the local labor market. Thus, it is not anticipated that a substantial number of construction workers would move to the region to work on the Program. Furthermore, the construction activities are varied and intermittent and would not result in permanent employment opportunities for the region. Therefore, jobs associated with construction of the downstream facilities would not conflict with the long-term population, housing, or employment projections upon which the AQMP is based. Accordingly, proposed Project impacts related to regional and local emissions during construction are expected to be ***less than significant***.

OPERATION

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities on the downstream facilities after completion. Stationary area source emissions would be generated by the operation of diesel-powered equipment, emissions from biogas (syngas) engine generators that may be associated with pyrolysis, and/or emissions from boiler/heater equipment associated with Advanced Thermal Recycling. Mobile emissions would be generated by the motor vehicles traveling to and from the downstream facilities. Assumptions for equipment used during operations for each facility type are summarized in Table 3.4-9 above. For the estimate of mobile source emissions associated with operations, the total trips per day occurring at each facility during project operation is detailed in Table 3.18-5 provided in Section 3.18 (Transportation) which was used to calculate the fleet mix. For a conservative comparison to the LST, the localized mobile source emissions for project operation were calculated for a 1-mile radius of the project site and inclusive of mobile source fugitive dust and engine exhaust emissions. The estimated operational emissions for each facility are provided in Table 3.4-15. As shown, the net increase in emissions generated during operation downstream facilities would not exceed the regional thresholds or LSTs recommended by the SCAQMD. As noted for construction impacts above, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant. In addition, the regulatory compliance controls during operations as summarized in Table 3.4-11 above would further reduce emissions during operations.

Regarding the Program's consistency with AQMP growth assumptions (per SCAQMD's CEQA Air Quality Handbook, Chapter 12, Criterion 2), the projections in the 2022 AQMP for achieving air quality goals are based on the assumptions in SCAG's 2020-2045 RTP/SCS (SCAG 2020) regarding population, housing, and growth trends. As discussed under Impact Criteria a), the Project would not result in a direct increase in regional residential population (as it is not a residential project) or a substantial increase in employment. The labor requirements of a typical downstream facility with a capacity of 500 tons per day are between 80 to 104 workers (USEPA 1991). In 2016, there were approximately 4,743,000 employees in Los Angeles County with projected employment of 5,382,000 by 2045 (SCAG 2020). Employment of up to 104 workers at a downstream facility would represent approximately 0.002% of the total job growth projected for Los Angeles County. Such levels of employment growth would not be sufficiently large to conflict with the long-term population, housing, or employment projections upon which the AQMP is based. Thus, the proposed Program can be considered in compliance with SCAQMD's CEQA Air Quality Handbook, Chapter 12, Criterion 2. Therefore, impacts during operation would be ***less than significant.***

Impact Criterion c) Would the project expose sensitive receptors to substantial pollutant concentrations?

The California Supreme Court decision on December 24, 2018, *Sierra Club v. County of Fresno (Friant Ranch)*, held that projects with significant air quality impacts need to "relate the expected adverse air quality impacts to likely health consequences or explain why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of the project." Accordingly, the following impact assessment focuses on the analysis of emissions of criteria pollutants resulting from the proposed Program in relation to the potential to exceed the applicable LST as an indicator of whether the proposed Program would have the potential to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard (established to protect the health of the most sensitive groups), as well as the potential for emissions of TACs to contribute to an increase in associated health risks. The City has found that there is no feasible way to relate the criteria air pollutant emissions from a project to likely health consequences (City of Los Angeles Department of City Planning 2019). While a number of models and tools are available to quantify emissions, these models are limited by a number of factors in determining health impacts of individual development and infrastructure projects as well as local plan-level projects.

The USEPA currently performs health impact assessments using the Community Multiscale Air Quality model for pollutant transport modeling and Environmental Benefits Mapping and Analysis Program - Community Edition for health impact calculations. However, these models are designed to estimate health impacts over a large scale (e.g. city-wide, statewide). In addition, the Community Multiscale Air Quality model requires inputs such as regional sources of pollutants and global meteorological data, which are not readily accessible. Other general limitations of the current suite of models include not being able to model concentrations or dispersion of pollutants, the unsuitability of regional models in providing accurate results for local-level plans or individual projects, and limitations on being able to correlate concentrations to related health effects.

As noted in the City's guidance document (*Air Quality and Health Effects, Sierra Club v. County of Fresno*), "[f]or local plans or projects that exceed any identified SCAQMD air quality threshold, City EIR documents are able to identify and disclose generalized health effects of certain air pollutants, but are currently limited and are unable to establish an accurate connection between any local plan or project and a particular health effect. At this time, it is infeasible for City EIRs to directly link a plan's or project's significant air quality impacts with a specific health effect. A number of factors contribute to this uncertainty, including the regional scope of air quality monitoring and planning, technological limitations for accurate modeling at a local plan- or project-level, and the intrinsically complex nature between air pollutants and health effects in conjunction with local environmental variables."

Establishing an accurate connection between the air pollutant emissions and health effects is further infeasible for the proposed Program due to the speculative nature of the buildout of downstream facilities as a result of implementation of the proposed Program. As such, the analysis of exposure of sensitive receptors to substantial pollutant sources relies on the quantitative evaluation of the proposed Program's potential to exceed the SCAQMD's applicable thresholds of significance in order to determine whether the proposed Program would result in a significant air quality impact (and must apply all feasible mitigation measures); however, the analysis would not be able to precisely correlate the proposed Program and related downstream facility projects to quantifiable health impacts, unless the emissions are sufficiently high to use a regional modeling program, which is not the case for development of a downstream facility.

Table 3.4-15. Project Operational Emissions Summary and Significance Evaluation

Facility Type	ROG (VOC) (lb/day)[1]	NO_X (lb/day)[1]	CO (lb/day)[1]	SO_X (lb/day)[1]	Total PM_{10} (lb/day)[1,2]	Localized PM_{10} (lb/day)[1,2,3]	Total $PM_{2.5}$ (lb/day)[1,2]	Localized $PM_{2.5}$ (lb/day)[1,2,3]
Green Bin Facilities								
Anaerobic Digestion	5.8	7.8	19.6	0.1	1.3	0.3	0.5	0.2
Aerobic Composting and Mulching	0.5	9.3	17.4	0.1	1.9	0.2	0.6	0.1
Blue Bin Facilities								
Clean Materials Recovery	5.9	7.9	21.5	0.1	1.8	0.4	0.6	0.2
Resource Recovery	1.9	8.5	12.9	0.1	2.0	0.3	0.6	0.1
Construction and Demolition Materials Processing	5.9	7.9	21.7	0.1	1.8	0.4	0.6	0.2
Black Bin Facilities								
Mixed Material Processing	5.5	9.7	19.8	0.1	1.9	0.4	0.7	0.2
Advanced Thermal Recycling	9.8	23.7	112.0	0.3	5.4	0.6	3.0	0.4
Non-Combustion Thermal Technologies	9.2	9.4	26.7	0.2	4.0	0.3	3.3	0.2
SCAQMD Significance Evaluation	55	55	550	150	150	--	55	--
Exceed Threshold?	No	No	No	No	No	--	No	--
SCAQMD LST	--	65	346	--	--	2	--	1
Exceed LST?	--	No	No	--	--	No	--	No

Source: CalEEMod Emissions Summary Reports in Appendix C
Notes:
[1] Mass daily emissions are winter or summer maxima for planned land use.
[2] Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust.
[3] Localized PM_{10}/$PM_{2.5}$ emissions includes emissions 1 mile around project site for mobile source fugitive dust plus engine exhaust.

CONSTRUCTION

Land uses that are generally considered more sensitive to air pollution than others are as follows: hospitals, schools, residences, playgrounds, child-care centers, athletic facilities, and retirement/convalescent homes. As discussed above, SCAQMD has developed LST look-up tables for project sites that are 1, 2, and 5 acres in size to simplify evaluation of localized emissions at small sites. LSTs are provided for each source receptor area and various distances from the source of emissions and represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standards in the affected area. To provide a conservative assessment, the LSTs of source receptor area Zone 12 – South Central Los Angeles, were used to evaluate the localized air quality impacts since this source receptor area has the most stringent thresholds in the City. In addition, each individual project site is considered a 2-acre construction site for the purpose of comparing the Program to the relevant LSTs. Since the potential downstream facility sites span several source receptor areas, the most conservative emissions thresholds for all source receptor areas located 25 feet from individual project sites as summarized in Table 3.4-6, are used to determine whether air quality impacts from the proposed Program may be significant.

As discussed for Impact Criterion (b) above, emissions generated during construction were calculated with the SCAQMD's CalEEMod model. The predicted emissions associated with construction are presented in Table 3.4-14 above. As shown in Table 3.4-14, construction of downstream facilities would not exceed the SCAQMD's LST for the specified pollutants. Health-related risks associated with diesel exhaust emissions are primarily linked to long-term exposure and the associated risk of developing cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the project site. With compliance with CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations, construction activities would limit idling to no more than 5 minutes, which would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense period of construction, emissions of DPM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time. However, the specific locations, amount of heavy equipment use, and duration of construction activity associated with future downstream facilities is unknown. Health risks associated with construction-related diesel exhaust would only have the potential to result in significant health risks for large projects with substantial heavy equipment use for a period of several years in close proximity to sensitive receptors.

Further, a programmatic level HRA was performed for the primary hazard associated with emissions from vehicular sources (specifically heavy-duty, diesel delivery trucks) generated during the operation of downstream facilities. The HRA was modeled using a maximum of 356 daily truck trips associated with operation of a downstream facility (refer to Table 3.18-6). As concluded in the discussion for operations below, the health risk values for residential and worker receptors under the assumption of 356 truck trips per day associated with operations were predicted to be below the cancer risk threshold of 10 cases in 1 million established by the SCAQMD for use in CEQA documents (SCAQMD 2023). Accordingly, DPM emissions from construction activities that require less than 356 daily truck trips (note that a maximum of 42.6 truck trips per day is estimated herein for construction of downstream facilities; refer to Table 3.18-5) would also not exceed the SCAQMD health risk values for residential and worker receptors. Implementation of **MM AQ-1** would require preparation of an Air Quality Impact Analysis and development of a mitigation plan for projects that would exceed the applicable thresholds. With implementation of **MM AQ-1**, construction activities associated with downstream facilities are not expected to expose sensitive receptors to substantial pollutant concentrations. Impacts during construction would be ***less than significant with mitigation***.

Operation

DPM emissions, a known toxic air contaminant, would occur from trucks transporting waste to and from the downstream facilities. To address DPM, statewide programs and regulations are presently being developed and implemented by the CARB and USEPA to reduce the risks of exposure to diesel exhaust. These programs include emission control requirements along with subsidies for upgrading older diesel engines to low-emissions models.

The SCAQMD recommends that projects generating or attracting vehicular trips, especially heavy-duty diesel-fueled vehicles, perform a mobile HRA. A risk assessment in the SCAB includes determining the level of risk from a source for potential effects of 1) cancer, 2) acute illnesses (short-term), and 3) chronic illnesses (long-term). The most concentrated source of long-term emissions would be from trucks entering the site, idling at the unloading areas, and then exiting the site. Currently, 82% of LASAN's service fleet uses natural gas with a goal to electrify their entire fleet by 2035. However, for a conservative analysis, it is assumed that the service fleet for future downstream facilities would consist of diesel engines in order to establish the upper bounding level of health risk impacts. Since the location of the downstream facilities is unknown, a programmatic level HRA was performed for the primary hazard associated with emissions from vehicular sources (specifically heavy-duty, diesel delivery trucks) generated during the operation of downstream facilities. From the eight facility types reviewed in this assessment, the Advanced Thermal Recycling facility was identified as the scenario with the most truck trips per day, and thus the greatest potential for DPM emissions. Therefore, the HRA was conducted using an Advanced Thermal Recycling facility as a conservative assessment for all eight scenarios. In addition to mobile sources of DPM, DPM emissions from diesel-powered off-road equipment detailed in Table 3.4-9 above (i.e., loaders, forklifts, roll-off vehicles, and grinders/shredders/screens) and diesel-powered stationary sources (i.e., emergency engines, fire pumps) were included in the HRA. Additional details on assumptions and model inputs are provided in Appendix C.

The potential adverse health effects from exposure to diesel exhaust include inhalation cancer and chronic non-cancer effects. It is important to note that the potential cancer risk from inhalation exposure to diesel exhaust usually outweighs the multi-pathway cancer risk from the speciated compounds. Likewise, the non-cancer health impacts from inhalation exposure to diesel exhaust usually outweigh the non-cancer multi-pathway health impacts from the speciated compounds of diesel exhaust (OEHHA 2015). Therefore, only the inhalation cancer and chronic non-cancer effects of diesel exhaust were evaluated in this HRA. Since DPM is the only TAC analyzed in this programmatic HRA, and there currently is no acute toxicity factor for diesel exhaust, potential acute (short-term) noncancer health effects were not evaluated in the HRA.

Cancer risk is the estimated probability of a maximally exposed individual potentially contracting cancer due to exposure to TACs over a period of time. Cancer risk at all receptors was estimated over a 30-year period, representing an individual's high-end residency time, and the results are summarized in Table 3.4-16. The highest cancer risks were predicted at the site fenceline and rapidly decreased with distance. The maximum cancer risk of 6.84 cases in 1 million was predicted to occur on the fenceline between the site and truck sources. This location would be inaccessible or in the road, and thus is an extremely conservative receptor location. The nearest residential receptor was assumed to be at the end of the mobile source line (400 meters from the fenceline) and the nearest worker receptor was assumed to be located at the fenceline. The health risk values for residential and worker receptors were predicted to be below the cancer risk threshold of 10 cases in 1 million established by the SCAQMD for use in CEQA documents (SCAQMD 2023).

Table 3.4-16. Summary of Programmatic HRA Results

Parameter	Receptor	UTM Easting Coordinate (meters)[2]	UTM Easting Coordinate (meters)[2]	Estimated Risk Value	SCAQMD Threshold[1]	Exceed Threshold?
Residential Cancer Risk	146	-500	100	6.84	10 in 1 million	No
Worker Cancer Risk	216	-100.5	78.17	2.88	10 in 1 million	No

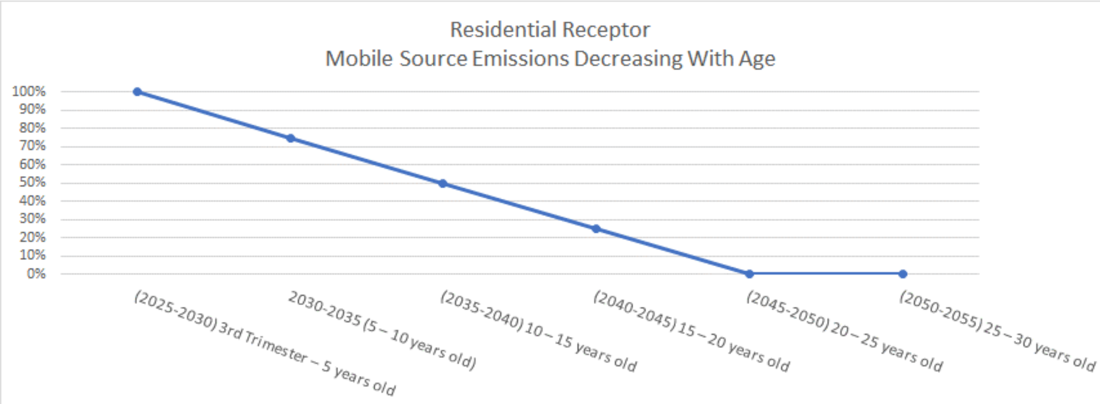
Source: HRA provided in Appendix C
Notes: [1] Per SCAQMD 2023; [2] Universal Transverse Mercator (UTM) coordinates are relative to the center of the facility.

In support of the City's sustainability goals of 100% fleet electrification, LASAN is looking to electrify their fleet of solid waste collection vehicles by 2035. To illustrate the relative health impacts associated with a decrease in mobile source emissions, a residential receptor cancer risk prediction was also calculated based on the mobile source truck emissions linearly decreasing to zero (i.e., 100% diesel trucks in 2025 decreasing to 0% diesel trucks by 2045). For a conservative analysis, an assumption that the fleet would not be fully converted until 2045 is used herein. Figure 3.4-1 illustrates mobile source emission reductions over time relative to the age of the residential and worker receptor. A Tier 2 Exposure Duration of 5 years was selected starting at the 3rd trimester and sequentially re-run five times in 5-year increments. The 5-year cancer risks were then summed to yield the 2025-2055 30-year cancer risk. A similar scaling was conducted for worker receptors, but for a 25-year duration with a 16-year-old start age. The HRA results for the mobile source reductions over time are summarized in Table 3.4-17.

Table 3.4-17. Summary of Zero-Emission Mobile Source Scaling HRA Results

Parameter	Receptor	UTM Easting Coordinate (meters)[2]	UTM Easting Coordinate (meters)[2]	Estimated Risk Value	SCAQMD Threshold[1]	Exceed Threshold?
Residential Cancer Risk	146	-500	100	5.72	10 in 1 million	No
Worker Cancer Risk	216	-100.5	78.17	1.92	10 in 1 million	No

Source: HRA provided in Appendix C
Notes: [1] Per SCAQMD 2023; [2] UTM coordinates are relative to the center of the facility.



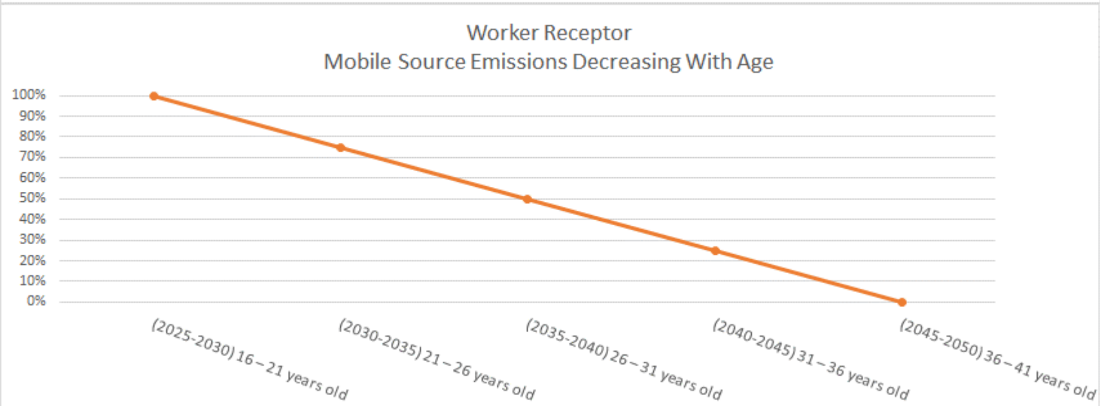


Figure 3.4-1. 2045 Zero-Emission Mobile Source Scaling Over Time for Residential and Worker Receptors.

With the eventual electrification of the fleet, the estimated maximum cancer risk would be reduced to 5.72 cases in 1 million (as compared to the cancer risk of 6.84 cases in one million for associated diesel mobile sources) was predicted to occur on the fenceline between the site and truck sources. Thus, operations of downstream facilities are not expected to expose sensitive receptors to substantial pollutant concentrations. In addition, as LASAN transitions to a zero-emission fleet, emissions from mobile sources would be effectively eliminated over time. Accordingly, impacts associated with operation of downstream facilities are expected to be ***less than significant***.

Impact Criterion d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

CONSTRUCTION

Diesel fuel would be used in trucks and construction equipment. California ultralow sulfur diesel fuel with a maximum sulfur content of 15 ppm by weight would be required to be used in all diesel-powered equipment, which would minimize emissions of sulfurous gases (SO_2, hydrogen sulfide, carbon disulfide, and carbonyl sulfide) and, thus, would minimize odors. Additionally, any odors emitted during construction would be temporary and localized. Therefore, impacts during construction would be ***less than significant***.

OPERATION

Operation of downstream solid waste handling facilities could potentially lead to additional public nuisance complaints if proper control measures are not implemented. An odor generating source may include, but is not limited to buildings, covered areas, open areas, trucks and any other transport related vehicles, paved or unpaved roadways or haul roads, machinery and/or equipment used to move, transport, convey, or sort solid waste, sumps, drains, and areas of standing liquid. As required by SCAQMD Rule 410, proposed downstream facilities with throughput greater than 1,000 tpd would be required to be sited at least 1,000 feet from any property zoned for residential or mixed land use, or designated as a site for a school or a school under construction, measured from the side of the odor generating source located nearest to the area zoned for residential or mixed land use or school to the closest property line of that receptor. In addition, downstream facilities would be required to submit an odor management plan to the SCAQMD. The odor management plan is required to outline odor control strategies for transfer and handling of green waste and recyclable materials including protocols for handling odiferous loads, housekeeping activities, and acceptance and management of odor complaints. SCAQMD has outlined a number of specific control strategies for mitigating odor emissions from transfer stations and material recovery facilities, including the following measures that would be incorporated into facility operations as applicable:

- Facilities with throughput greater than 250 tpd and less than or equal to 1,000 tpd:
  - Operation of a handheld or overhead misting system (odor maskants or odor neutralizers may include any non-toxic odor maskant or odor neutralizer that meets all applicable local, state, and federal requirements); or
  - Wind barriers surrounding two sides of tipping area, including the side most directly downwind of the prevailing wind at the facility, provided solid waste is not stored more than 100 feet from the barrier; or
  - Partial enclosure, consisting of a permanent roof structure covering the tipping floor and one or more walls that act as a wind barrier; or
  - Full enclosure, consisting of a permanent roof structure covering the tipping floor and four walls; or
  - Openings for ventilation and access shall not exceed 5% of the total surface area of the enclosure exterior walls, floor, and the horizontal projection of the roof for a full enclosure, or the minimum percentage required by a local or state regulation; or
  - A buffer zone where the facility is located more than 1,000 feet from any property zoned for residential or mixed land use as of January 1, 2008, and from any school or school under construction as of January 1, 2008. The 1,000-foot buffer zone shall be measured from the side of the tipping floor located nearest to the area zoned for residential or mixed land use, or school site to the closest property line of the receptor; or
  - Permitted throughput is less than 500 tpd and a buffer zone where the facility is located more than 500 feet from any property zoned for residential or mixed land use and from any property designated as a site for a school or a school under construction. The 500-foot buffer zone shall be

measured from the side of the tipping floor located nearest to the area zoned for residential or mixed land use, or school site to the closest property line of the receptor; or

- Other equivalent odor control methods approved by the Executive Officer.

– Facilities with throughput greater than 1,000 tpd:

- Partial enclosure, consisting of a permanent roof structure covering the tipping floor and/or material receiving area and two or more walls that act as a wind barrier, in combination with a handheld or overhead misting system (odor maskants or odor neutralizers may include any non-toxic odor maskant or odor neutralizer that meets all applicable local, state, and federal requirements); or
- Full enclosure, consisting of a permanent roof structure covering the tipping floor and/or material receiving area and four walls. Openings for ventilation and access shall not exceed 5% (tipping floor) to 10% (material receiving areas) of the total surface area of the enclosure's exterior walls, floor, and the horizontal projection of the roof for a full enclosure, or the minimum percentage required by a local or state regulation, in combination with a handheld or overhead misting system; or
- A buffer zone where the facility is located more than 1,000 feet from any property zoned for residential or mixed land use as of January 1, 2008, and from any property designated as a site for a school or school under construction as of January 1, 2008. The 1,000-foot buffer zone shall be measured from the side of the tipping floor located nearest to the area zoned for residential or mixed land use, or school site to the closest property line of the receptor; or
- Placement of physical barriers, such as plastic flaps, at the entrance or exit to the transfer tunnel, whichever is more directly downwind of the prevailing wind at the facility; or
- Maximum drop height from the tipping floor into transfer trucks of 3 feet or less, above the lip of the transfer truck; or
- Operation of a misting system at the entrance or exit to the transfer tunnel, whichever is more directly downwind of the prevailing wind at the facility.

Operation of downstream solid waste handling facilities could potentially lead to additional public nuisance complaints if proper control measures are not implemented. An odor generating source may include, but is not limited to buildings, covered areas, open areas, trucks and any other transport related vehicles, paved or unpaved roadways or haul roads, machinery and/or equipment used to move, transport, convey or sort solid waste, sumps, drains and areas of standing liquid. As required by SCAQMD Rule 410, proposed downstream facilities with throughput greater than 1,000 tpd would be required to be sited at least 1,000 feet from any property zoned for residential or mixed land use, or designated as a site for a school or a school under construction, measured from the side of the odor generating source located nearest to the area zoned for residential or mixed land use or school to the closest property line of that receptor. In addition, downstream facilities would be required to submit an Odor Management Plan to the SCAQMD. The odor management plan is required to outline odor control strategies for transfer and handling of green waste and recyclable materials. SCAQMD has outlined a number of control strategies for mitigating odor emissions from transfer stations and material recovery facilities with throughputs of municipal solid waste greater than 1,000 tpd. Therefore, with compliance with SCAQMD Rule 410 impacts from objectionable odors would be reduced to ***less than significant***.

MITIGATION MEASURE(S)

MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures. For downstream facility projects with an anticipated construction duration of greater than 6 months and located within 500 feet of a residence or other sensitive receptor, prior to issuance of a permit to construct, an Air Quality Impact Analysis shall be prepared by a qualified air quality analyst, that includes a construction health risk assessment. If the analysis shows an exceedance of SCAQMD criteria pollutant thresholds and/or that the incremental cancer risk would exceed 10 persons in 1 million at a sensitive receptor or the calculated Hazard Index for chronic or acute risks would exceed a value of 1.0 at a sensitive receptor, the air quality analyst shall prepare a mitigation plan subject to City review and approval that reduces criteria pollutants and/or TACs to less than SCAQMD thresholds and/or the maximum extent practicable. Mitigation measures to reduce project-related emissions include and are not limited to the following:

- Require the use of electricity from power poles rather than temporary diesel or gasoline powered generators, as feasible.
- Minimize equipment idling time in accordance with the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, Division 3, Chapter 10, Section 2435).
- Require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export) and if the lead agency determines that 2010 model year or newer diesel trucks cannot be obtained the lead agency shall use trucks that meet USEPA 2007 model year NO_X emissions requirements. Additionally, consider other measures such as incentives, phase-in schedules for clean trucks, etc. during the construction period.
- During construction and operation of downstream facilities, all internal combustion engines/construction equipment operating on the Program site shall meet Tier 4 Final CARB/USEPA emission standards. If not already supplied with a factory equipped diesel particulate filter, all off-road diesel-powered construction equipment shall be outfitted with best available control technology devices certified by CARB. Any emissions control device used by the contractor shall achieve emission reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as specific fuel economy standards. In the event that all off-road diesel-powered construction equipment cannot meet the Tier 4 Final engine certification, the applicant shall use alternative measures, which include, but would not be limited to, reduction in the number and/or horsepower rating of equipment, limiting the number of daily haul truck trips to and from the site, and/or using cleaner vehicle fuel.

3.5 Biological Resources

This section describes the existing biological resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on biological resources in the City. Table 3.5-1 summarizes impacts on biological resources that could result from implementation of the Program or alternatives.

Table 3.5-1. Summary of Biological Resources Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-3: Worker Environmental Awareness MM NOI-1: Noise and Vibration Study and Control Plan
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness

Would the Program:	Impact Determination	Mitigation Measure(s)
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Upstream: No Impact	None
	Downstream: No Impact	None
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Upstream: No Impact	None
	Downstream: No Impact	None
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Upstream: No Impact	None
	Downstream: No Impact	None
g) Have a substantial impact, either directly or through habitat modifications, on common wildlife species?	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	MM BIO-3: Worker Environmental Awareness Program MM NOI-1: Noise and Vibration Study and Control Plan

3.5.1 Environmental Setting

The City of Los Angeles lies in Los Angeles County, which encompasses approximately 4,084 square miles. Los Angeles County borders 70 miles of coastline on the Pacific Ocean and extends west to the Mojave Desert. Los Angeles County is divided west-to-east by the San Gabriel Mountains, which are part of the Transverse Ranges of southern California. The City of Los Angeles encompasses approximately 469 square miles of land and is bounded by the Pacific Ocean to the west, the Angeles National Forest to the north, and the San Gabriel Valley to the east. Elevations within the City range from sea level at the coast to 5,075 feet above mean sea level at Mount Lukens in the northeastern end of the San Fernando Valley. The region's climate is characteristic of a Mediterranean climate system with hot, dry summers and cooler, wetter winters. Average temperatures in the City range from 55 degrees Fahrenheit (°F) in the winter months to 74°F in the summer. Average annual rainfall in the City is approximately 14.77 inches, with the majority of rain falling between December and March (Western Regional Climate Center 2023).

3.5.1.1 Vegetation Communities and Land Cover Types

Urbanization in the City has substantially reduced the abundance and diversity of biological resources. This is most evident in the central portion of the City, where development is the most dense (Figure 3.5-1; City of Los Angeles 1996). The majority of remaining natural open space in the City is limited to the mountainous terrain bordering the San Fernando and San Gabriel Valleys (Simi Hills, Santa Susana Mountains, San Gabriel Mountains, and Verdugo Mountains). Another large natural open-space area within the City is located at the eastern end of the Santa Monica Mountains, where the range separates the San Fernando Valley from the coastal plain of metropolitan Los Angeles (City of Los Angeles 1996).

Significant biological resource areas within the City include lowland areas of the coastal plain such as Sepulveda flood control basin, Tujunga and Pacoima spreading grounds, and Harbor Lake Park. In addition, the beaches and coastal canyons of the Pacific Palisades, dunes and estuarine wetlands of the southwest coastline, beaches and headlands of the Palos Verdes peninsula, and Terminal Island in the Los Angeles Harbor are all important habitats for plants and wildlife of the City (City of Los Angeles 1996).

Vegetation communities within open space areas of the City are highly varied. The north slopes and high-elevation south slopes of the Santa Monica and Verdugo mountains are dominated by dense chaparral habitat. Lower-elevation south slopes of the Santa Monica and Verdugo Mountains, as well as the Simi Hills, Santa Susana, and San Gabriel Mountains are dominated by open coastal sage scrub and grassland habitats. The mountainous areas of the City contain riparian woodland habitats dominated by willow, oak, sycamore, cottonwood, and alder (City of Los Angeles 1996). Along the coastal areas of the City, sandy beaches, rocky cliffs, and headlands provide suitable habitat for marine intertidal invertebrates, fish, mammals, various avian species, as well as rare plant species. The southwestern coastal area of the City includes coastal salt marsh, salt flats, freshwater marsh, riparian scrub, bluffs, and dunes that support sensitive wildlife and plant species (City of Los Angeles 1996).

Other vegetation communities and land cover types that occur within the City include agriculture, annual grassland, open water, disturbed habitat, oak woodland, big-cone spruce woodland, walnut woodland, coastal dune scrub, and willow forest (Figure 3.5-1; City of Los Angeles 1996).

3.5.1.2 Wildlife of the City

Given the urbanized nature of the majority of the City, most wildlife communities in the City consist of species that can tolerate human-dominated landscapes. Commonly encountered mammals in the City include pocket gophers (*Thomomys* sp.), coyote (*Canis latrans*), squirrels (*Sciuridae* sp.), Virginia opossum (*Didelphis virginiana*), common raccoon (*Procyon lotor*), bobcats (*Lynx rufus*) striped skunk (*Mephitis mephitis*), and rabbits (*Sylvilagus* sp.). Commonly encountered avian species in the City include house finch (*Haemorhous mexicanus*), American crow (*Corvus brachyrhynchos*), California towhee (*Melozone crissalis),* California scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), various raptors including red-tailed Hawks (*Buteo jamaicensis*), and Anna's hummingbird (*Calypte anna).* Common reptiles found in the City include southern alligator lizard (*Elgaria multicarinata*), western fence lizard (*Sceloporus occidentalis*), western side blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*). Amphibians found within the City include Baja California tree frog (*Pseudacris hypochondriaca*) and western toad (*Anaxyrus boreas*) (iNaturalist 2023).

3.5.1.3 Aquatic Resources

Various aquatic resources, including rivers, streams, and wetlands, are present within the City (Figure 3.5-2; USGS 2023; USFWS 2023a). The Los Angeles River is the primary drainage channel within the City. The river originates in the Canoga Park region of the City, flows east from the San Fernando Valley along the Santa Monica Mountains, turns south through the City center, and ultimately flows to the Port of Long Beach in the Pacific Ocean. Ballona Creek is another drainage that flows through the Mid-City neighborhood of Los Angeles and continues to the community of Playa del Rey where it empties into Santa Monica Bay. The Ballona Wetlands Ecological Reserve, located in the Playa del Rey community of the City, is the City's largest wetland totaling approximately 600 acres. Habitats within the reserve include coastal salt marsh, salt pan, freshwater marsh, riparian scrub, riparian forest, seasonal wetlands, coastal sage scrub, and coastal sand dunes (Friends of Ballona Wetlands 2023).

3.5.1.4 Significant Ecological Areas

Significant Ecological Areas (SEAs) are officially designated areas within Los Angeles County that contain sensitive biological resources. The SEA Program was originally established as a part of the 1980 County General Plan in order to conserve the genetic and physical diversity within the County by designating biological resources areas capable of sustaining themselves into the future. Within SEAs, development is carefully reviewed with a focus on conservation of sensitive biological resources.

Two Los Angeles County SEAs lie completely within the boundaries of the City: Tujunga Valley/Hansen Dam and Griffith Park. In addition, three more SEAs overlap partially with the City including Verdugo Mountains (northeast portion of the City), Santa Susana Mountains/Simi Hills (northwest portion of the City), and Santa Monica Mountains (southwest portion of the City; Figure 3.5-3).

Special status species that are historically known to occur within the Tujunga Valley/Hansen Dam SEA include Nevin's barberry (*Berberis nevinii*), slender-horned spineflower (*Dodecahema leptoceras*), arroyo chub (*Gila orcuttii*), and Santa Ana sucker (*Catostomus santaanae*) (City of Los Angeles 1996). Sensitive vegetation communities within the Tujunga Valley/Hansen Dam SEA include alluvial scrub, freshwater marsh, willow forest, and willow scrub (City of Los Angeles 1996).

Special status species that are historically known to occur within the Griffith Park SEA include mountain lion (*Puma concolor*), southern California legless lizard (*Anniella stebbinsi*), and coast horned lizard (*Phrynosoma blainvillii*). Vegetation communities within the Griffith Park SEA include oak-walnut woodland, oak woodland, oak-sycamore riparian woodland, mixed chaparral, and mixed coastal sage scrub (City of Los Angeles n.d.).

Special status species that are historically known to occur within the Santa Susana Mountains/ Simi Hills SEA include southern California rufous-crowned sparrow (*Aimophila ruficeps*), two-striped gartersnake (*Thamnophis hammondii*), and least Bell's vireo (*Vireo bellii pusillus*) (PCR Services Corporation 2000a). Sensitive vegetation communities within the Santa Susana Mountains/Simi Hills SEA include coastal sage scrub, alluvial scrub, valley oak woodland, valley oak savannah, mainland cherry woodland, native grassland, southern willow scrub, and cottonwood-willow riparian forest (PCR Services Corporation 2000a).

Special status species that are historically known to occur within the Santa Monica Mountains SEA include southern tarplant (*Centromadia parryi ssp. Australis*), southern California steelhead

(*Oncorhynchus mykiss*), arroyo chub, Coast Range newt (*Taricha torosa*), coast horned lizard (*Phrynosoma blainvillii*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), southwestern willow flycatcher (*Empidonax traillii extimus*), and southern California rufous-crowned sparrow (PCR Services Corporation 2000b). Sensitive vegetation communities within the Santa Monica Mountains SEA include coastal sage scrub, native grassland, valley oak woodland, walnut woodland, southern willow scrub, southern cottonwood-willow riparian forest, sycamore-alder woodland, oak riparian forest, freshwater marsh, and salt marsh (PCR Services Corporation 2000b).

Both general and specific accounts of biological resources within the Verdugo Mountains SEA are lacking, and the most recent vegetation map of the area was prepared in 1934 (City of Los Angeles 1996). Based on aerial photography, vegetation communities within this SEA include grassland, coastal sage scrub, chaparral, riparian scrub and forests, and oak woodlands (City of Los Angeles 1996).

3.5.1.5 Coastal and Marine Habitats

Marine Protected Areas are areas where human activities are managed to protect important natural or cultural resources (National Oceanic and Atmospheric Administration [NOAA] 2023a). There are no Marine Protected Areas in the City, however, there are Marine Protected Areas near the City. The Point Fermin Marine Life Refuge (designated as a State Marine Conservation Area) is managed by the California Department of Fish and Wildlife (CDFW) and is located on the Palos Verdes Peninsula, south of Fort MacArthur (Figure 3.5-3). Commercial and recreational fishing is restricted in this Marine Protected Area (NOAA 2023b). In addition, the Point Dume State Marine Reserve is located along the Malibu coastline, west of Pacific Palisades. This Marine Protected Area is managed by CDFW and has a “No Take” level of protection (NOAA 2023b).

In State marine conservation areas, it is unlawful to injure, damage, take, or possess any marine resources for commercial or recreational purposes that would compromise the protection of the species of interest, natural community, habitat, or geological feature.

In State marine reserves it is unlawful to injure, damage, take, or possess any marine resource, except under a permit or specific authorization. Access for activities including, but not limited to, walking, swimming, boating, and diving may be restricted to protect marine resources.

3.5.1.6 Essential Fish Habitat

Essential Fish Habitats are areas in marine and estuary waters that include habitat that is essential for the spawning, breeding, feeding, and growth to maturity of federally managed fish (NOAA 2022a). There are no Essential Fish Habitats within the City, but the coastline surrounding the City contains Essential Fish Habitats for many species including albacore tuna, bigeye tuna, blue shark, broadbill swordfish, coastal pelagic species, common thresher shark, dorado, finfish, groundfish, krill, northern bluefin tuna, shortfin mako shark, skipjack tuna, striped marlin, and yellowfin tuna (Figure 3.5-3).

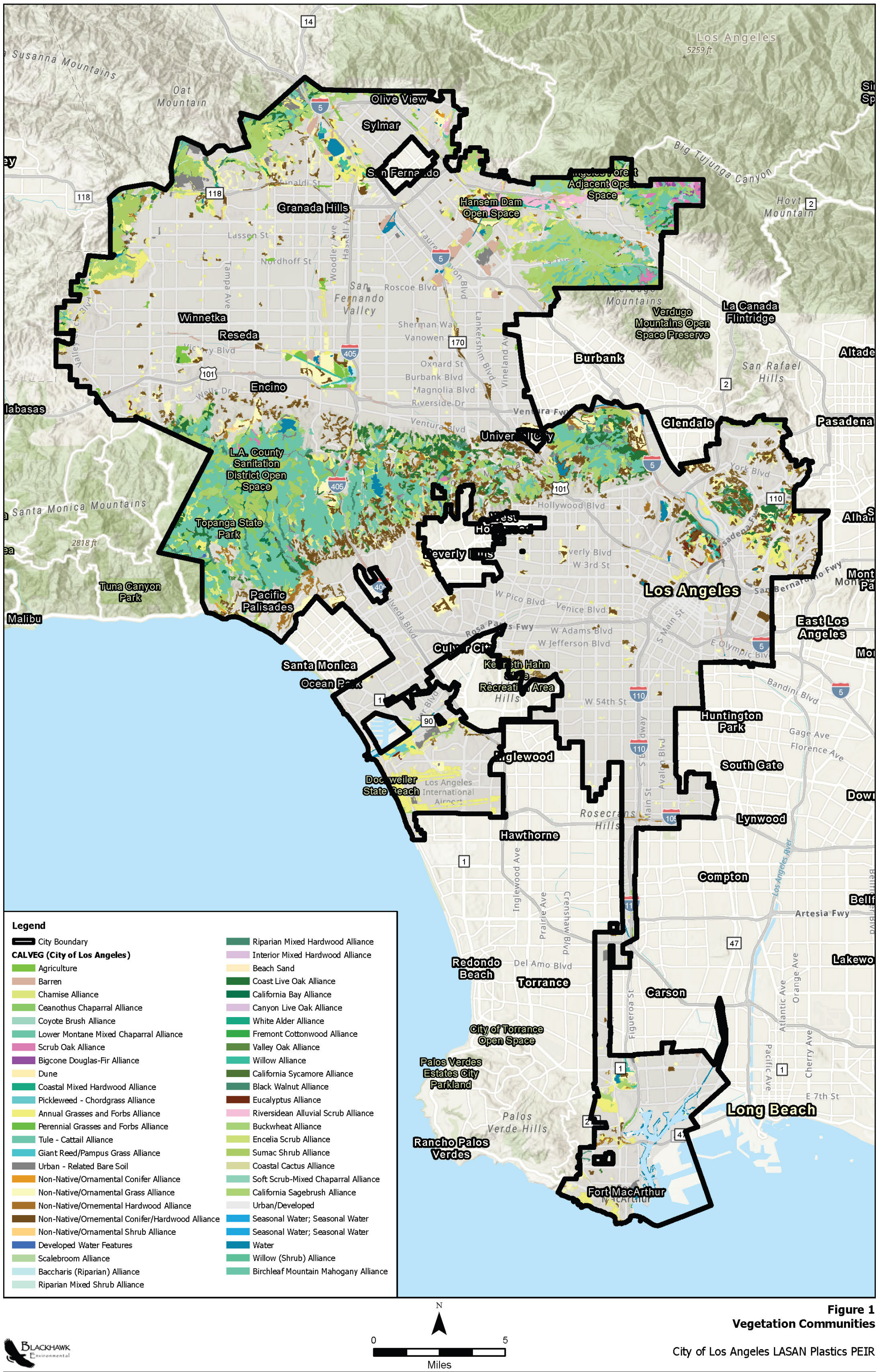


Figure 3.5-1. Vegetation Communities in the City

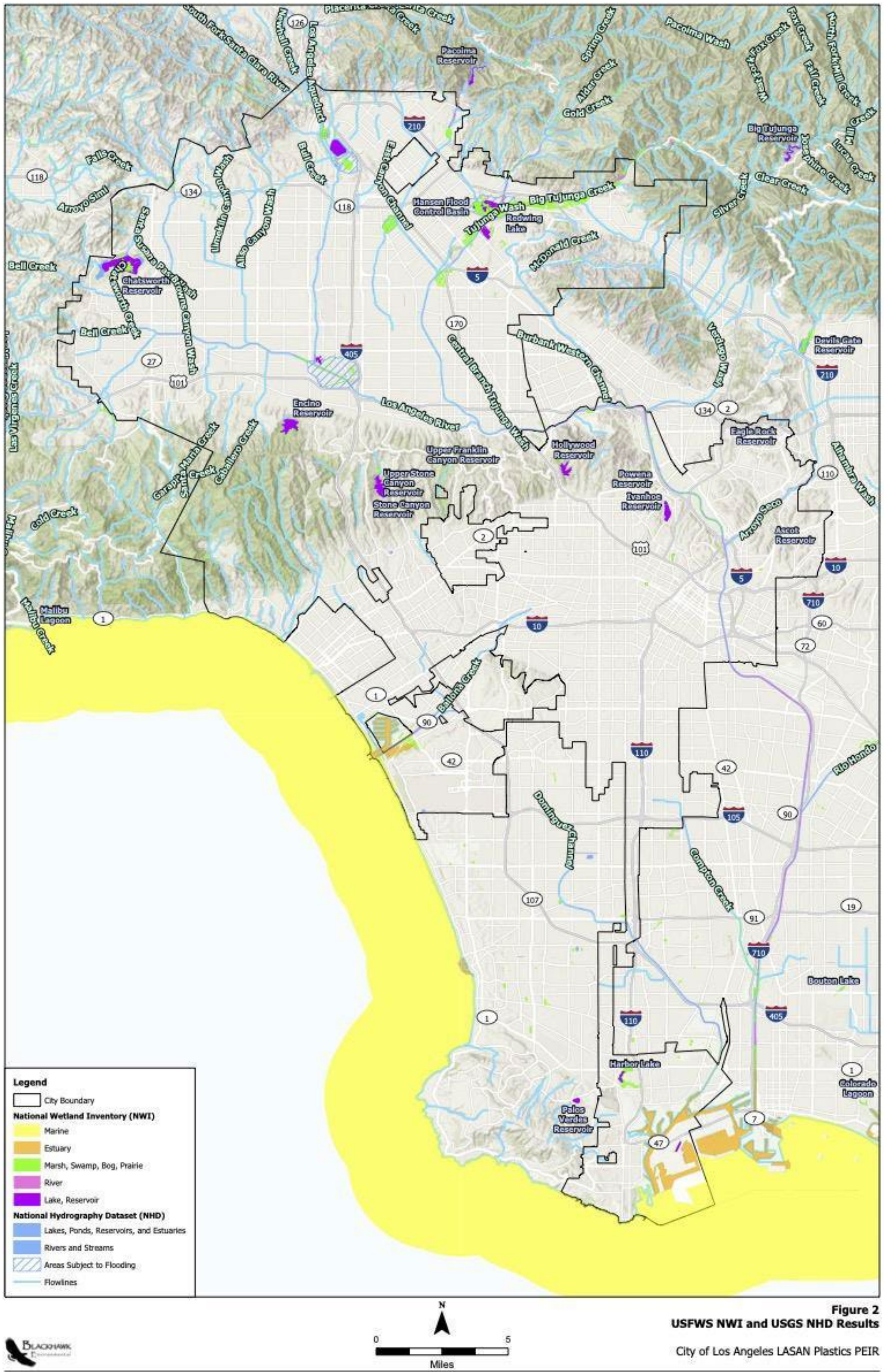


Figure 3.5-2. Aquatic Resources in the City

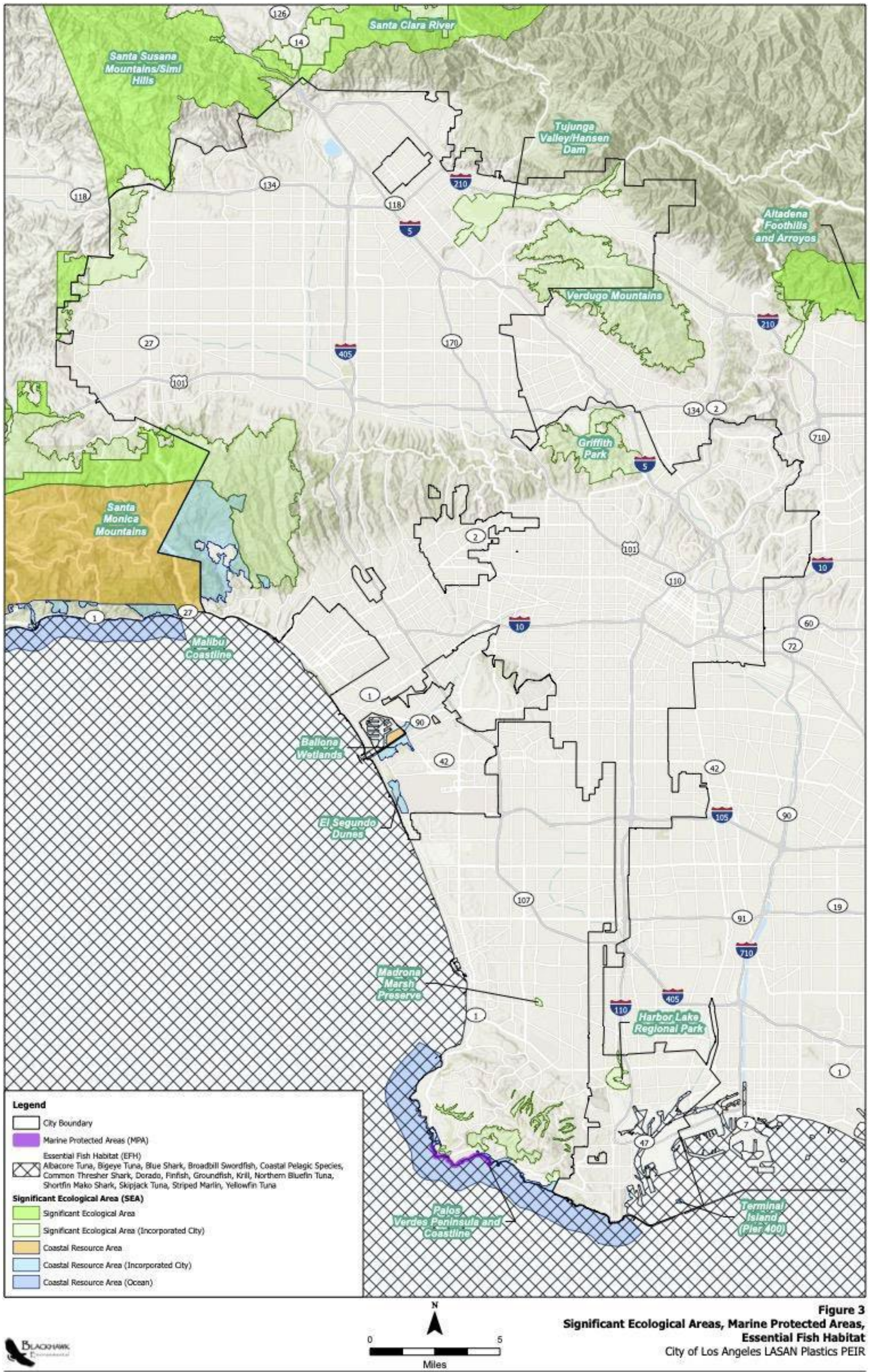


Figure 3.5-3. Significant Ecological Areas, Marine Protected Areas, and Essential Fish Habitat in the City

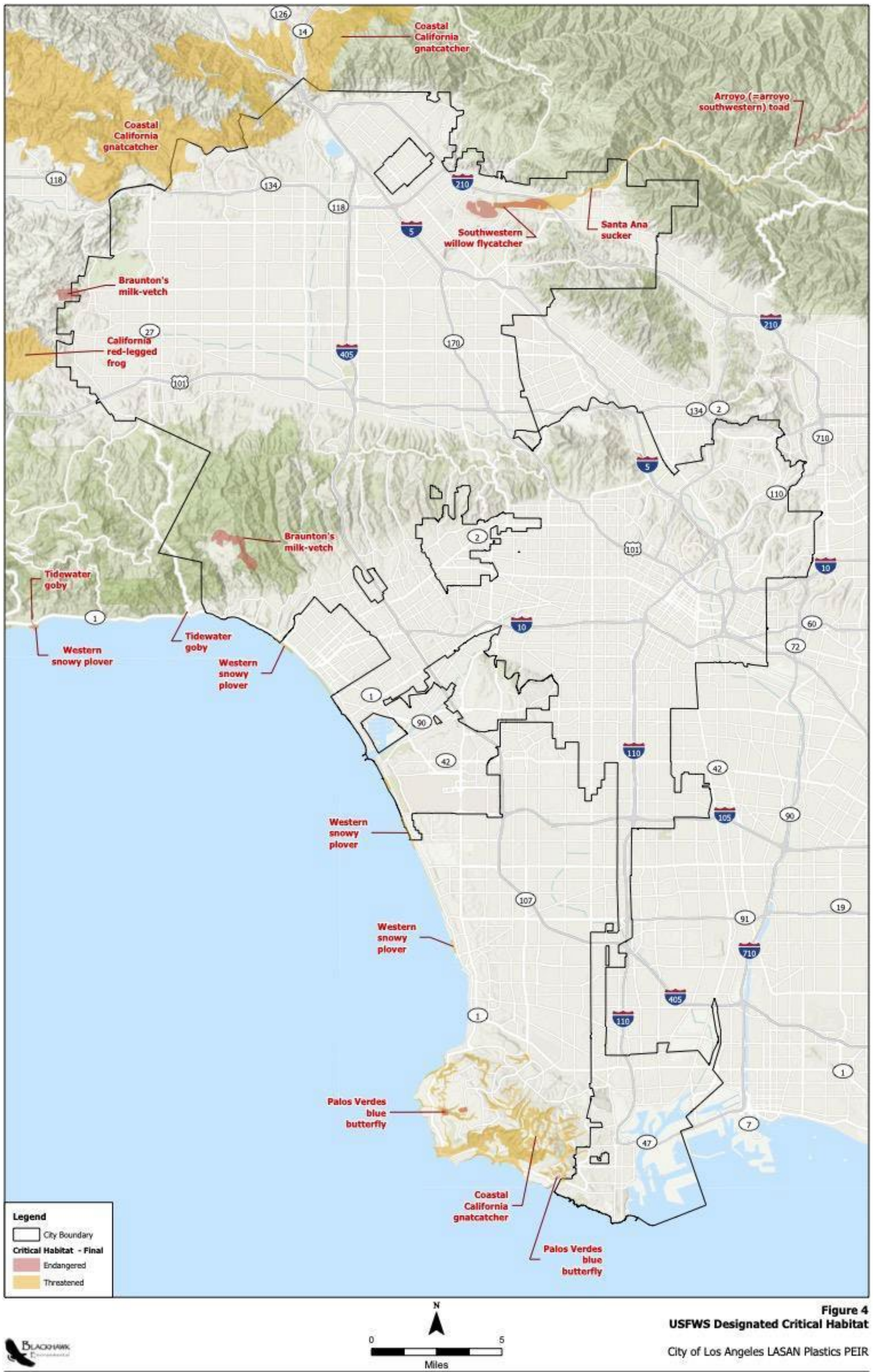


Figure 3.5-4. Critical Habitat in the City

3.5.1.7 Critical Habitat

A database query of the United State Fish and Wildlife Service (USFWS) Critical Habitat Online Mapper (USFWS 2023b) was conducted to identify any USFWS-designated critical habitat that occurs within the City. Critical habitat for coastal California gnatcatcher (*Polioptila californica californica*) is present in the northwest portion of the City near Oat Mountain (Figure 3.5-4). In addition, critical habitat for southwestern willow flycatcher exists near Hansen Dam. Designated critical habitat for Santa Ana sucker is also present in the northeast area of the City along big Tujunga Creek. A small area of critical habitat for Braunton's milk-vetch (*Astragalus brauntonii*) occurs within Topanga State Park in the southwest portion of the City. Two areas of critical habitat for western snowy plover (*Charadrius nivosus nivosus*) occur within the City. One area is located between Pacific Palisades and Santa Monica, and the second area is located along Dockweiler State Beach. Lastly, a small area of critical habitat for the Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) occurs near the southern tip of the City on the Palos Verdes peninsula.

Critical habitat for California red-legged frog (*Rana draytonii*) falls just outside the western boundary of the City, just north of the City of Calabasas. Lastly, a small area of critical habitat for tidewater goby (*Eucycloglobius newberryi*) is present to the west of the City, south of Tuna Canyon Park (Figure 3.5-4).

3.5.1.8 Special Status Species

Within the City, 61 special status species, including 26 plants and 35 animals were identified through queries of multiple biological databases (Appendix D). First, a California Natural Diversity Database (CNDDB) query was conducted of the U.S. Geological Survey (USGS) topographic quadrangles that overlap with the City's boundaries including Sunland, Pasadena, Burbank, San Pedro, Torrance, Inglewood, Los Angeles, Hollywood, Venice, Beverly Hills, Topanga, Van Nuys, Canoga Park, and San Fernando. The CNDDB query focused on species occurrences that have been recorded from 2013 to present day (CDFW 2023). In addition, a species list was obtained through the USFWS Information for Planning and Conservation (IpaC) website of Threatened and Endangered Species occurring within the City (USFWS 2023c). Lastly, the National Marine Fisheries Service (NMFS) Protected Resources App was reviewed for a list of species that occur within marine areas located in/near the City (NOAA 2022b).

The potential for special status species to occur within the City was evaluated based on proximity, recency and abundance of known occurrences, availability of suitable habitats, and historic distributions of the species. The potential for occurrence was generally evaluated based on the following criteria:

- High – Historic records indicate that the species has been known to occur within the vicinity of the City (5 miles), and moderate to high quality suitable habitat occurs in the City.
- Moderate – Historic records indicate that the species has been known to occur within the vicinity of the City (5 miles), but low-quality suitable habitat occurs on-site, or no historic records occur within the City, but the City occurs within the historic range of the species, and moderate to high quality habitat occurs in the City.
- Low – Historic records indicate that the species has not been known to occupy the immediate vicinity of the City, and low-quality habitat for the species exists in the City.

- Unlikely – The species is restricted to habitats not occurring within the City or is considered extirpated from the City.

Special-status plants and wildlife are shown in Table 3.5-2 and Table 3.5-3, respectively.

Table 3.5-2 Special-status Plant Species with the Potential to Occur in the Program Area

Common Name	Scientific Name	Listing Status	Likelihood to Occur
southern tarplant	*Centromadia parryi ssp. Australis*	CRPR 1B.1	High
Orcutt's pincushion	*Chaenactis glabriuscula var. orcuttiana*	CRPR 1B.1	High
Nevin's barberry	*Berberis nevinii*	FE, SE, CRPR 1B.1	Moderate
Davidson's bush-mallow	*Malacothamnus davidsonii*	CRPR 1B.2	Moderate
Braunton's milk-vetch	*Astragalus brauntonii*	FE, CRPR 1B.1	Moderate
aphanisma	*Aphanisma blitoides*	CRPR 1B.2	Moderate
Sanford's arrowhead	*Sagittaria sanfordii*	CRPR 1B.2	Moderate
slender-horned spineflower	*Dodecahema leptoceras*	FE, SE, CRPR 1B.1	Moderate
Blochman's dudleya	*Dudleya blochmaniae ssp. Blochmaniae;*	CRPR 1B.1	Low
Santa Catalina Island desert-thorn	*Lycium brevipes var. hassei*	CRPR 3.1	Low
Parry's spineflower	*Chorizanthe parryi var. parryi*	CRPR 1B.1	Low
slender mariposa-lily	*Calochortus clavatus var. gracilis*	CRPR 1B.2	Low
Santa Susana tarplant	*Deinandra minthornii*	SR, CRPR 1B.2	Low
salt marsh bird's-beak	*Cordylanthus maritimus ssp. Maritimus*	FE, SE, CRPR 1B.2	Low
salt spring checkerbloom	*Sidalcea neomexicana*	CRPR 2B.2	Low
south coast saltscale	*Atriplex pacifica*	CRPR 1B.2	Low
Parish's brittlescale	*Atriplex parishii*	CRPR 1B.1	Unlikely
Palmer's grapplinghook	*Harpagonella palmeri*	CRPR 4.2	Unlikely
San Fernando Valley spineflower	*Chorizanthe parryi var. fernandina*	SE, CRPR 1B.1	Unlikely
California Orcutt grass	*Orcuttia californica*	FE, SE, CRPR 1B.1	Unlikely
Lyon's pentachaeta	*Pentachaeta lyonii*	FE, SE, CRPR 1B.1	Unlikely
Greata's aster	*Symphyotrichum greatae*	CRPR 1B.3	Unlikely
coastal dunes milk-vetch	*Astragalus tener var. titi*	FE, SE, CRPR 1B.1	Unlikely
Gambel's watercress	*Rorippa gambellii*	FE, ST, CRPR 1B.1	Unlikely

Common Name	Scientific Name	Listing Status	Likelihood to Occur
marsh sandwort	*Arenaria paludicola*	FE, SE, CRPR 1B.1	Unlikely
spreading navarretia	*Navarretia fossalis*	FT, CRPR 1B.1	Unlikely

Notes: FE: Federally Endangered; FT: Federally Threatened; SE: State Endangered; ST: State Threatened; SR: State Rare; CRPR: California Rare Plant Ranking
CRPR:1B: Plants rare, threatened, or endangered in California and elsewhere; 2B: Plants rare, threatened, or endangered in California but more common elsewhere; 3: Plants about which more information is needed; 4: Watch list, plants of limited distribution. 0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat); 0.2: Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat); 0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Table 3.5-3. Special-status Wildlife with the Potential to Occur in the Program Area

Common Name	Scientific Name	Listing Status	Likelihood to Occur
Insects			
monarch - California overwintering population	*Danaus plexippus plexippus pop. 1*	FC	High
El Segundo blue butterfly	*Euphilotes battoides allyni*	FE	High
Crotch bumble bee	*Bombus crotchii*	SCE	Moderate
Palos Verdes blue butterfly	*Glaucopsyche lygdamus palosverdesensis*	FE	Moderate
Aquatic Invertebrates			
Riverside fairy shrimp	*Streptocephalus woottonii*	FE	Unlikely
vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Unlikely
Fish			
Santa Ana speckled dace	*Rhinichthys osculus ssp. 8*	SSC	High
arroyo chub	*Gila orcuttii*	SSC	High
Santa Ana sucker	*Catostomus santaanae*	FT	Moderate
southern California steelhead	*Oncorhynchus mykiss*	FE, SCE	Low
Amphibians			
Coast Range newt	*Taricha torosa*	SSC	Low
western spadefoot	*Spea hammondii*	SSC	Low
arroyo toad	*Anaxyrus californicus*	FE, SSC	Unlikely
Reptiles			
southern California legless lizard	*Anniella stebbinsi*	SSC	High
California legless lizard	*Anniella spp.*	SSC	High
coast horned lizard	*Phrynosoma blainvillii*	SSC	Moderate

Common Name	Scientific Name	Listing Status	Likelihood to Occur
coastal whiptail	*Aspidoscelis tigris stejnegeri*	SSC	Moderate
western pond turtle	*Emys marmorata*	SSC	Low
two-striped gartersnake	*Thamnophis hammondii*	SSC	Low
Birds			
coastal California gnatcatcher	*Polioptila californica californica*	FT	High
least Bell's vireo	*Vireo bellii pusillus*	FE, SE	High
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	WL	High
southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Moderate
Burrowing owl	*Athene cunicularia*	SSC	Moderate
western snowy plover	*Charadrius nivosus nivosus*	FT, SSC	Moderate
California least tern	*Sterna antillarum browni*	FE, SE, FP	Moderate
California condor	*Gymnogyps californianus*	FE, SE, FP	Unlikely (nesting), Low (foraging)
California spotted owl	*Strix occidentalis occidentalis*	SSC	Unlikely (nesting), Low (foraging)
Hawaiian petrel	*Pterodroma sandwichensis*	FE	Unlikely (nesting), Low (foraging)
light-footed clapper rail	*Rallus longirostris levipes*	FE, SE, FP	Unlikely
marbled murrelet	*Brachyramphus marmoratus*	FT, SE	Unlikely
short-tailed albatross	*Phoebastria =Diomedea albatrus*	FE, SSC	Unlikely (nesting), Low (foraging)
yellow-billed cuckoo	*Coccyzus americanus*	FT, SE	Unlikely
Mammals			
mountain lion (southern California ESU)	*Puma concolor*	SCT	High
Pacific pocket mouse	*Perognathus longimembris pacificus*	SE; FE, SSC	Low
American badger	*Taxidea taxus*	SSC	Low

Notes: FE: Federally Endangered; FT: Federally Threatened; FC: Federal Candidate; SE: State Endangered; ST: State Threatened; SCE: State Candidate Endangered; SCT: State Candidate Threatened; SR: State Rare; FP: California Fully Protected; SSC: California Species of Special Concern

3.5.2 Regulatory Framework

3.5.2.1 Federal

3.5.2.1.1 Endangered Species Act (Title 16, United States Code [USC], Sections 1531 through 1543)

The Federal Endangered Species Act of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the Endangered Species Act it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of the Endangered Species Act: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the Endangered Species Act addresses the protections afforded to listed plants.

3.5.2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (PL 65-186, as amended; Title 16, USC, Section 703 et seq.) protects most birds, whether or not they migrate. Birds, their nests, eggs, parts, or products may not be killed or possessed. Game birds are listed and protected except where specific seasons, bag limits, and other features govern their hunting. Permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds.

To comply with the Migratory Bird Treaty Act, if construction activities occur during the breeding season (February 1 through August 31), a qualified biologist familiar with the identification of avian species known to occur in the Program Area, shall conduct a pre-construction nesting bird survey no more than 3 days prior to initiation of ground disturbance activities. If nests are found, an avoidance buffer (dependent upon the species, the Program activity, and existing disturbances associated with land uses outside of the site and coordination with CDFW) shall be determined and demarcated by the biologist with construction fencing, flagging, construction lathe, or other means to demarcate the boundary. All Program personnel shall be notified as to the existence of the buffer zone and to avoid entering the buffer zone during the nesting season. No ground-disturbing activities shall occur within this buffer until the avian biologist has confirmed that breeding/nesting is completed and the young have fledged the nest, or confirmed that the nest is no longer active. Encroachment into the buffer shall occur only at the discretion of the qualified biologist.

3.5.2.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (PL 95-616; Title 16, USC, Section 668 et seq.) provides for protection of the bald and golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively), by prohibiting taking, possession, and commerce in the birds. The act prohibits the "take" of bald and golden eagles and their parts, nests, or eggs, and it is illegal to pursue, shoot, shoot at, wound, kill, capture, trap, collect, molest, or disturb them. The illegal act of "disturbing" bald or golden eagles includes any activities that may cause injury, disruption to productivity, and/or interference with normal behaviors. "Disturbance" also covers any man-made alterations near a previously used eagle nest site that agitate an eagle to a degree that interferes with normal behaviors and leads to injury, death, or nest abandonment.

3.5.2.1.4 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980 (PL 96-366; Title 16, USC, Section 2901 et seq.) provides for conservation, protection, restoration, and propagation of certain species, including migratory birds threatened with extinction. The Fish and Wildlife Conservation Act declares that fish and wildlife are of ecological, educational, esthetic, cultural, recreational, economic, and scientific value to the United States. The purposes of this act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. Another purpose is to provide financial and technical assistance to the states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife.

3.5.2.1.5 Federal Clean Water Act

The federal Clean Water Act (CWA) regulates the discharge of pollutants to Waters of the United States[31] to protect water quality and the beneficial uses of these waters. Through a permit application process, CWA Section 404 regulates dredge and fill discharges to Waters of the United States.

[31]The term "Waters of the United States" is defined as:
All Traditional Navigable Waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;
All interstate waters, including interstate wetlands;
All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce;
All other impoundments of waters otherwise defined as Waters of the United States under the definition;
Tributaries of waters identified above;
The territorial seas; and
Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (Title 33 CFR Part 328.3[a]).
Non-navigable tributaries that do not constitute Relatively Permanent Waters (RPW; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

3.5.2.1.6 Executive Order 11990: Protection of Wetlands

The purpose of Executive Order 11990 is "to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands". It directs federal agencies to consider alternatives to wetland sites for any developments, and to limit potential damage if activities affecting a wetland cannot be avoided. Activities that will affect wetlands should not commence unless the agency has determined that there are no practicable alternatives, measures are included to minimize impacts on wetlands, and any impacts will be minor. Additionally, federal agencies should avoid giving direct or indirect support to proposed projects that encroach on wetlands.

3.5.2.2 State

3.5.2.2.1 California Endangered Species Act (California Fish and Game Code Section 2050 et seq.)

The California Endangered Species Act defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that is in danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The state defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the federal Endangered Species Act, the California Endangered Species Act does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the California Endangered Species Act addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the California Endangered Species Act, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for "take" incidental to otherwise lawful activities. California Fish and Game Code Sections 1901 and 1913 provide that notification is required prior to disturbance.

3.5.2.2.2 California Fish and Game Code Section 1600 et seq.

CDFW is responsible for protecting and conserving fish and wildlife resources, and the habitats upon which they depend. Under California Fish and Game Code Section 1600, CDFW administers the Lake and Streambed Alteration Program and regulates all substantial diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake (which typically include reservoirs), which supports fish or wildlife.

Applicants proposing changes to such regulated water resources must submit a Lake or Streambed Alteration Notification to CDFW for such projects. CDFW will then determine if the proposed activity may substantially adversely affect an existing fish or wildlife resource and will issue a final agreement for the applicant's signature that includes reasonable measures necessary to protect the resource. Preliminary notification to CDFW, and project review by CDFW may occur during or after the CEQA environmental review process but prior to project implementation.

3.5.2.2.3 California Fish and Game Code Sections 2080 and 2081

California Fish and Game Code Section 2080 states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to California Fish and Game Code Section 2081, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through Incidental Take permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

3.5.2.2.4 California Fish and Game Codes 3500 Series

California Fish & Game Codes 3500, 3503, 3503.5, 3505, 3511, and 3513 are state regulations that cover resident and non-resident game birds, protected bird nests, protected raptor nests, egrets, ospreys, Fully Protected bird species, and take considerations for Migratory Bird Treaty Act birds.

3.5.2.2.5 Native Plant Protection Act

The Native Plant Protection Act was enacted in 1977 and allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the act. The Native Plant Protection Act prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and/or with proper notification to the CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

3.5.2.2.6 California Water Quality Control Act (Porter-Cologne California Water Code Section 13260)

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) are the principal state agencies with primary responsibility for regulating the use and quality of water in the state. The RWQCBs regulate activities pursuant to federal CWA Section 401(a)(1) as well as the Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.). CWA

Section 401 specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of CWA Sections 301, 302, 303, 306, and 307.

In Porter-Cologne, the Legislature declared that the "State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation..." (California Water Code Section 13000). Porter-Cologne grants the RWQCBs the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface waters of the state. It is important to note that enforcement of the state's water quality requirements is not solely the purview of the RWQCBs and their staff. Other agencies (e.g., CDFW) have the ability to enforce certain water quality provisions in state law.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), adopted by the SWRCB on April 2, 2019, became effective May 28, 2020. The Procedures include a definition for wetland waters of the state that include (1) all wetland waters of the United States; and (2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the United States but lack vegetation.

3.5.2.3 Local

3.5.2.3.1 Los Angeles County – Significant Ecological Areas

Through the County of Los Angeles' General Plan 61 SEAs were established to protect a wide variety of biological communities within the county. If a project falls within a Los Angeles County SEA, a conditional use permit is required for development to protect resources contained in SEAs from incompatible development.

3.5.2.3.2 City of Los Angeles General Plan

The Conservation Element of the City of Los Angeles General Plan (City of Los Angeles 2001) contains policies that pertain to the preservation of biological resources, including the following:

Endangered Species Objectives and Policies

Objective 1. Protect and promote the restoration, to the greatest extent practical, of sensitive plant and animal species and their habitats.

- Policy 1. Continue to require evaluation, avoidance, and minimization of potential significant impacts, as well as mitigation of unavoidable significant impacts on sensitive animal and plant species and their habitats and habitat corridors relative to land development activities.
- Policy 2. Continue to administer city-owned and managed properties so as to protect and/or enhance the survival of sensitive plant and animal species to the greatest practical extent.

- Policy 3. Continue to support legislation that encourages and facilitates protection of endangered, threatened, sensitive, and rare species and their habitats and habitat corridors.

Fisheries Objectives and Policies

Objective 1. Protect and restore ocean fisheries (habitats).

Objective 2. Protect fisheries and enhance, restore, or create fisheries for native fish populations and for sport fishing or harvesting in city managed waters.

- Policy 1. Continue to implement and to cooperate with lake fish stocking or enhancement programs.
- Policy 2. Continue to consider and implement measures that will mitigate potential damage to and will encourage maintenance or restoration of fisheries.

Forest Objectives and Policies

Objective 1. Retain the forests as primary watershed, open space, and recreational resources for the region.

- Policy 1. Continue to support the preservation and protection of Angeles Forest and Santa Clarita Woodlands.

Habitats/Ecological Areas Objectives and Policies

Objective 1. Preserve, protect, restore, and enhance natural plant and wildlife diversity, habitats, corridors, and linkages so as to enable the healthy propagation and survival of native species, especially those species that are endangered, sensitive, threatened, or species of special concern.

- Policy 1. Continue to identify significant habitat areas, corridors, and buffers and to take measures to protect, enhance, and/or restore them.
- Policy 2. Continue to protect, restore, and/or enhance habitat areas, linkages, and corridor segments, to the greatest extent practical, within city owned or managed sites.
- Policy 3. Continue to work cooperatively with other agencies and entities in protecting local habitats and endangered, threatened, sensitive, and rare species.
- Policy 4. Continue to support legislation that encourages and facilitates protection of local native plant and animal habitats.

Ocean Objectives and Policies

Objective 1. Protect and enhance the diversity and sustainability of the natural ecologies of the Santa Monica and San Pedro bays, including the bay fishery populations.

- Policy 1. Continue to reduce pollutant discharge into the bays from both natural and human sources.
- Policy 2. Continue to support legislation and to seek funding and legislation intended for bay and coastal protection, enhancement, and habitat restoration.
- Policy 3. Continue to support and/or participate in programs to clean bay sediments and/or mitigate potentially harmful effects of contaminants in the sediments and waters of the bays.

3.5.2.3.3 City of Los Angeles Protected Tree and Shrub Regulations

Ordinance 177404, amended by Ordinance 186873, applies to four species of native trees including oaks (other than scrub oak), southern California black walnut, western sycamore, and California bay; as well as two species of shrubs, the Mexican elderberry and toyon. Protected trees must measure 4 inches or more in cumulative diameter at 4.5 feet above the ground level at the base of the tree. No protected tree or shrub may be relocated or removed except as provided in Article 7 of Chapter 1 or Article 6 of Chapter 4 of the City of Los Angeles Municipal Code. The term “removed” or “removal” includes any act that will cause a protected tree to die, including but not limited to, acts that inflict damage upon the root system or other part of the tree by fire, application of toxic substances, operation of equipment or machinery, or by changing the natural grade of land by excavation or filling the drip line area around the trunk. The City requires that a report be prepared by a qualified tree expert discussing the subject tree(s), their preservation, effects of proposed construction, and mitigation measures pursuant to the removal or replacement thereof. Native trees and shrubs that have been planted as part of a tree planting program are exempt from this ordinance and are not considered protected.

3.5.2.3.4 City of Los Angeles Department of City Planning Biological Reporting Standards

The City of Los Angeles Department of City Planning has developed standards for biological surveying and reporting for projects within the City as presented in the “Biological Reporting Standards” (CP-4074) (City of Los Angeles Department of City Planning 2023). The standards lay out requirements for a qualified biologist and standardized requirements for reporting including project overview, literature review, field analysis for flora and fauna, protocol surveys as necessary, and survey instructions for mountain lions, monarch butterfly, bats, and nesting birds.

3.5.3 Impact Assessment

3.5.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to biological resources. The Program would have a significant impact to biological resources if the Program would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.

c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f. Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP.

g. Have a substantial impact, either directly or through habitat modifications, on common wildlife species.

The L.A. CEQA Thresholds Guide provides additional guidance for determining the significance of impacts associated with biological resources resulting from a project. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors that would lead to significant impacts to biological resources:

- Impact Criterion a)
  - The loss of individuals, or the reduction of existing habitat, of a state or federal listed endangered, threatened, rare, protected, or candidate species, or a Species of Special Concern or federally listed critical habitat; and
  - Interference with habitat such that normal species behaviors are disturbed (e.g., from the introduction of noise, light) to a degree that may diminish the chances for long-term survival of a sensitive species.
- Impact Criterion b)
  - The loss of individuals or the reduction of existing habitat of a locally designated species or a reduction in a locally designated natural habitat or plant community.
- Impact Criterion c)
  - The alteration of an existing wetland habitat.
- Impact Criterion d)
  - Interference with wildlife movement/migration corridors that may diminish the chances for long-term survival of a sensitive species.
- The City has added Impact Criterion (g) to evaluate if the Program would have a substantial impact, either directly or through habitat modifications, on common wildlife species.

3.5.3.2 Program

3.5.3.2.1 Upstream Measures

Impact criterion a) Would the Project Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

The following provides a summary of the identified adverse effects of plastics on wildlife that is used in the impact analyses presented in Table 3.5-4. Most individual measures would have no impact or a beneficial impact to this criterion. The PFAS ban measure is found to be less than significant because some of the primary alternatives to PFAS (e.g., silicones) may have long-term effects on biological resources. Therefore, the Program would have a ***less than significant*** impact on criterion (a).

Plastic litter is present in a wide range of environments, including terrestrial, freshwater, and marine environments. Typically, plastic litter is concentrated around urbanized regions (Cole et al. 2011), although plastics have also been observed in remote areas, such as deep-sea sediments (Woodall et al. 2014) and encapsulated in Arctic Sea ice (Obbard et al. 2014). While plastic production continues to soar, so does the accumulation of plastic in the natural environment. Plastics become waste due to overproduction, poor recycling management, and inappropriate disposal (Kumar et al. 2021).

Plastics can range in a variety of sizes, with macroplastics being anything greater than 1 centimeter (cm) and representing the plastic pollution that is typically observed. Mesoplastics range in size from 1 cm down to 1 millimeter (mm), microplastics range in size from less than 1 mm to greater than 0.1 micrometer (µm), and nanoplastics are less than 0.1 µm (Lambert et al. 2014). Macroplastics breakdown to microplastics by undergoing degradation when exposed to the natural environment through physical, chemical, and biological processes, including ultraviolet degradation, mechanical degradation, biodegradation, thermal degradation, turbulence, and other processes (Zbyszewski et al. 2014). Plastic products can degrade into microplastics in less than 4 months (Lambert and Wagner 2016).

The majority of plastic waste is deposited on land and further transferred to freshwater and marine environments as both macro and microplastics. While macroplastic litter can be transported to seas via beach littering, road runoff, illegal dumping, and sewage (Jambeck et al. 2015), microplastics, both primary and secondary microplastics, further enter the natural environment through wastewater treatment discharge, sewage sludge use in agriculture, and landfills (Horton et al. 2017). Both macro- and microplastics have negative impacts on the natural environments in which they enter, impacting everything from the soil and sediment to the apex predators.

Terrestrial Ecosystem Impacts

Terrestrial environments are often the entry points for plastic waste, particularly within and around urbanized areas. Urbanization in the City has substantially reduced the abundance and diversity of biological resources, particularly in the central portion of the City where development is the most dense (City of Los Angeles 1996). Yet, there are still several natural open spaces and significant biological resource areas within the City, and immediately surrounding, that are critical for biological resources and increasingly vulnerable to the plastic pollution that enters them.

Wildlife interactions with plastic pollution has become an increasingly common event, especially immediately within and surrounding urban areas. Macroplastic impacts within terrestrial environments are typically observed as interactions with species via ingestion, use of plastic waste as nests or burrow construction, and entanglement. While scientific research on plastic interactions within terrestrial environments is lacking, a recent literature review found that plastic waste ingestion was present in a variety of species ranging from predator species including mountain lions (*Puma concolor*; State Candidate Threatened), to opportunistic feeders such as coyotes (*Canis latrans*), opossums (Didelphidae family) and raccoons (*Procyon lotor*) (Ayala et al. 2023). Use of plastic waste for nests or burrows was documented for the white-eared opossum (*Didelphis albiventris*), and two species of squirrels. Entanglement is another common impact from plastic waste within terrestrial habitats.

It is estimated that there are 4 to 23% more microplastics in terrestrial ecosystems than in the marine ecosystem (Wang et al. 2019). The main entry points of microplastics to terrestrial environments are via agriculture, landfills, and water treatment sludge (Wong et al. 2020). While the top layer of soil serves as a degradative environment to microplastics, degradation of plastics can take decades (Wong et al. 2020), thus soils can act as long-term sinks for microplastics (Zubris and Richards 2005). Once microplastics are introduced into the terrestrial environment, they can exhibit scents and appearances that might attract fauna to feed on them (Foschungsverbund 2018). Microplastics debris has been documented in the feces of several species of bats (Arnold et al. 2022), as well as in their digestive and respiratory systems (Correia et al. 2022). Another study documented that plastic polymers were detected in small mammals of varying dietary habits, including herbivores, insectivores, and omnivores, as well as in both urban and non-urban locations (Thrift et al. 2022).

Microplastics enter the guts of varying species through direct ingestion when the plastic is mistaken for food (Thrift et al. 2022), or through consuming contaminated prey (Huerta Lwanga et al. 2017). For example, raptors specializing in terrestrial prey were documented to have more microplastics in their guts compared to those preying on marine prey (Carlin et al. 2020). Microplastics consumed by fauna can cause food blockage, leading to starvation and death, and can also pose a high risk of toxicity from the leaching additives in the plastics (Foschungsverbund 2018). Furthermore, there is evidence that microplastics found in soils are consumed by earthworms, which negatively affect their gut microbiomes (Zhu et al. 2018), and increase mortality rates (Huerta Lwanga et al. 2016). This also suggests the probability of microplastics to transfer to and accumulate in varying trophic levels. These findings suggest that plastic interaction and use in the City is not limited to those fauna species associated with urbanization, but can be found impacting species in varying habitats, across trophic levels, and with differing eating habits.

In addition to impacts to fauna species, flora species have also been documented to be negatively impacted by microplastics. Evidence shows that terrestrial plants can take up microplastics from soils via the root system and transport them to their aboveground parts (Wang et al. 2022). Several studies have shown that microplastic exposure to terrestrial plants can negatively affect production of chlorophyll in shoots and leaves, implying the potential to inhibit photosynthesis (Dong et al. 2020; Gao et al. 2019; Li et al. 2020; Wang et al. 2020). This would suggest a negative impact on a plant's growth and survival potential. In the City, this could impact the population of sensitive plants, such as Orcutt's pincushion (*Chaenactis glabriuscula var. orcuttiana;* California Rare Plant Rank (CRPR) 1B.1), or host plants for sensitive invertebrates including the California overwintering population of monarch butterfly (*Danaus plexippus plexippus*; Federal Candidate) or the Crotch bumble bee (*Bombus crotchii*; State Candidate Endangered).

The snapshot of these surveys and studies demonstrate that a range of species are negatively impacted by plastic waste within terrestrial ecosystems through various means. Both urban and non-urban areas of the City are impacted by plastic pollution, with the effects far reaching in both flora and fauna, over varying trophic levels, and differing habitats.

Freshwater Ecosystem Impacts

While the majority of plastic waste is initially introduced into terrestrial ecosystems, plastics then get transported from land to the ocean through freshwater systems (Schmidt et al. 2017). Various aquatic resources are found within the City limits, including rivers, streams, and wetlands (USGS 2023; USFWS 2023c). The Los Angeles River is the primary drainage channel within the City, originating in the Canoga Park region of the City and ultimately flowing to the Port of Long Beach in the Pacific Ocean. While the San Gabriel River does not flow through the City, the San Gabriel River Watershed encompasses the eastern portion of the City. Ballona Creek is another drainage that flows through the Mid-City neighborhood of Los Angeles and continues to the community of Playa del Rey where it empties into the Santa Monica Bay. The Ballona Wetlands Ecological Reserve, the City's largest wetland totaling approximately 600 acres, is also located in the community of Playa del Rey. These aquatic resources support several different habitats and sensitive species, including riparian species such as the least Bell's vireo (*Vireo bellii pusilluus*; Federal and State Endangered) and southwestern willow flycatcher (*Empidonax traillii extimus*; Federal and State Endangered), and aquatic species including the arroyo chub (*Gila orcuttii*; SSC) and Santa Ana sucker (*Catostomus santaanae*; Federally Threatened).

Much of the water in the Los Angeles and San Gabriel Rivers comes from anthropological sources, including stormwater runoff, wastewater, and industrial effluent. Litter in the City is often washed into storm drain catch basins, many of which do not have coverings so plastic litter flows freely into streams and other waterways. A study that focused on trash in storm drains within the City of Los Angeles found that plastics comprise 67% of the storm drain debris in the City (City of Los Angeles, n.d.). The top four categories of plastic items found in debris in the City are plastic film and bags, snack and candy packaging, polystyrene, and heavy plastic film and tarps (City of Los Angeles, n.d.). Larger plastic debris can cause impediments to water flow leading to the further accumulation of trash in freshwater habitats.

While macroplastic debris in freshwater ecosystems pose significant threats, microplastics make up the majority of plastics entering freshwater systems, particularly those of secondary microplastics (Horton et al. 2017). Effluent discharges from wastewater and sewage treatment are a significant point source of microplastics entering freshwater (Cole et al. 2011), as well as runoff from agricultural land and storm drains (Browne et al. 2010). Higher prevalence levels of microplastics have been shown to be correlated to anthropogenic activities, where higher levels of microplastics are associated with high population density or proximity to urban centers (Wong et al. 2020). The fate of these microplastics is dependent on the properties of the plastics, as they have varying sizes, shapes, densities, and textures that interact with the environment and will impact their behaviors (Wong et al. 2020). Furthermore, the properties of the freshwater systems will impact their fate; for example, more static or isolated water, such as the Ballona Wetland, will allow more plastics to be retained and act as a sink (Eerkes-Medrano et al. 2015), whereas more open and dynamic freshwater systems, like the Los Angeles and San Gabriel rivers, typically allow further transport of microplastics (Leslie et al. 2017).

Once microplastics have entered a freshwater system, they can pose a threat to a variety of organisms. Microplastics have been found in the digestive tracts of freshwater fish (Sanchez et al. 2014) and observed to be ingested by planktonic crustaceans (Farrell and Nelson 2013). Freshwater organisms are able to uptake microplastics through multiple pathways, including but not limited to, filter feeding, direct ingestion, and suspension feeding (e.g., mistaking microplastics for phytoplankton). Ingestion of plastic particles can pose hazards to freshwater organisms by causing an immediate blockage of feeding appendages or disrupting their digestive system (Barnes et al. 2009). They can also act as stressors on their systems, as shown with fathead minnows (*Pimpephales promelas*) where plastic particles were documented impacting their immune response and altering their defense mechanisms (Greven et al. 2016). Microplastics may also be taken up via consumption of contaminated prey (Nelms et al. 2018). This further shows that microplastics can transfer up the food chain to higher trophic levels, which can lead to biomagnification of plastics and associated additives within predators (Mattsson et al. 2017). Given the fluid nature of freshwater habitats and their ability to easily transport plastic particles, these ecosystems are particularly susceptible to continued plastic pollution.

Coastal and Marine Ecosystem Impacts

Marine ecosystems are perhaps the most widely discussed ecosystem impacted by plastics. In 2016, it was estimated that as much as 23 million metric tons of plastic waste, not including other waste debris, entered the oceans (Borrelle et al. 2020), and it is thought that between 70 and 80% of that waste is transported to the seas via rivers (Bowmer and Kershaw 2010). Plastic litter within urban runoff is the primary source of marine debris within the Los Angeles and San Gabriel River Watersheds (Midbust et al. 2014), which both empty into the Pacific Ocean. Before plastic debris is ultimately washed out to sea, it can travel to sensitive habitats such as estuaries and marshes (Midbust et al. 2014). Given the shallow and highly vegetated nature of estuaries and marshes, plastic debris easily becomes trapped and settles into the stream bed, where it affects gas exchange and circulation patterns (Long 1996). The southwestern coastal area of the City includes coastal saltmarsh, salt flats, freshwater marsh, riparian scrub, bluffs, and dunes that support sensitive wildlife and plant species (City of Los Angeles 1996). Other aquatic resource areas of the City coastline include sandy beaches, rocky cliffs, and headlands that provide suitable habitat for marine intertidal invertebrates, fish, mammals, various avian species, and rare plant species. These biologically rich coastal resource areas are significantly threatened by plastic pollution, worsening water quality and impacting marine life.

Freshwater and coastal ecosystems are further connected to marine and open ocean ecosystems. Once plastic debris enters the ocean it can gather in gyres, as with the Great Pacific Garbage Patch located off the coast of California which is estimated to contain approximately 80,000 tonnes of plastic (The Ocean Cleanup 2023). When plastic litter has reached the coastal areas and open ocean, it can be ingested by marine species, entangle wildlife, assist in the spread of invasive species, leach harmful chemicals, and may build up as sediment on the marine floor (Ng et al. 2006; Thompson et al. 2004). It is reported that over 900 marine species encounter plastic marine debris; ingestion was documented for 701 species, while entanglement was documented for 354 (Kuhn and van Franeker 2020). This literature review also suggested that approximately 30% of individual seabirds, 4.4% of marine mammals, and 32% of marine turtles have plastics in their stomachs (Kuhn and van Franeker 2020). Plastic debris deposited on beaches or within marine waters could thus negatively impact, for example, the sensitive western snowy plover (*Charadrius nivosus nivosus*; Federally Threatened and SSC) which utilize the remote sandy beaches of the City's coastline as nesting sites (Dugan et al. 2000). Furthermore, plastic debris is providing new vectors for invasive species travel, as observed with barnacles, algae, and mollusk species, which attach to plastics and get transported to new regions via ocean currents (Allsopp et al. 2006; Barnes et al. 2002, 2004; Gregory 2009).

While macroplastics pose an obvious threat to marine life, microplastics pose a more inconspicuous threat throughout the trophic levels, from zooplankton to marine mammals. Microplastics have become ubiquitous in marine ecosystems, from coastal waters to deep sea sediments to polar ice caps (Jambeck et al. 2015). As with freshwater organisms, microplastics are bioavailable to a variety of marine taxa through accidental ingestion by filter feeding or misidentification of microplastics for food (Cole et al. 2013; Neves et al. 2015). Ingestion of microplastics can reduce feeding capacity, energy reserves, and reproductive success, as well as wreak havoc on intestinal and digestive functions (Cole et al. 2013; Sussarellu et al. 2016; Wright et al. 2013). These impacts have been shown in a range of marine species, including oysters which are a keystone species of high ecological and economic importance (Sussarellu et al. 2016). Furthermore, microplastics can accumulate in tissues, which can be passed onto offspring and cause developmental abnormalities, thyroid disruption, and mortality, among other impacts, showing the transgenerational impacts of microplastics (Junaid et al. 2023). These effects can impact species specific to the City, such as southern California steelhead (*Oncorhynchus mykiss*; Federally Endangered, State Candidate Endangered), an anadromous species utilizing both marine and river ecosystems throughout their life cycles.

Similar to that of terrestrial and freshwater systems, trophic transfer of microplastics can occur in marine ecosystems through ingestion of contaminated prey (Farrell and Nelson 2013). A study conducted by Nelms et al. (2018) demonstrated that plastic particles found in scat of a marine top predator (captive grey seals [*Halichoerus grypus*]) were correlated to the plastic particles found in their prey (wild-caught Atlantic mackerel [*Scomber scomrus*]), which could have implications on their health, as noted above. In the coastal areas of the City, specifically, plastic pollution could have an impact on the health of harbor seal (*Phoca vitulina*) populations, also a keystone species, in turn disrupting the balance of the food web further causing disastrous impacts on the ecosystem. Trophic transfer of microplastics is further supported by Farrell and Nelson (2013), in which their study demonstrated the transfer of microplastics from mussels (*Mytilus edulis*) to crabs (*Carcinus maenas*). Transfer of microplastics across trophic levels increases the concern for accumulation of plastics and their impact on the health of animals. Overall, plastic pollution in the marine environment impacts ecosystems ranging from the sandy beaches to the depths of the ocean at varying trophic levels.

Table 3.5-4. Analysis of Upstream Measures – Biological Resources

Measure	Biological Resources Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	As discussed above, plastic products, especially those that are littered, such as single-use plastic water bottles, pose a threat to wildlife. Alternatives to plastic water bottles, including aluminum cans and glass bottles, do not pose the same risk to wildlife because they are not broken down into smaller pieces that have the potential to be ingested by wildlife. Cardboard/paperboard products are biodegradable. Therefore, a ban on single-use plastic water bottles would have a beneficial impact on special status species.	Beneficial Impact
Plastic Bottle Policies: Refillable Plastic Bottles	Single-use plastic bottles and jugs are not a commonly littered item in the City and are not a substantial source of plastics in the environment. Therefore, a requirement for refillable bottles would have a less than significant impact on special status species.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	As discussed above, single-use plastic bottles pose a threat to wildlife. A requirement for refillable bottles may shift consumer behavior away from single-use plastic bottles. However, there is also the potential that the volume of single-use bottles would stay the same and refillable bottles would replace other	Less than Significant

Measure	Biological Resources Impact Analysis	Significance Conclusion
	bottle types (e.g., glass). Therefore, a refillable beverage bottle requirement would have a less than significant impact on special status species.	
Plastic Bottle Policies: Leashed Lids	As discussed above, plastics pose a substantial risk to various wildlife species. Specific to bottle caps, they have been found in the digestive tracts of albatross carcasses (NOAA 2014). Therefore, a requirement for leashed lids would reduce the amount of lids that are littered and ingested by wildlife, and would remove a source of microplastics in the environment. Therefore, a leashed lid requirement would have a beneficial impact on special status species.	Beneficial Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	While there is no substantial evidence showing the entanglement of wildlife in single-use beverage holder rings, they still represent a source of litter and potential exposure to plastics. A ban on these products would lead to a shift in the use of reusable rings or cardboard/fiber-based holders. This would have a beneficial impact on special status species.	Beneficial Impact
Foodware Policies: Dine-In Services	As discussed in aesthetics, disposable foodware for dine-in services is likely to be properly placed in trash bins by consumers or restaurant staff. However, even when disposable foodware is properly disposed of, it can easily become litter because it is light-weight and can blow out of waste and recycling bins, transport containers, and landfills. Therefore, a ban on disposable foodware for dine-in services would reduce the amount of disposable foodware used, disposed of, and potentially littered in the City and would have a beneficial impact on special status species.	Beneficial Impact
Foodware Policies: Single-Use To-Go Foodware	As discussed above, single-use plastic foodware represents a potential exposure pathway for toxic substances for wildlife. A shift to reusable foodware or compostable and recyclable foodware would have a beneficial impact by reducing potential exposure to harmful plastics and microplastics, thereby having a beneficial impact on special status species.	Beneficial Impact
Foodware Policies: Bioplastic Ban	While bioplastics may be biodegradable, the process requires appropriate conditions (e.g., suitable temperature, humidity, and microorganisms) which may not be present in all environments. If these conditions are not met, biodegradable plastics are similar to conventional plastics in terms of longevity and when littered can also break down into microplastics which pollute water and soil (Wang et al. 2021). Until they are completely mineralized, biodegradable microplastics can have negative effects similar to conventional plastics in aquatic ecosystems (Wang et al. 2021). A study that analyzed the toxicity and chemical composition of bio-based and/or biodegradable plastic materials found that 67% contained toxic chemicals, which was the same percentage found for conventional plastics (mainly petroleum-based) (Zimmermann et al. 2020). A review on the degradability of a specific bioplastic, PHA, in the marine environment noted that it is both produced and degraded and mineralized in the ocean by microorganisms (Suzuki et al. 2021). Based on the data review, it is likely that both microbial density and the total number of degrading microbes in the environment determine the lag time for initiation of PHA degradation as well as the rate of degradation. Marine environments have low densities of microorganisms compared to other environments, making it difficult to degrade biodegradable plastics quickly (Suzuki et al. 2021). A 2019 literature review of studies on the degradability of PHAs estimated the average rate of	Less than Significant

Measure	Biological Resources Impact Analysis	Significance Conclusion
	biodegradation is 0.04 to 0.09 milligrams per day per square centimeter in a marine environment. Using this average, a PHA water bottle would be expected to completely biodegrade in 1.5 to 3.5 years (Dilkes-Hoffman et al. 2019). However, this review noted that the various research results were contrasting and therefore concluded that it remains unclear what the timeframe of biodegradation of marine biodegradable plastics actually is (Dilkes-Hoffman et al. 2019). A bioplastics ban would reduce the amount of single-use foodware products made from bioplastic. However, it is not anticipated to reduce the overall amount of waste that is disposed of improperly in the City. Rather, replacement products that are reusable or recyclable or compostable at City-contracted facilities would take the place of existing single-use foodware products made from bioplastics, which could also end up as litter. Since most bioplastics act similarly to conventional plastics in the marine environment and result in similar effects to wildlife, it is anticipated that a ban on bioplastics would have a less than significant impact on special status species.	
Foodware Policies: Meal Kit Reuse and Recycling	Non-recyclable components of meal kits do not currently affect biological resources in the City, and a requirement for an EPR program for these products would have no impact on special status species.	No Impact
Foodware Policies: City Reusable Foodware Pilot Projects	As noted in aesthetics, single-use foodware is a major source of litter in the City. Implementation of reusable foodware pilot projects would make it easier for restaurants and food carts to procure reusable foodware, thereby reducing the use of disposable foodware that may be littered within the City. This would have a small but beneficial impact on special status species in the City by reducing exposure to plastics in the environment.	Beneficial Impact
Foodware Policies: Plastic Tea Bags	When the water flea *Daphnia magna* was exposed to plastic particles leached from plastic tea bags, its swimming behavior was significantly affected, which the authors attributed to microplastics and nanoplastics. This behavior can lead to an increase in energy used and make individuals vulnerable to predation (Hernandez et al. 2019). However, this analysis assumes that the majority of tea prepared with plastic bags is consumed and is not a source of exposure to wildlife. Therefore, a ban on plastic tea bags would have a less than significant impact on special status species.	Less than Significant
Foodware Policies: Beverage Pods	Single-use plastic beverage pods are not a substantial source of litter in the City and therefore do not substantially adversely affect biological resources in the City. A requirement for an EPR program for these products would have a less than significant impact on special status species.	Less than Significant
Textile Policies: Textile Disposal Policies	The use and disposal of textiles does not currently pose a risk to wildlife in the City. Therefore, an extended reducer responsibility program would have no impact on special status species.	No Impact
Textile Policies: Washing Machine Microfiber Filtration	Exposure to both synthetic and natural microfibers has been shown to adversely affect the behavior and growth of Inland Silverside (*Menidia beryllina*) and mysid shrimp (*Americamysis bahia*) (Siddiqui et al. 2023). However, extensive evidence regarding the effects of microfibers on wildlife is lacking (Kwak et al. 2022). Yet	Beneficial Impact

Measure	Biological Resources Impact Analysis	Significance Conclusion
	because microfiber filtration would remove a source of plastics from the environment, it is expected to have a beneficial impact on special status species.	
PFAS Ban	Elevated exposures of wildlife to PFAS are a concern both for their health as well as for the humans that consume wildlife. PFAS have been detected in invertebrates, fish, amphibians, reptiles, birds, and mammals worldwide (Ahrens 2011; Penland 2020). The highest concentrations in wildlife are generally associated with proximity to contaminated sites (De Silva et al. 2021). The USEPA has estimated environmental half-lives for many PFAS polymers of between 9 and 60 years (Washington et al. 2019). Therefore, the side-chain fluorinated polymers found in discarded consumer products in landfills and other waste stocks may continue to release PFAAs and intermediate degradation products to the environment for decades, or even centuries (Washington et al. 2019). The health of wildlife is affected by PFAS via similar modes of action as in humans (see Section 3.10.3 below). Any reduction in the generation or use of products containing PFAS would ultimately reduce concentrations of PFAS in the environment, including in the tissues of wildlife. Substituting other chemicals in products that have traditionally contained PFAS would have an unknown effect on organisms that come in contact with the new chemicals or their breakdown products. The end results depend heavily on what substitute chemicals are selected. Some potential alternatives are also still under investigation to elucidate their long-term health effects (e.g., silicones). Therefore, a ban on PFAS is expected to have a less than significant impact on special status species.	Less than Significant
Additional Product Bans: Plastic Bag Clips	There are no existing data highlighting plastic bag clips as a source of plastic exposure to wildlife. Therefore, a ban on single-use plastic bag clips would have a less than significant impact on special status species.	Less than Significant
Additional Product Bans: Aerosol String	Aerosol string is not a form of plastic waste that has well-documented effects to biological resources; however, as a form of plastic waste, it breaks down into microplastics, which may harm biological resources as discussed above. Therefore, removing this source of plastic from use in the City would have a beneficial impact on special status species.	Beneficial Impact
Additional Product Bans: Plastic Sandbags	Plastic sandbags are meant to interface with water during flooding events. Therefore, they represent a source of wildlife exposure to microplastics and large pieces of the bag, if broken. As discussed above, plastics have numerous adverse effects on wildlife. A ban on plastic sandbags would result in a reduction in microplastics in the City's aquatic environment and would have a beneficial impact on special status species.	Beneficial Impact
Additional Product Bans: Lighter-Than-Air Balloons	Balloons that are not disposed of properly often end up in the environment where they negatively impact fish and wildlife and contaminate sensitive natural areas. Balloon-related mortality and injury has been documented for many species of marine and terrestrial animals, including special status or threatened or endangered species. Marine animals like sea turtles or seabirds may mistake the balloons for prey such as jellyfish or squids. Sea turtles are at significant risk of ingesting plastic debris at all life stages and with potentially lethal consequences (Wilcox et al. 2018). Seabirds such as shearwaters may mistake plastic for squids and accidentally feed balloons and other plastic to their chicks	Beneficial Impact

Measure	Biological Resources Impact Analysis	Significance Conclusion
	(Lavers et al. 2018). Balloons were the marine debris most likely to cause seabird mortality (32 times more likely to result in death than ingestion of hard plastic fragments) in a recent study (Roman et al. 2019). Once balloons are released, they can be carried by wind to areas outside of City limits and adversely affect biological resources in those areas. Federally threatened desert tortoises (*Gopherus agassizii*) have been observed consuming or becoming entangled in balloons (Averill-Murray and Averill-Murray 2022). Wildlife such as Endangered peninsular bighorn sheep (*Ovis canadensis nelsoni*) may also become tangled in or consume balloons and die: CDFW biologists have found everything from small latex fragments to entire balloon bouquets completely impacting these animals' digestive tracts (Barboza 2010). Balloon strings also present an additional threat. Researchers have found balloon strings through the length of bighorn sheep digestive tracts, from the esophagus to the intestines (Barboza 2010). Banning lighter-than-air balloons would also reduce the amount of balloon plastic waste that could potentially affect migrating birds, fish, and other wildlife in nurseries and corridors. Therefore, a ban on lighter-than-air balloons would have a beneficial impact on special status species, sensitive areas, and biological resources by resulting in less balloon waste entering marine, freshwater, wetland, and terrestrial ecosystems.	
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	Broken devices and degraded batteries can leach heavy metals (including mercury, lead, and bromines), battery acid, and nicotine into the environment which can impact wildlife (Hendlin 2018; Pourchez et al. 2022). A 2023 study used an aquatic plant, common duckweed (*Lemna minor*) to better understand the effects of cigarettes, e-cigarettes, and e-liquid in the aquatic environment. Results showed that exposure to e-cigarettes or e-liquid resulted in decreases in plant growth (biomass, root development and frond chlorophyll content) when compared to control plants (Green et al. 2023). The authors note that these results could indicate a disruption of aquatic ecosystems at a primary producer level due to exposure to these materials. Disposable e-cigarettes are a source of single-use plastics, e-waste, and chemical leachate, which pose a threat to aquatic ecosystems and primary producers when littered (Green et al. 2023). Therefore, a ban on single-use e-cigarettes and vape cartridges could have a beneficial impact on special status species.	Beneficial Impact
Additional Product Bans: Single-Use Printer Cartridges	The disposal of single-use printer cartridges is not a substantial source of litter in the City and therefore does not substantially adversely affect biological resources in the City. Therefore, a ban on single-use cartridges would likely have a less than significant impact on special status species.	Less than Significant

Impact Criterion b) Would the Project Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?

Impact Criterion c) Would the Project Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact Criterion d) Would the Project Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Impact Criterion e) Would the Project Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Program's upstream measures would not require or result in any ground-disturbing or construction activities that would cause an adverse effect on riparian or sensitive habitats or wetlands, interfere with any wildlife movement or migration, and would not result in the removal of any trees. Therefore, the Program's upstream measures would have ***no impact*** on Impact Criteria (b)-(e).

Impact Criterion f) Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP?

There is no HCP, Natural Community Conservation Plan in the Program Area. Therefore, there would be ***no impact*** from upstream measures.

Impact Criterion g) Would the Project Have a substantial impact, either directly or through habitat modifications, on common wildlife species?

As noted above, the City has developed an additional criterion to determine if the Program would have significant impacts on common wildlife species in the City. Potential impacts of the upstream measures for the Program for common species would be the same as those described above for Impact Criterion a) and Table 3.5-4. Therefore, the Program would have a ***less than significant impact*** on common wildlife species.

3.5.3.2.2 Downstream Measures

Impact Criterion a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

While the specific locations of downstream facilities are not currently known, they would be constructed in commercial, industrial or public facility lands zoned for their use. Due to the urbanized nature of the majority of the City, most wildlife communities consist of species that can tolerate human-dominated landscapes. However, as shown in Figure 3.5-4, there is critical habitat for the following special status species within the City: California gnatcatcher, southwestern willow flycatcher, Santa Ana sucker, Braunton's milk-vetch, western snowy plover, and Palos Verdes blue butterfly. In addition, while located outside the City, critical habitat for California red-legged frog and tidewater goby are present in nearby areas. Within the City, 61 special status species, including 26 plants and 35 animals were identified through queries of multiple biological databases (Appendix D) and of these, a total of 8 plants and 19 animals were determined to have a moderate to high potential to be present within the City.

Construction of downstream facilities, which require ground-disturbing activities such as grading and vegetation removal have the potential to impact special status species and their habitat, if present. In compliance with the Migratory Bird Treaty Act, the City would avoid nesting bird season to extent feasible and conduct pre-construction nesting bird surveys as described in Section 3.5.2.1.2. If there is the potential for special status species to be present on-site or impacted by the downstream facility, the City would also conduct pre-construction biological survey and reporting as described in Section 3.5.2.3.4. The City would implement **MM BIO-1** to ensure that habitat assessment and any required biological surveys are conducted to minimize potential impacts to special status species and their habitat. The City would also implement **MM BIO-3** to aid workers in recognizing special status resources that may occur in the Program Area. To address noise impacts of construction and operation of downstream facilities, **MM NOI-1** would require a noise and vibration study and control plan to be developed for each future facility, which would include mitigation measures for any identified noise impacts. Therefore, with implementation of **MM BIO-1**, **MM BIO-3**, and **MM NOI-1**, impacts from downstream facility construction and operation on special status species would be reduced to ***less than significant with mitigation***.

Impact Criterion b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?

Various sensitive communities occur within the City, including riparian habitat (Figure 3.5-1). Although downstream facilities would only be constructed in commercial or industrial zoned areas, the potential exists for parcels in these zones to be currently undeveloped or adjacent to undeveloped parcels with vegetation present or adjacent to riparian areas. If there is the potential for special status species to be present on-site or impacted by the downstream facility, the City would conduct pre-construction biological survey and reporting as outlined in Section 3.5.2.3.4 to identify any sensitive communities, including riparian habitat. If removal or destruction of sensitive communities cannot be avoided, the City would implement **MM BIO-2** to provide compensatory mitigation. The City would also implement **MM BIO-3** to aid workers in recognizing and avoiding riparian habitat or other sensitive communities that may occur in the Program Area or vicinity. Therefore, impacts to sensitive communities would be ***less than significant with mitigation***.

Impact Criterion c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Various aquatic resources, including rivers, streams, and wetlands, are present within the City. Wetlands mapped by USFWS and USGS within the City are provided in Figure 3.5-2. If downstream facilities were located near an existing wetland, there would be potential for a significant impact to occur due to construction which requires ground-disturbing activities such as grading and vegetation removal. While the specific locations of downstream facilities are not currently known, they would likely be constructed in commercial, industrial, or public facility lands zoned for their use. The City would conduct pre-construction biological survey and reporting as outlined in Section 3.5.2.3.4 to identify any sensitive communities, including riparian habitat. If any jurisdictional wetlands or associated waters are identified, appropriate avoidance and/or mitigation measures shall be implemented as approved by the resource agencies, and subject to the necessary permits under the CWA Section 404 issued by the U.S. Army Corps of Engineers, the CWA Section 401 issued by the RWQCB, and the California Fish and Game Code Section 1600. If there are potential impacts to wetlands or other sensitive communities that cannot be avoided, the City would provide compensatory mitigation as required by the conditions of the Section 401, 404, or 1600 permits, as applicable, at a minimum ratio of 1:1 as specified in **MM BIO-2**. The City would also implement **MM BIO-3** to aid workers in recognizing and avoiding protected wetlands that may occur in the Program Area or vicinity. Therefore, impacts from downstream facility construction and operation on wetlands would be reduced to ***less than significant with mitigation***.

Impact Criterion d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

While the specific locations of downstream facilities are not currently known, they would be constructed in commercial, industrial, or public facility lands zoned for their use. Construction of downstream facilities in these areas would not impede wildlife movement or impede the use of native wildlife nursery sites. Therefore, there would be ***no impact*** to this criterion.

Impact Criterion e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Program would be consistent with policies included in the Conservation Element of the City's General Plan as well as the City Protected Tree Code Amendment Ordinance 177404, which outlines required native tree protection for oaks, southern California black walnut, western sycamore, and California bay as well as two species of shrubs, the Mexican elderberry and toyon. The Program would not include removal of these species. Several of the County of Los Angeles' General Plan SEAs, which protect a wide variety of biological communities within the County, also fall within the City boundaries (Tujunga Valley/Hansen Dam, Griffith Park, Verdugo Mountains, Santa Susana Mountains/Simi Hills, and Santa Monica Mountains). While the specific locations of downstream facilities are not currently known, they would be constructed in commercial, industrial, or public facility lands zoned for their use. The City would not construct a new facility within an SEA. Therefore, the Program would not conflict with any local policies protecting biological resources and there would be ***no impact***.

Impact Criterion f) Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP?

There are no HCPs or Natural Community Conservation Plans within the City (CDFW 2022). Therefore, the Program would not conflict with the provisions of an adopted HCP or Natural Community Conservation Plan and there would be ***no impact***.

Impact Criterion g) Have a substantial impact, either directly or through habitat modifications, on common wildlife species?

While the specific locations of downstream facilities are not currently known, they would be constructed in commercial, industrial, or public facility lands zoned for their use. These areas may contain habitat for common wildlife species, described in Section 3.5.1.2, that tolerate human-dominated landscapes. Impacts to these species could occur, such as trampling via heavy equipment use or disturbance from loud noises during construction and/or operation. The City would implement **MM BIO-3** to train workers on biological resources and how to minimize impacts and **MM NOI-1** to reduce noise impacts. No other mitigation measures have been identified for this criterion. As such, potential impacts to common wildlife species would be ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM BIO-1: Biological Surveys. If a desktop review of the CNNDB or National Wetlands Inventory indicates that sensitive species or natural communities may occur in the proposed location for a downstream facility, the City shall either assume presence and mitigate accordingly, or a qualified biologist shall conduct species-specific biological and/or botanical field surveys to confirm the presence and extent of sensitive species and/or sensitive natural communities prior to starting work. If sensitive species or their sign (e.g., scat, burrows) are observed, the City shall develop a plan to avoid impacts that are specific to each species. If impacts cannot be avoided, the City shall consult with CDFW to obtain an Incidental Take Permit under Fish and Game Code Section 2081 and/or engage in Section 7 or 10 consultation with USFWS and/or NMFS as required based on the species. If an Incidental Take Permit cannot be obtained for the site, for example due to the presence of a California fully protected species, then the facility shall not be built or modified at that location.

MM BIO-2: Sensitive Community Mitigation. If construction of a downstream facility would result in removal or adverse impacts to sensitive communities, including riparian habitats and wetlands, mitigation shall be provided prior to construction. Mitigation ratios shall be at a minimum of 1:1 for preservation and 1:1 for construction of new sensitive communities or wetlands. In addition, a Mitigation and Monitoring Plan shall be developed that includes the following:

- Descriptions of the sensitive community/wetland types, and their expected functions and values.
- Performance standards and monitoring protocol to ensure the success of the mitigation sensitive communities/wetlands over a period of 5 to 10 years.
- Engineering plans showing the location, size, and configuration of sensitive communities/wetlands to be created or restored. An implementation schedule showing that construction of mitigation areas shall commence prior to or concurrently with the initiation of construction.
- A description of legal protection measures for the preserved sensitive communities/wetlands (i.e., dedication of fee title, conservation easement, and/or an endowment held by an approved conservation organization, government agency, or mitigation bank).

MM BIO-3: Implement a Worker Environmental Awareness Program. Prior to construction of Program facilities (including staging and mobilization), all Program personnel shall attend a Workers Environmental Awareness Program training, conducted by a qualified biologist, to aid workers in recognizing special status resources that may occur in the proposed location for a downstream facility. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the proposed location for a downstream facility.

MM NOI-1: Noise and Vibration Study and Control Plan. See Section 3.14, Noise.

3.6 Cultural Resources

This section describes the existing cultural resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on cultural resources in the City. Table 3.6-1 summarizes impacts on cultural resources that could result from implementation of the Program or alternatives.

Table 3.6-1. Summary of Cultural Resources Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discovery Procedures
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discovery Procedures
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

3.6.1 Environmental Setting

Cultural resources are defined as prehistoric or archaeological resources, historic resources/places, architectural resources, and socially important resources. These can include buildings, structures, monuments, places, and human or animal artifacts. Some examples of significant cultural resources in the City include a Gabriel Indian site at Griffith Park, the Frank Lloyd Wright Hollyhock House, Grauman’s Chinese Theater, the site of the first talking film (the old Warner Brothers Studio on Sunset Boulevard), and Eagle Rock.

3.6.1.1 Archaeological Resources

The City of Los Angeles Department of City Planning maintains an inventory of surveys and maps on identified archaeological and paleontological resources. The City contains many landmarks or points of interest with unique archaeological and paleontological importance. Examples include prehistoric animal remains from the La Brea Tar Pits, Chumash and Indian remains of the Adobe and Mission San Gabriel periods, and prehistoric Indian sites dating back 5,000 years.

3.6.1.2 Historical Resources

The City of Los Angeles Cultural Heritage Commission preserves Historical-Cultural Monuments within the City limits. These include significant trees or other plant life, buildings and structures, and most places that are listed on the National Register. The first ever Historical-Cultural Monuments designation was the Leonis Adobe in the west valley, followed by Bolton Hall in Tujunga, the Plaza Church at El Pueblo, Angels Flight in Downtown, and the "Salt Box" on Bunker Hill (City of Los Angeles Department of City Planning 2023). Today, there are 1,255 designated landmarks throughout the City.

The City has designated local historic districts, also called Historic Preservation Overlay Zones, and any new project in that neighborhood must complement its historic character. Each district has a Preservation Plan with design guidelines, and all exterior work proposed in a Historic Preservation Overlay Zone including landscaping, alterations, additions, and new construction, is subject to review by the Historic Preservation Overlay Zone. There are currently 35 historic preservation overlay zones in the City.

3.6.2 Regulatory Framework

3.6.2.1 Federal

There are no federal regulations pertaining to cultural resources that are applicable to the Program.

3.6.2.2 State

3.6.2.2.1 California Environmental Quality Act

The cultural resources provisions of CEQA provide for the documentation and protection of significant prehistoric and historic-era resources. Before the approval of discretionary projects and the commencement of agency undertakings, the potential impacts of the project on archaeological and historical resources must be considered (PRC Sections 21083.2 and 21084.1; CEQA Guidelines Section 15064.5). The significance of an archaeological or historical resource per the CEQA Guidelines is an important consideration in terms of their management. Listing eligibility for listing on the California Register of Historical Resources is the primary consideration in whether or not a resource is subjected to further research and documentation. The significance of cultural resources is measured against the criteria outlined in the California Register of Historical Resources. Determining the California Register of Historical Resources eligibility of historic and prehistoric sites located within the study area is guided by the specific legal context of the site's significance as outlined in PRC Sections 21083.2 and 21084.1, and the CEQA Guidelines Section 15064.5. In the California Register of Historical Resources, cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. A cultural resource may be eligible for listing on the California Register of Historical Resources if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

As a matter of policy, public agencies should avoid damaging effects on historic and archaeological resources, particularly those that are California Register of Historical Resources-eligible. When impacts cannot be avoided, their effects can be mitigated through avoidance during construction phases, incorporation of a site into open space, capping resources with stable fill, deeding a site into a conservation easement, or data recovery through archaeological testing and excavation. In addition, the State CEQA Guidelines (Section 15064.5) require consideration of unique archaeological sites. If an archaeological site does not meet the criteria for inclusion on the California Register of Historical Resources but does meet the definition of a unique archaeological resource as outlined in the PRC (Section 21083.2), it may be treated as a significant historical resource. Treatment options under CEQA Guidelines Section 21083.2 include preserving such resources in place in an undisturbed state. Other acceptable methods of mitigation under CEQA Guidelines Section 21083.2 include excavation and curation, or study in place without excavation and curation (if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource"). PRC Section 15064.5(e) of the State CEQA Guidelines also requires that excavation activities stop whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the coroner determines that the remains are those of Native Americans, the NAHC must be contacted within 24 hours. At that time, CEQA Guidelines Section 15064.5(d) directs the lead agency to consult with the appropriate Native Americans as identified by the NAHC and directs the lead agency (or applicant) to develop an agreement with the Native Americans for the treatment and disposition of the remains.

3.6.2.2.2 Assembly Bill 52

AB 52 went into effect July 1, 2015 and requires lead agencies to consult with California Native American tribes that have requested formal consultation on a project, either at the onset of the project or when the NOP of an EIR is released. Additional information regarding AB 52 and associated consultation is provided in Section 3.19, Tribal Cultural Resources.

3.6.2.3 Local

3.6.2.3.1 City of Los Angeles General Plan

Conservation Element

Section 3: Archaeological and Paleontological

- Objective: Protect the city's archaeological and paleontological resources for historical, cultural, research, and/or educational purposes.

- Policy: Continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities.

Section 5: Cultural and Historical

– Objective: protect important cultural and historical sites and resources for historical, cultural, research, and community educational purposes.

  - Policy: Continue to protect historic and cultural sites and/or resources potentially affected by proposed land development, demolition or property modification activities.

Open Space Element

Goal: To conserve unique natural features, scenic areas, cultural and appropriate historical monuments for the benefit and enjoyment of the public.

– Objective: To identify unique natural features, scenic areas and historical sites which are desirable for preservation.

  - Policy: Cultural and historical monuments located on Open Space Lands shall be persevered.

Public Facilities Element

Cultural and Historical Monuments Plan

– Objective: To encourage the preservation and restoration of designated monuments.

3.6.2.3.2 Los Angeles Municipal Code

LAMC Section 12.20.3 (1979, amended 2001) HPOZ provision: Historic Preservation Overlay Zones contains procedures for designation and protection of areas that have structures, natural features, or sites of historic, architectural, cultural, or aesthetic significance.

3.6.3 Impact Assessment

3.6.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to cultural resources. The criteria listed below consider if the Program would:

a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.

c. Disturb any human remains, including those interred outside of dedicated cemeteries.

The L.A. CEQA Thresholds Guide provides guidance for determining that a project would have a significant impact upon archaeological resources if it could disturb, damage, or degrade an archaeological resource or its setting that is found to be important under the criteria of CEQA because it based on the factors listed below. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

– Impact Criterion a)
  - A project would normally have a significant impact on historical resources if it would result in a substantial adverse change in the significance of an historical resource. A substantial adverse change in significance occurs if the project involves:
    - Demolition of a significant resource; or
    - Relocation that does not maintain the integrity and significance of a significant resource.

– Impact Criterion b):
  - A project would normally have a significant impact upon archaeological resources if it could disturb, damage, or degrade an archaeological resource or its setting that is found to be important under the criteria of CEQA because it:
    - Is associated with an event or person of recognized importance in California or American prehistory or of recognized scientific importance in prehistory;
    - Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions;
    - Has a special or particular quality, such as the oldest, best, largest, or last surviving example of its kind;
    - Is at least 100-years-old and possesses substantial stratigraphic integrity; or
    - Involves important research questions that historical research has shown can be answered only with archaeological methods.

3.6.3.2 Program

3.6.3.2.1 Upstream Measures

Impact Criterion a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

Impact Criterion b) Would the Program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

Impact Criterion c) Would the Program disturb any human remains, including those interred outside of dedicated cemeteries?

None of the upstream measures would result in ground-disturbing activities and therefore, they would not have the potential to impact historical resources or archaeological resources or disturb any human remains. Therefore, the Program's upstream measures would have ***no impact*** on cultural resources.

3.6.3.2.2 Downstream Measures

Impact Criterion a) Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?

Impact Criterion b) Would the Program cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?

The location of potential downstream facilities is not known. Construction of downstream facilities would result in ground-disturbing activities that could have a potentially significant impact on a historical or archaeological resource if they are present at or near the future site. To avoid and minimize this potential impact to a historical or archaeological resource, the City would implement **MM CUL-1** and **MM CUL-2**. However, there may be rare instances in which even with adherence to MM CUL-1 and MM CUL-2 construction activities or the relocation of a historical or archaeological resource may alter the significance of the resource. Therefore, the impacts are considered ***significant and unavoidable***.

Impact Criterion c) Would the Program disturb any human remains, including those interred outside of dedicated cemeteries?

Construction of downstream facilities would result in ground-disturbing activities that have the potential to cause a significant impact by disturbing human remains if they are present at or near the future site. To avoid and minimize this potential, the City would implement **MM CUL-1** and **MM CUL-3** to ensure that potential impacts to human remains are ***less than significant with mitigation***.

MITIGATION MEASURE(S)

MM CUL-1: **Pre-construction Cultural Surveys and Tribal Cultural Monitoring.** Prior to initiating ground disturbance activities, a Phase I study of the proposed site for a downstream facility shall be completed by a qualified archaeologist. This shall include an examination of the Los Angeles Historic-Cultural Monuments and California Historic Landmarks, California Historical Resources Information Files at the South Central Coastal Information Center at California State University, Fullerton, and a search of the Native American Heritage Commission Sacred Lands Files in Sacramento. The City may rely on a previously performed records search for subsequent ground-disturbing activities. If a location has been previously surveyed and no cultural resources have been recorded on it, no further cultural resources studies shall be required. If a location has not been previously surveyed based on the records search information, an intensive (100%) pedestrian ground surface survey (Phase I survey/Class III inventory) by qualified archaeologists shall be required.

Any prehistoric/Native American archaeological sites identified during the records searches or during the intensive survey shall be demarcated by a qualified archaeologist, fenced by the City, and preserved in place. Historical (Euro-American) archaeological sites that are potentially eligible for listing in the National Register of Historic Places shall be evaluated by a qualified archaeologist and must meet the requirements of the National Historic Preservation Act of 1966 to qualify. Qualifying sites, structures, and equipment that are identified during the records search or field survey shall be fenced and preserved in open-space, removed and curated, or treated using appropriate data recovery procedures.

All employees conducting work in the Project Area shall complete training dedicated to cultural resources protection.

Monitoring of ground-disturbing activities shall be undertaken by a qualified archaeologist in areas that contain or are sensitive for the presence of cultural resources based on the records search or field survey results.

The City shall retain a Native American Monitor from or approved by the Gabrieleño Band of Mission Indians – Kizh Nation. The monitor shall be retained prior to the commencement of any "ground-disturbing activity" for the subject project at all project locations (i.e., both on-site and any off-site locations that are included in the project description/definition and/or required in connection with the project, such as public improvement work). "Ground-disturbing activity" shall include, but is not limited to, demolition, pavement removal, potholing, auguring, grubbing, tree removal, boring, grading, excavation, drilling, and trenching. On-site tribal monitoring shall conclude upon the latter of the following (1) written confirmation to the Kizh from a designated point of contact for the project applicant/lead agency that all ground-disturbing activities and phases that may involve ground-disturbing activities on the project site or in connection with the project are complete; or (2) a determination and written notification by the Kizh to the project applicant/lead agency that no future, planned construction activity and/or development/construction phase at the project site possesses the potential to impact Kizh tribal cultural resources.

MM CUL-2: Unanticipated Discovery Procedures. In the event archaeological materials are encountered during ground disturbance or construction, all construction activities in the immediate vicinity of the discovery shall cease (i.e., not less than the surrounding 50 feet) and shall not resume until the discovered material has been fully assessed by the Kizh monitor and/or a qualified archaeologist. The City shall consult with appropriate Native American representatives, in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. The Tribe will recover and retain all discovered tribal cultural resources in the form and/or manner the Tribe deems appropriate, in the Tribe's sole discretion, and for any purpose the Tribe deems appropriate, including for educational, cultural, and/or historic purposes. Per CEQA Guidelines Section 15126.4(b)(3), Project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. If it is demonstrated that resources cannot be avoided, the qualified archaeologist shall develop additional treatment measures in consultation with the City, which may include data recovery or other appropriate measures. If after consultation it is deemed appropriate, archaeological materials recovered during any investigation shall be curated at an accredited curation facility. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the City of Los Angeles Department of City Planning and the South Central Coastal Information Center at California State University, Fullerton.

MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects. Native American human remains are defined in PRC Section 5097.98(d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC Section 5097.98, are also to be treated according to this statute. Human remains and grave/burial goods shall be treated alike per PRC Section 5097.98(d)(1) and (2). If human remains are uncovered during Project construction, the Contractor shall immediately halt all work, contact the Los Angeles County Coroner to evaluate the remains, and follow the procedures and protocols set forth in CEQA Guidelines Section 15064.5(e). If the County Coroner determines that the remains are Native American, the Project proponent shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5(c) and PRC Section 5097.98 (as amended by AB 2641). The Native American Heritage Commission shall designate a Most Likely Descendant for the remains per PRC Section 5097.98. Per PRC Section 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendant regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the CHSC (§7100 et seq.) directing identification of the next-of-kin will apply. Preservation in place (i.e., avoidance) is the preferred manner of treatment for discovered human remains and/or burial goods. Any discovery of human remains/burial goods shall be kept confidential to prevent further disturbance.

3.7 Energy

This section describes the existing energy resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on energy in the City. The premise of energy impact analysis is on its effect on GHG emissions: the goal of California energy portfolio targets and energy efficiency measures is to reduce GHG emissions in the state. As such, in this section, the analysis of energy and GHGs are intertwined because of the correlation between energy use and consumption with GHG emissions. Table 3.7-1 summarizes impacts on energy that could result from implementation of the Program or alternatives.

Table 3.7-1. Summary of Energy Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None

3.7.1 Environmental Setting

Pursuant to CEQA Guidelines Appendix F, the environmental setting may include "existing energy supplies and energy use patterns in the region and locality." Refer to Sections 3.9, Greenhouse Gas Emissions and 3.18, Transportation, for additional regulatory background and environmental setting regarding the Program's energy consumption.

Electricity, a consumptive utility, is a human-made resource. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. The delivery of electricity involves a number of system components, for distribution and use. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. Energy capacity, or electrical power, is generally measured in watts (W) while energy use is measured in watt-hours (Wh). For example, if a light bulb has a capacity rating of 100 W, the energy required to keep the bulb on for 1 hour would be 100 Wh. If ten 100 W bulbs were on for 1 hour, the energy required would be 1,000 Wh or 1 kilowatt-hour (kWh). On a utility scale, a generator's capacity is typically rated in megawatts (MW), which is 1 million watts, while energy usage is measured in megawatt-hours (MWh) or gigawatt-hours (GWh), which is 1 billion watt-hours.

3.7.1.1 Existing Electric Consumption

The Los Angeles Department of Water and Power (LADWP) is the nation's largest municipal utility, with more than 8,000 MW of electric capacity and serving more than 4 million residents of Los Angeles, its businesses, and visitors. Its service territory covers the City of Los Angeles and many areas of the Owens Valley. LADWP is a "vertically integrated" utility, both owning and operating the majority of its generation, transmission, and distribution systems. LADWP obtains power from four municipally-owned power plants within the Los Angeles Basin, LADWP Hydrogenerators on the Los Angeles Aqueduct, shared-ownership generating facilities in the Southwest, and also purchases power from the Southwest and Pacific Northwest. LADWP also purchases excess power, as it is made available, from self-generators interconnected with the LADWP within the City.

Power resources available to the City of Los Angeles include traditional and renewable sources. In 2020, 37% of the power resources in Los Angeles originated from renewables, including solar, wind, and geothermal. Los Angeles is consistently ranked the #1 Solar City in America (2014-2016 and 2018-2020). The remaining energy was generated from natural gas, coal, nuclear, and large hydropower. The City's goal to reduce carbon emissions is tracked. LADWP carbon emissions declined from 17.9 million metric tons (MMT) of carbon dioxide equivalents (CO_2e) in 1990 to 7.9 MMT CO_2e in 2019 (LADWP 2022).

By 2050, LADWP aims to have a zero carbon grid, zero carbon transportation, zero carbon buildings, zero waste, and zero wasted water. As part of L.A.'s Green New Deal (Sustainable City pLAn 2019), LADWP plans to supply 55% renewable energy by 2025; 80% by 2036, and 100% by 2045 (City of Los Angeles 2019).

3.7.1.2 Natural Gas

Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. Natural gas provides almost one-third of the state's total energy requirements. Natural gas is measured in terms of cubic feet (cf). The Southern California Gas Company (SoCalGas), a subsidiary of Sempra Energy (the nation's largest natural gas supplier), provides natural gas to the City of Los Angeles through existing gas mains located under the streets. Natural gas service is provided in accordance with the SoCalGas' policies and extension rules on file with the California Public Utilities Commission at the time contractual agreements are made. The availability of natural gas is based upon present conditions of gas supply and regulatory policies. As a public utility, SoCalGas is under the jurisdiction of the California Public Utilities Commission but can also be affected by actions of federal regulatory agencies. Should these agencies take any action that affects gas supply or the conditions under which service is available, gas service would be provided in accordance with those revised conditions.

SoCalGas, along with five other California utility providers released the 2022 California Gas Report, presenting a forecast of natural gas supplies and requirements for California through the year 2035. This report predicts gas demand for all sectors (residential, commercial, industrial, energy generation, and wholesale exports) and presents best estimates, as well as scenarios for hot and cold years. Overall, SoCalGas predicts a decrease in natural gas demand at a rate of 1.5% each year through 2035 due to a decrease in per capita usage, energy efficiency policies and the state's transition to renewable energy displacing fossil fuels, including natural gas (California Gas and Electric Utilities 2022).

In 2021, gas supplies available to SoCalGas from California sources averaged 86 million cf/day. Based on the 2022 California Gas Report estimates of natural gas consumption within the SoCalGas planning area will be approximately 1,973 million cf/day in 2035 (California Gas and Electric Utilities 2022).

3.7.1.3 Transportation Fuels

Transportation dominates California's energy consumption profile. Overall, the transportation sector accounts for 34 percent of state end-use energy consumption (United States Energy Information Administration 2023). According to CARB's EMFAC2021 Web Database, Los Angeles County's on-road transportation sources consumed approximately 3.7 billion gallons of gasoline, 523 million gallons of diesel fuel, and 69 million gallons of natural gas in 2023 (CARB 2024).

3.7.2 Regulatory Framework

3.7.2.1 Federal

3.7.2.1.1 Corporate Average Fuel Economy Standards

Congress enacted the Corporate Average Fuel Economy standards in 1975 to reduce energy consumption and increase the fuel economy of cars and light trucks. Corporate Average Fuel Economy standards are regulated by the Department of Transportation National Highway Traffic and Safety Administration, and the USEPA calculates fuel economy levels and sets related GHG standards. Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and National Highway Traffic and Safety Administration. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction of CO_2 emissions by about 270 MMT and save about 530 million barrels of oil over the life of vehicles. USEPA and National Highway Traffic and Safety Administration have also adopted the Phase 2 medium- and heavy-duty vehicles standards, which cover certain trailers for model years 2018 through 2027 and semi-trucks, large pickup trucks, vans, and all buses and work trucks with model years 2021 through 2027. These standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles.

3.7.2.1.2 Energy Policy Act of 2005

The Energy Policy Act of 2005 addresses energy production in the U.S. and provides tax credits for electricity generated by qualified sources, such as gas generated by solid waste management activities. Section 203 of the Energy Policy Act of 2005 explicitly includes municipal solid waste-derived electricity as a "renewable energy" resource eligible to satisfy the federal renewable energy purchase requirement established in that section.

3.7.2.2 State

3.7.2.2.1 Senate Bill 1389

SB 1389 (PRC Sections 25300–25323) requires the California Energy Commission to prepare a biennial integrated energy policy report to assess major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provide policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (PRC Section 25301[a]). The California Energy Commission's 2022 Integrated Energy Policy Report provides findings and recommendations for energy issues facing the state, including energy efficiency and reliability, decarbonizing buildings and California's natural gas system, forecasting California's energy demand, and quantifying the benefits of clean transportation programs, such as California's transition to zero-emission vehicles.

3.7.2.2.2 Senate Bill 350, Clean Energy and Pollution Reduction Act

SB 350 established clean energy, clean air, and GHG reduction goals, which included reducing GHGs to 40% below 1990 levels by 2030 and to 80% below 1990 levels by 2050. The California Energy Commission works with other state agencies, including the California Public Utilities Commission, CARB, and the California Independent System Operator to implement this bill. SB 350 increases the state's renewable electricity procurement goal from 33% by 2020 to 50% by 2030, which will increase the use of Renewables Portfolio Standard eligible resources including solar, wind, biomass, geothermal, and others. In addition, California is required to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To meet these goals and reduce GHG emissions, the California Energy Commission will require large utilities to develop and submit integrated resource plans, which detail how utilities will meet their customers' resource needs, reduce GHG emissions, and increase clean energy resource use.

3.7.2.2.3 CARB Heavy-Duty On-Road and Off-Road Vehicle Regulations

In 2004, CARB adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to DPM emissions (Title 13, CCR, Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emissions standards for off-road diesel construction equipment greater than 25 hp such as loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007, encourages the retirement, replacement, or repower of older engines with newer emissions-controlled models (Title 13, CCR, Section 2449). The compliance schedule requires full implementation by 2023 for all equipment in large and medium fleets and by 2028 for small fleets. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation has shown an increase in energy savings in the form of reduced fuel consumption from more fuel-efficient engines.

3.7.2.2.4 CARB Pavley Regulations

As directed by AB 1493, in 2004, CARB approved the “Pavley I” regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations target a reduction in GHG emissions by 30% from 2002 levels by 2016. In June 2009, the USEPA granted California the authority to implement GHG emission reduction standards for light-duty vehicles; in September 2009, amendments to the Pavley I regulations were adopted by CARB, and implementation of the “Pavley I” regulations started in 2009. The second set of regulations, “Pavley II,” was developed in 2010 and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45% by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the “LEV III” (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emission vehicle technologies such as electricity and hydrogen and increase the infrastructure for fueling hydrogen vehicles. In 2009, the USEPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks, and sport utility vehicles but on September 27, 2019, the USEPA withdrew the waiver it had previously provided to California for the state’s GHG and zero-emission vehicle programs under CAA Section 209. The withdrawal of the waiver was effective November 26, 2019. In response, several states, including California, filed a lawsuit challenging the withdrawal of the USEPA waiver (*State of California vs. Chao*). In March 2022, the USEPA reinstated California’s authority under the federal CAA to implement its own GHG emissions standards and zero-emission vehicle sales mandates (USEPA 2022).

3.7.2.2.5 Title 24 Energy Efficiency Standards

California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the CCR) (“Title 24 Standards”) were established in 1978 in response to a legislative mandate to reduce California’s energy consumption to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The standards are updated periodically (typically every 3 years) to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Standards went into effect on January 1, 2020, and improved upon the 2016 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 update to the Energy Efficiency Standards for Residential and Nonresidential Buildings focuses on several key areas to improve the energy efficiency of new constructed buildings and additions and alterations to existing buildings. The major efficiency improvements to the nonresidential Standards include alignment with the American Society of Heating, Refrigerating and Air-Conditioning Engineers 90.1-2017 national standards. The 2019 Standards also include changes made throughout all of its sections to improve the clarity, consistency, and readability of the regulatory language. Furthermore, the 2019 update requires that enforcement agencies determine compliance with CCR, Title 24, Part 6 before issuing building permits for any construction.

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards (CALGreen) Code. The purpose of the CALGreen Code is to “improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality." The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design, and overall environmental quality. As previously mentioned, the 2019 update to the CALGreen Code went into effect on January 1, 2020. The 2019 CALGreen Code improves upon previously applicable 2016 CALGreen Code by updating standards for bicycle parking, electric vehicle charging, and water efficiency and conservation.

3.7.2.3 Local

3.7.2.3.1 L.A.'s Green New Deal (Sustainable City pLAn 2019)

In 2015, Mayor Eric Garcetti released the City's first Sustainable City pLAn (Sustainable City pLAn) through Executive Directive No. 7. In 2019, the Mayor's office adopted The Green New Deal Sustainable City pLAn 2019 (L.A.'s Green New Deal) as an update to the 2015 Sustainable City pLAn. L.A.'s Green New Deal establishes accelerated goals for a cleaner environment and a stronger economy, with commitment to equity as its foundation, and sets the following targets for a sustainable city:

- Supply 55% renewable energy by 2025; 80% by 2036; and 100% by 2045;
- Source 70% of water locally by 2035, and capture 150,000 acre-feet per year of stormwater by 2035;
- Reduce building energy use per square foot for all types of buildings 22% by 2025, 34% by 2035, and 44% by 2050;
- Reduce Vehicle Miles Traveled per capita by at least 13% by 2025, 39% by 2035, and 45% by 2050;
- Ensure 57% of new housing units are built within 1,500 feet of transit by 2025; and 75% by 2035;
- Increase landfill diversion rate to 90% by 2025, 95% by 2035, and 100% by 2050;
- Increase the percentage of zero-emission vehicles in the city to 25% by 2025, 80% by 2035, and 100% by 2050,
- Create 300,000 green jobs by 2035, and 400,000 by 2050;
- Convert all city fleet vehicles to zero emission where technically feasible by 2028; and
- Reduce municipal GHG emissions 55% by 2025 and 65% by 2035 from 2008 baseline levels, reaching carbon neutral by 2045.

3.7.2.3.2 City of Los Angeles Green Building Code

The Los Angeles Green Building Code is based on the 2016 CALGreen Standards. The program addresses five key areas: (1) Site: location, site planning, landscaping, stormwater management, construction, and demolition recycling; (2) Water Efficiency: efficient fixtures, wastewater reuse, and efficient irrigation; (3) Energy & Atmosphere: energy efficiency and clean/renewable energy; (4) Materials & Resources: materials reuse, efficient building systems, and use of recycled and rapidly renewable materials; and (5) Indoor Environmental Quality: improved indoor air quality, increased natural lighting, and improved thermal comfort/control. Specifically, the Los Angeles Green Building Code requires all non-residential buildings to be constructed such that they are solar ready, while all residential buildings three stories and under must include solar photovoltaic systems.

3.7.2.3.3 2017 Final Power Strategic Long-Term Resource Plan

In April 2018, the LADWP approved the Power Strategic Long-Term Resource Plan, which increases LADWP's planning horizon, from 20 years ending in 2037 and extending through 2050, in order to better align with statewide GHG emissions goals and align with Los Angeles' 100% clean energy initiative, detailed in the L.A.'s Green New Deal. The goal of the plan is to identify a portfolio of generation resources and power system assets that meets the City's future energy needs at the lowest cost and risk consistent with LADWP's environmental priorities and reliability standards. The plan outlines an aggressive strategy for LADWP to accomplish its goals, comply with regulatory mandates under the State's Renewable Portfolio Standard (RPS) regulations, and provide sufficient resources over the next 20 years. It also incorporates the Enforcement Procedures for the RPS for Local Publicly Owned Electric Utilities pursuant to Section 399.30(l) of the California Renewable Energy Resources Act (SB 2 [1X]) and identifies optional compliance measures found in the Regulations. The plan identifies a combination of GHG reduction strategies, including early coal replacement 2 years ahead of schedule by 2025; accelerating LADWP's RPS to 50% by 2025, 55% by 2030, and 65% by 2036; doubling of energy efficiency from 2017 through 2027; repowering coastal in-basin generating units with new, highly efficient potential clean energy projects by 2029 to provide grid reliability and critical ramping capability; accelerating electric transportation to absorb GHG emissions from the transportation sector; and investing in the Power System Reliability Program to maintain a robust and reliable power system. Thus, the plan if implemented in full would achieve and exceed mandates established in previous RPS. With respect to the status of LADWP's RPS portfolio, LADWP achieved the state legislated goal of 37% of all energy sources coming from renewable energy in 2020 (LADWP 2022).

3.7.2.3.4 City of Los Angeles General Plan

The Air Quality Element of the City's General Plan includes a goal (Goal 5) that aims to increase energy efficiency through land use and transportation planning; the use of renewable resources and less-polluting fuels; and the implementation of conservation measures including passive methods such as site orientation and tree planting (Los Angeles 2003). Additionally, Section 19: Resource Management (Fossil Fuels) of the Conservation Element of the General Plan includes Policy 1, which aims to continue to encourage energy conservation and petroleum product reuse (Los Angeles 2001).

3.7.3 Impact Assessment

3.7.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to energy resources. The Program would have a significant impact to energy if the Program would:

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

With regard to threshold (a), above, the following analysis relies upon Appendix F of the CEQA Guidelines as well as the L.A. CEQA Thresholds Guide. Appendix F of the CEQA Guidelines was prepared to ensure that EIRs include a discussion of the potential energy impacts of a proposed project, with a particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. PRC 21100(b)(3) states that an EIR shall include a detailed statement setting forth "[m]itigation measures proposed to minimize significant effects of the environment, including, but not limited to, measures to reduce the wasteful, inefficient, and unnecessary consumption of energy." CEQA Guidelines Appendix F lists the following factors to be considered in the environmental impact analysis:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each state of the project's life cycle including construction, operation, maintenance, and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The effects of the project on peak and base period demands for electricity and other forms of energy.
4. The degree to which the project complies with existing energy standards.
5. The effects of the project on energy resources.
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In addition, with regard to potential impacts to energy, the L.A. CEQA Thresholds Guide states that a determination of significance shall be made on a case-by-case basis, considering the following factors:

– The extent to which the project would require new (off-site) energy supply facilities and distribution infrastructure, or capacity enhancing alterations to existing facilities;
– Whether and when the needed infrastructure was anticipated by adopted plans; and
– The degree to which the project design and/or operations incorporate energy conservation measures, particularly those that go beyond City requirements.

With regard to threshold (b), the proposed Program is evaluated for consistency with adopted energy conservation plans and policies that are applicable to the proposed Program. Such adopted energy conservation plans and policies include Title 24 energy efficiency requirements, CALGreen Code, and L.A.'s Green New Deal.

3.7.3.2 Methodology

3.7.3.2.1 Upstream Measures

The impact analysis of bans on certain types of plastics focuses on the alternative materials that replace the banned material. As detailed in Section 3.1.1, Use and Limitations of Life Cycle Assessment, in the context of this PEIR, LCAs can be used to better understand the environmental impacts of material replacement behavior including reuse and recycling by accounting for the inputs and outputs of materials, energy, and emissions throughout the life cycle stages. The assessment of impacts related to energy summarizes the findings from published LCAs for the purpose of providing context in the analysis of life cycle energy with the goal of identifying and avoiding unanticipated consequences of alternative materials. Additional methodologies include estimates for the relative change in local vehicle trips and VMT presented in Section 3.18, Transportation, as a result of shifts in materials and waste management and/or reuse practices, which would result in a corresponding change in fuel consumption.

3.7.3.2.2 Downstream Measures

The fuel consumption from the mobile sources used for construction was calculated from the results of the CalEEMod modeling procedure. CalEEMod calculates mass emissions of GHGs, including non-biogenic CO_2, from off-road and on-road mobile sources associated with project construction. CO_2 emissions from mobile source fuel combustion during project construction are included in the CO_2 emissions shown in Table 3.7-2 (refer to Section 3.9, Greenhouse Gas Emissions, for further discussion on CalEEMod inputs and assumptions for construction-related GHG emissions).

For construction of the proposed facilities, CalEEMod aggregates mobile source CO_2 emissions into three broad categories (typical fuel types assumed):

- Off-road equipment (diesel [Tiers 1-4]);
- Vendor (medium-heavy and heavy-heavy duty diesel trucks [MHDT, HHDT]); and
- Worker (light duty gasoline automobiles and trucks [LDA, LDT1, LDT2]).

For each category, diesel and gasoline fuel consumption can be estimated (back calculated) using 2020 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels:

- Diesel Fuel Oil No. 2: 10.21 kg CO_2 per gallon (22.51 lbs CO_2 per gallon); and
- Motor Gasoline: 8.78 kg CO_2 per gallon (19.36 lbs CO_2 per gallon).

For operations, the CalEEMod-derived mass emissions of non-biogenic CO_2 from area, stationary, and mobile sources associated with project operation were used to estimate fuel consumption. CO_2 emissions from fuel combustion during project operation are included in the CO_2 emissions shown in Table 3.7-2. For operation, CalEEMod aggregates area and mobile source CO_2 emissions into three broad categories (typical fuel types assumed):

- Off-road utility equipment (diesel);
- Heavy Mobile (medium-heavy and heavy-heavy duty predominately diesel trucks [MHDT, HHDT]); and
- Light Mobile (light duty gasoline automobiles and trucks [LDA, LDT1, LDT2]).

For each category, diesel and gasoline fuel consumption can also be estimated (back calculated) using 2020 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels. Using the CalEEMod annual emissions results ($MTCO_2e$) for the area and mobile source categories and the corresponding CO_2 emission factors.

Table 3.7-2. Project Construction and Operation GHG Emissions Summary

Facility Type	Construction GHG ($MTCO_2e$/year)	Operation GHG ($MTCO_2e$/year)
Green Bin Facilities		
Anaerobic Digestion	386	1,857
Aerobic Composting and Mulching	426	2,607
Blue Bin Facilities		
Clean Materials Recovery	386	1,960
Resource Recovery	347	1,401
Construction and Demolition Materials Processing	386	2,116
Black Bin Facilities		
Mixed Material Processing	370	1,776
Advanced Thermal Recycling	436	4,175
Non-Combustion Thermal Technologies	354	1,458

Source: CalEEMod Emissions Summary Reports in Appendix C

Using the CalEEMod annual emissions results ($MTCO_2e$) for each of the four mobile source categories during construction (off-road, vendor, worker) and the corresponding CO_2 emission factors, Table 3.7-3 shows estimated fuel consumption during project construction. For operations, using the CalEEMod annual emissions results ($MTCO_2e$) for the area and mobile source categories and the corresponding CO_2 emission factors, Table 3.7-4 shows estimated fuel consumption during project operation.

Table 3.7-3. Project Construction Mobile Source Energy Use

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons)
Green Bin Facilities				
Anaerobic Digestion	Off-road	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
	Vendor	MHDT, HHDT	Diesel	4,620
Aerobic Composting and Mulching	Off-road	Fleet Average	Diesel	40,260
	Worker	LDA, LDT1, LDT2	Gasoline	1,500
	Vendor	MHDT, HHDT	Diesel	40

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons)
Blue Bin Facilities				
Clean Materials Recovery	Off-road	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
	Vendor	MHDT, HHDT	Diesel	4,620
Resource Recovery Center	Off-road	Fleet Average	Diesel	20,280
	Worker	LDA, LDT1, LDT2	Gasoline	2,690
	Vendor	MHDT, HHDT	Gasoline	150
	Vendor	MHDT, HHDT	Diesel	1,330
Construction and Demolition Materials Processing	Off-road	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
	Vendor	MHDT, HHDT	Diesel	4,620
Black Bin Facilities				
Mixed Material Processing	Off-road	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	6,790
	Vendor	MHDT, HHDT	Gasoline	460
	Vendor	MHDT, HHDT	Diesel	3,980
Advanced Thermal Recycling	Off-road	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	10,620
	Vendor	MHDT, HHDT	Gasoline	770
	Vendor	MHDT, HHDT	Diesel	6,670
Non-Combustion Thermal Technologies	Off-road	Fleet Average	Diesel	25,640
	Worker	LDA, LDT1, LDT2	Gasoline	5,910
	Vendor	MHDT, HHDT	Gasoline	380
	Vendor	MHDT, HHDT	Diesel	3,340

Source: CalEEMod Emissions and Energy Calculation Summary Reports in Appendix C
Notes: For On-road HDT Mix: 9% Gasoline, 91% Diesel (EMFAC 2021); applies to Vendor

Table 3.7-4. Project Operation Mobile Source Energy Use

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons)
Green Bin Facilities				
Anaerobic Digestion	Off-road	Tier 4	Diesel	10,550
	On-road	MHDT, HHDT	Diesel	46,580
	On-road	LDA, LDT1, LDT2	Gasoline	990
	Stationary	Emergency	Diesel	380
Aerobic Composting and Mulching	Off-road	Tier 4	Diesel	21,100
	On-road	MHDT, HHDT	Diesel	85,300
	On-road	LDA, LDT1, LDT2	Gasoline	1,100
	Stationary	Emergency	Diesel	NA
Blue Bin Facilities				
Clean Materials Recovery	Off-road	Tier 4	Diesel	10,550
	On-road	MHDT, HHDT	Diesel	55,350
	On-road	LDA, LDT1, LDT2	Gasoline	2,400
	Stationary	Emergency	Diesel	260
Resource Recovery	Off-road	Tier 4	Diesel	9,120
	On-road	MHDT, HHDT	Diesel	88,220
	On-road	LDA, LDT1, LDT2	Gasoline	1,140
	Stationary	Emergency	Diesel	NA
Construction and Demolition Materials Processing	Off-road	Tier 4	Diesel	10,550
	On-road	MHDT, HHDT	Diesel	56,110
	On-road	LDA, LDT1, LDT2	Gasoline	2,580
	Stationary	Emergency	Diesel	260
Black Bin Facilities				
Mixed Material Processing	Off-road	Tier 4	Diesel	9,120
	On-road	MHDT, HHDT	Diesel	55,460
	On-road	LDA, LDT1, LDT2	Gasoline	2,760
	Stationary	Emergency	Diesel	260
Advanced Thermal Recycling	Off-road	Tier 4	Diesel	31,650
	On-road	MHDT, HHDT	Diesel	148,540

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons)
	On-road	LDA, LDT1, LDT2	Gasoline	1,570
	Stationary	Emergency	Diesel	380
Non-Combustion Thermal Technologies	Off-road	Tier 4	Diesel	10,550
	On-road	MHDT, HHDT	Diesel	34,710
	On-road	LDA, LDT1, LDT2	Gasoline	1,330
	Stationary	Emergency	Diesel	380

Source: CalEEMod Emissions and Energy Calculation Summary Reports in Appendix C
Notes: For On-road HDT Mix: 9% Gasoline, 91% Diesel (EMFAC 2021); adjusted for on-road fleet mix

Based on CalEEMod for the defined land use, Table 3.7-5 shows estimated natural gas and electric power usage for each facility. Natural gas usage for the external combustion heater/boiler operating at the Advanced Thermal Recycling facility and the internal combustion engine-generator operating at the Non-Combustion Thermal Technologies facility are calculated separately and added to the CalEEMod figures for those two facilities. These calculations are included in Appendix C.

Table 3.7-5. Operational Utility Energy Use

Facility Type	Parcel Size (acres)	Building Size (square feet)	Electric Power (MWh/year)	Natural Gas (mmBTU/Year)
Green Bin Facilities				
Anaerobic Digestion	7	180,000	1,744	6,361
Aerobic Composting and Mulching	30	1,600	15	57
Blue Bin Facilities				
Clean Materials Recovery	7	180,000	1,744	6,361
Resource Recovery	2	52,000	504	1,837
Construction and Demolition Materials Processing	10	180,000	1,744	6,361
Black Bin Facilities				
Mixed Material Processing	6	155,000	1,501	5,477
Advanced Thermal Recycling	10	260,000	2,518	17,947
Non-Combustion Thermal Technologies	5	130,000	1,259	13,354

Source: CalEEMod Emissions and Energy Calculation Summary Reports in Appendix C

3.7.3.3 Program

3.7.3.3.1 Upstream Measures

Impact Criterion a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Impact Criterion b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Table 3.7-6 provides an analysis of potential impacts that could result from implementation of the upstream policies and programs associated with the Program relative to energy. Local energy impacts associated with the implementation of the upstream Program policies and programs are primarily related to the transition to alternative materials along with the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. As shown in Table 3.7-6, many of the policies and programs associated with the Program would not result in a change in energy consumption while others may result in a shift in materials disposed as waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific calculation of direct energy consumption cannot be conducted. However, as discussed in detail below, the nature of these policies is such that they would not result in the wasteful, inefficient, or unnecessary consumption of energy resources that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The upstream measures under the Program would have a ***less than significant*** impact on Impact Criteria (a) and (b).

Table 3.7-6. Analysis of Upstream Measures - Energy Impacts

Measure	Energy Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Implementation of a ban on single-use plastic water bottles would increase the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, as well as non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. Use of alternative single-use materials could result in an increase in life cycle energy demand. However, an increase in use of personal reusable water bottles filled at home, work, or refill stations would offset the increase in life cycle energy demand associated with replacement of plastic with other container materials. Accordingly, an increase	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	in recycling volumes of alternative materials would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed ban on single-use plastic bottles would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, the ban of single-use plastic water bottles would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant. *This impact is discussed in further detail below.*	
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets and certain jugs be refillable would encourage reuse and refilling of products in the provided refillable containers. The materials used for these refillable containers are assumed to not be significantly different than the containers that are currently used for these products but instead could be refilled at the retailer via bulk dispensing stations. Therefore, this policy is not likely to alter the shipping requirements from the manufacturer or distribution to the retailer except that 25% of the product would be shipped in bulk containers, rather than individually packaged products. Similarly, consumers are assumed to continue to either purchase products in the reusable containers or would participate in product refill programs. Under the refill scenario, consumer trips to the retailer would not change as a result of this policy under the assumption that consumers would return with the empty containers to be refilled at the same retailer that they would have otherwise purchased single-use packaged items. With respect to end-of-life transportation requirements, this policy would lead to a decrease in the use and disposal of single-use packaging which would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. As such, implementation of a requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets would not increase VMT as compared with products in single-use packaging. With respect to life cycle energy demand, in general the energy demand associated with the production phase is evenly distributed through the number of uses for the reusable packaging. However, the energy demand associated with washing of the containers is present in every use. In general, studies show that reusable packaging should be used at least 10 to 15 times to have a smaller impact than single-use packaging (ZWE 2020b). An LCA comparing HDPE single-use and refillable HDPE liquid detergent containers indicates that the total energy demand would be less for refillable containers than single-use containers after two uses (Nessi et al. 2014). Accordingly, increasing the use of refillable containers compared with single-use packaging would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with single-use containers and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, impacts would be less than significant.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. Overall, the transition to refillable bottles is not expected to result in an increase in VMT. In addition, reuse schemes would not increase life cycle energy demand as compared with single-use containers. Accordingly, increasing the reuse of refillable bottles compared with single-use bottles would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of single-use bottles and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, this impact would be less than significant. *This impact is discussed in further detail below*.	
Plastic Bottle Policies: Leashed Lids	As detailed in Section 3.18, Transportation, a requirement that all lids on plastic beverage bottles be leashed to the bottle would not result in a change in transportation requirements for these materials. In addition, a range of lid tethering systems have been developed that do not require modification to existing bottle design and filling systems and would not result in a change in trips from the manufacturer to the point of sale or distribution or the energy associated with their use. Therefore, requiring that lids be leashed would not result in a net change in overall energy demand and this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. No impact would occur.	No Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are often made of HDPE (resin identification code 2), which is recyclable within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited. Depending on the type of material used, this policy may reduce materials placed in black bins (since plastic beverage holders are not recyclable) and an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. With respect to life cycle energy demand, one LCA study evaluated plastic Hi-Cone ring beverage holders to paperboard cartons, paperboard KeelClips™, and shrink-wrap and corrugated trays. The overall results of the study indicate that life cycle	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	energy demand associated with papermill operations and transport are responsible for the majority of the energy demand analyzed for all four material types. With respect to total energy demand, KeelClips™ performed similarly to Hi-Cone plastic rings, in part because Hi-Cone rings are a fossil-based product, whereas the KeelClip™ is bio-based. A ban on plastic beverage holder rings is not expected to increase VMT over existing conditions and would not contribute to an overall increase in energy demand. Therefore, implementing such a ban would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant. *This impact is discussed in further detail below.*	
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in consumption and use of single-use foodware items which would lead to a decrease in materials placed in blue bins or black bins which may result in an overall decrease in trips associated with solid waste disposal and management. Similarly, a shift toward use of reusable foodware would decrease the consumption of single-use foodware at restaurants which would result in a corresponding decrease in trips associated with distribution of single-use foodware materials. Therefore, this policy would not increase VMT as a result of its implementation. With respect to life cycle energy, GHG emissions are used herein as a surrogate for energy consumption for the comparison of relative impacts. Total GHGs associated with reusable foodware as compared to single-use foodware would be reduced with each reuse. In a meta-analysis of 10 LCAs for single-use (including paper and various plastics) and reusable beverage cups, the UNEP determined that reusable cups have less life cycle GHG emissions than disposable cups, regardless of material, although the number of reuses to break-even with disposable cups in terms of GHG emissions varies with the material used (UNEP 2021). Most of the studies reviewed by the United Nations determined a break-even point for GHG emissions and non-renewable energy use ranging from 10 to 140 uses depending on the materials compared, end-of-life assumptions, and washing assumptions (UNEP 2021). In their literature review of energy inputs and GHG impacts, the Clean Water Fund (2017) found that while comparative life cycle studies of single-use versus reusable clamshells, plates, bowls, and flatware have been less detailed than those for cups and water systems (i.e., bottled water, tap water, and home/office delivery water), they generally reported low usage levels (environmental break-even points) beyond which reusables have lower overall GHG emissions or energy usage than single-use products. Improvements in dishwashing energy efficiency and changes in the electrical grid suggest that reusable cups have lower life cycle impacts than disposable cups in many situations (Clean Water Fund 2017). Two other comparative LCAs of disposable and reusable tableware confirm these findings, reporting that reusable tableware reaches a break-even point after 4 to 13 uses beyond which reusables have lower overall GHG emissions or energy usage than single-use products (Genovesi et al. 2022; Hitt et al. 2023). Accordingly, implementing a requirement that all foodware provided for dine-in services be reusable would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed policy would not conflict with population growth projections	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, a requirement that all foodware provided for dine-in services be reusable would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	
Foodware Policies: Single-Use To-Go Foodware	Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, and/or all single-use to-go foodware is recyclable or compostable, and/or all single-use to-go foodware contain a minimum of 30% post-consumer recycled content would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Currently, reusable foodware programs are operated either by individual restaurants where customers return the used containers back to same restaurant or as a collective with collection points located at restaurants and cafés as well as at or close to various common destinations for takeaway food, such as hotels and offices, enabling consumers to drop off their reusables while carrying out other errands. Under the collective scenario, system service providers collect items, clean them, and redistribute them back to restaurants and cafés. Cleaning the packaging at the café or restaurant rather than a centralized cleaning model generates fewer trips as compared with a centralized cleaning model delivered by system service providers. It should be noted that this policy may also encourage customers to bring in their own containers for to-go orders, which would also reduce trips as compared with reusable foodware provided by the restaurant. With respect to customer behavior associated with return of the foodware, there may be no additional trips generated if customers return the foodware the next time they return to the restaurant or while carrying out other errands. Alternatively, customers may make a trip solely to return the containers, resulting in additional VMT as compared with single-use to-go foodware. The relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of customers that make a dedicated trip to return the containers. As an example, assuming 5% of customers make a special trip to return foodware, the additional VMT would be 250 miles for every 1,000 to-go meals for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of customers make a special trip. A parametric LCA modeling of reusable and single-use restaurant food container systems that considers consumer behavior, and “extra trips” indicates that depending on the single-use container being replaced, the reusable to-go foodware can break-even in life cycle GHGs and primary energy impacts with 4 to 13 uses (Hitt et al. 2023). As such, implementation of a ban on single-use to-go foodware would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.’s Green New Deal. Although not directly applicable to the proposed Program, the proposed policy would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, a requirement that all at least 50% of to-go/delivery foodware must be returnable and	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	reusable, and/or all single-use to-go foodware is recyclable or compostable, and/or all single-use to-go foodware contain a minimum of 30% post-consumer recycled content would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. This shift in materials may increase the materials that can be placed in green bins (i.e., compostable materials) or blue bins (i.e., recyclable materials) but may decrease the amount of materials placed black bins (i.e., general waste) since bioplastics are not currently compostable or recyclable at the City's existing facilities. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. The transport of alternative single-use materials to the point of sale or distribution is expected to be comparable to bioplastics as the density and volume of alternative single-use products (e.g., recycled content plastics or paper products) are comparable to bioplastic products. Therefore, this policy would not result in a net change in VMT as compared with PLA products. With respect to life cycle energy demand, a life cycle assessment comparing single-use PLA to single-use bagasse to-go clamshells indicates that bagasse clamshells would result in roughly 25% less life cycle primary energy as compared to PLA clamshells (Hitt et al. 2023). Thus, it is not expected that a ban on PLA foodware would result in a net increase in energy demand. Accordingly, a ban on bioplastics would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed ban would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, a ban on bioplastics would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Foodware Policies: Meal Kit Reuse and Recycling	Prohibiting the sale of delivery meal kits in the City unless the meal kit manufacturers/providers establish and fund take-back and/or reuse programs for non-recyclable components of their meal kits would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. It is assumed that take-back programs would be facilitated from existing operation locations and would not require construction of new facilities. For the implementation of take-back and reuse programs, there would be the potential for an increase in trips to return items to the specified take-back location. Some meal kit providers take back reusable and recyclable packaging when the next delivery is dropped off, thus avoiding extra trips. Other schemes require a customer to schedule pickup of reusable meal kit items from their home. With respect to extra trips associated with return of reusable meal kit components, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	distance, percentage of extra trips, and whether pickups are coordinated and optimized to reduce VMT. As an example, assuming 5% of meal kits require an extra trip to pick up the reusable components, the additional VMT would be 250 miles for every 1,000 pickups for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of reusable meal kit components require an extra trip. Given the range of materials used in meal kits and potential alternative recyclable materials versus reusable items, a comparison of life cycle energy demand would be speculative. However, for the purposes of this PEIR, relative energy inputs are assumed to be similar to that associated with reusable to-go foodware as analyzed above. A parametric LCA modeling of reusable and single-use food container systems that considers consumer behavior, and "extra trips" indicates that depending on the single-use container being replaced, the reusable to-go foodware can break-even in life cycle GHGs and energy inputs with 4 to 13 uses (Hitt et al. 2023). Accordingly, implementation of this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed policy would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, this policy would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	
Foodware Policies: City Reusable Foodware Pilot Projects	Establishing pilot programs with the goal of reducing plastic pollution and encouraging replacement of single-use foodware with reusable products would result in a decrease in materials placed in blue bins or black bins and would not result in an increase in trips associated with distribution of alternative foodware materials. In addition, it is assumed that most food service establishments have the required washing equipment on-site in accordance with CHSC Section 114099. However, it is assumed that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. As this type of modification would be minor, the energy demand associated with construction equipment and/or vehicle trips would be insignificant as a result. Further, as analyzed for Dine-In Services above, reusable foodware reaches a break-even point after 4 to 13 uses beyond which reusables have lower overall GHG emissions or energy usage than single-use products. Therefore, pilot projects would not contribute to an overall increase in energy demand and would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Foodware Policies: Plastic Tea Bags	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of tea bags constructed of or containing plastic components would not result in a change in VMT associated with distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to tea bags with plastic components. In addition, alternative materials (e.g., loose leaf tea or tea bags made with alternative adhesive materials) are not expected to result in	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	an increase in life cycle energy demand. Therefore, impacts would be less than significant.	
Foodware Policies: Beverage Pods	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of single-use beverage pods would not result in a change in trips associated with distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to that associated with coffee/beverage pods. With respect to life cycle GHG emissions, including those associated with transportation, a LCA comparing single-serve coffee and bulk coffee brewing indicates that single-serve coffee pods result in the same or more GHG emissions than several scenarios where coffee is brewed at home with primary energy inputs associated with coffee supply and use rather than materials used in production, end-of-life, or distribution of the various scenarios (Quantis 2015). Thus, a ban on single-use beverage pods is not expected to result in a net increase in energy inputs. Accordingly, implementation of this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed policy would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, a ban on single-use beverage pods would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Textile Policies: Textile Disposal Policies	Prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would result in less material being placed in black bins. For the implementation of take-back/resale/donation programs, textiles would be diverted from the landfill and instead transported to take-back/resale/donation collection points. As detailed in Section 3.18, Transportation, the transport of processed items to the resale location is assumed to be comparable to transport of new materials to retailers. Similarly, customer behavior is assumed to not be affected by this policy. Accordingly, this policy would result in an overall reduction in VMT relative to the avoided production of similar virgin products. It is assumed that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. An analysis of the environmental impact of discarded apparel landfilling compared with recycling and reuse indicates that for all scenarios considered in the analysis, recycling textiles has the potential to decrease the life cycle energy inputs and associated GHGs (Moazzem et al. 2021). This is primarily owing to the avoided impacts associated with production of the avoided virgin product and avoided landfill impacts. The findings of that study are reinforced with the findings of Oakdene Hollins (2006) that reuse and recycling of clothing would result in significant energy savings from the displacement of new products. Accordingly, implementation of this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed policy would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	substantial unplanned population growth in the vicinity. As such, prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	
Textile Policies: Washing Machine Microfiber Filtration	As detailed in Section 3.18, Transportation, a requirement that washing machines be outfitted with microfiber filtration systems would not result in a change in VMT associated with either the distribution, purchase, or disposal requirements associated with operation of these units. In addition, consumption and use of these filtration units would not result in a measurable net increase in energy demand (i.e., filtration units would not change the energy efficiency of washing machines). Therefore, impacts would be less than significant.	Less than Significant
PFAS Ban	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, rental, and sale of items that contain PFAS would not result in a change in VMT associated with the distribution, purchase, or disposal of alternative materials/products since it is assumed that alternative materials would have comparable transportation requirements to those that currently contain PFAS. In addition, a ban on PFAS would reduce PFAS in the environment and drinking water, reducing the potential for cleanup and treatment requirements. One study performed for the drinking water in Maine, estimates that treatment of PFAS in the municipal drinking water system would result in annual GHG emissions (considered herein as a surrogate for comparison of relative energy impacts) of 40,000 $MTCO_2e$ (or 2.1 $MTCO_2e$ per user per year) (McAlexander et al. 2022). Although speculative for future conditions in the City, the results of that study suggest that the cleanup of PFAS in drinking water alone would be energy intensive. As such, implementing a ban on PFAS would potentially avoid future energy demand associated with subsequent cleanup and treatment in the environment. Therefore, implementation of this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic bag clips would not result in a change in VMT associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic bag clips. In addition, consumption and use of alternative materials would not result in a measurable net increase in energy demand. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Additional Product Bans: Aerosol String	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of aerosol string (Silly String™) would not result in a change in VMT associated with purchase or disposal of alternative materials/products. In addition, consumption and use of alternative materials would not result in a measurable net increase in energy demand. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	
Additional Product Bans: Plastic Sandbags	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic sandbags (with only biodegradable sandbags to be allowed) would not result in a change in VMT associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic sandbags. With respect to life cycle energy, GHG emissions are used herein as a surrogate for energy consumption for the comparison of relative impacts. An LCA comparing the GHG emissions for production of polypropylene versus jute (the fiber used to make burlap sacks) estimates that jute would emit 84% less GHG than polypropylene (which is used for making plastic sandbags) (Boyce 1995). Accordingly, production and use of alternative biodegradable materials is not expected to result in a net increase in consumption of energy. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Additional Product Bans: Lighter-Than-Air Balloons	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of lighter-than-air balloons would not result in a change in VMT associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to lighter-than-air balloons. In addition, a ban on lighter-than-air balloons would incrementally reduce the extraction, production, and transport of helium and thus eliminate the energy consumption associated with extraction, processing, and transport of helium. Accordingly, a ban on lighter-than-air balloons is not expected to result in an overall increase in energy consumption. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	As detailed in Section 3.18, Transportation, a ban on the sale of single-use e-cigarettes and vape cartridges within the City would not result in a change in VMT associated with the distribution, purchase, or disposal of alternative materials/products. In addition, consumption and use of alternative reusable materials would not result in a measurable net increase in direct or indirect energy consumption. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use Printer Cartridges	A ban on the distribution, offer, provision, and sale of single-use printer cartridges would result in less material placed in black bins. As detailed in Section 3.18, Transportation, this policy may increase the participation in printer cartridge take-back programs which would have the potential to increase trips required to transport empty printer cartridges to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the empty cartridge by mail to the recycling facility. Where empty cartridges may be returned or refilled at the point of sale, it is assumed that customers would return/refill empty cartridges the next time they purchase a new cartridge. For other return	Less than Significant

Measure	Energy Impact Analysis	Significance Conclusion
	schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of printer cartridges require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of empty printer cartridges require an extra trip for return. A comparative study of three end-of-life scenarios for toner cartridges examined the relative GHGs associated with landfilling, remanufacturing of that cartridge by reusing its components, and refilling of that empty cartridge (Farouk 2016). In this study, refilling and reusing cartridges were found to require fewer energy resources as compared to landfilling using several different methods of calculation (Farouk 2017). Accordingly, a ban on single-use printer cartridges is not expected to result in a measurable net increase in energy demand. Therefore, this policy would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and impacts would be less than significant.	

Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban

Single-use plastic bottles result in energy consumption during the manufacturing process, through truck trips delivering empty plastic bottles to filling facilities and full bottles to retailers, and through end-of-life transportation and processing requirements. The ban on single-use plastic bottles would result in an increase in the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, and non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips.

The manufacturing process for plastic bottles, whether single-use or reusable, starts with petroleum and/or natural gas, and consumes energy. Similarly, energy consumption occurs during the extraction of raw materials and manufacturing of alternative materials such as aluminum and glass. The amount of energy consumption varies depending on the type and quantity of bottles produced. The manufacturing process consumes the most energy due to the higher volume of fuel that is used during the process. Delivery trucks that transport empty single-use bottles from manufacturers to the filling facility and full water bottles to the distributors and/or local retailers also result in consumption of fuels. Further, most single-use beverage containers that do not become litter are landfilled or recycled where additional energy is required to process into secondary materials. In addition, washing and drying of reusable bottles requires energy depending on the method of washing and drying (i.e., hand washing, electric or natural gas-powered washing machine, heat dried or hand dried) and on the frequency of washing.

Franklin Associates (2023) evaluated the energy demand for predominant U.S. beverage container systems for soft drinks and domestic still water. The analysis estimates life cycle non-renewable and cumulative energy demand of PET plastic water bottles as compared to aluminum cans and glass bottles. Table 3.7-7 summarizes the energy expressed on the basis of equal volume of beverage delivered, 1,000 gallons. It is important to note that the relative volume of beverage to container weight significantly impacts the results, as described in Section 3.1.1. Specifically, increasing the capacity of the container relative to the container's weight reduces impacts per 1,000 gallons across all bottle life cycle stages.

Table 3.7-7. Energy Demand Associated with Cradle-to-Grave LCA for PET Water Bottles, Aluminum Cans, and Glass Bottles, 1,000 Gallon Basis (Millijoules)

Life Cycle Stage	Energy Demand (millijoules)		
	500 ml PET Water 10% RC, 29.1% RR	16 oz. Aluminum Can 73% RC, 50.4% RR	12 oz. Glass Bottle 38% RC, 39.6% RR[1]
Raw Material	4,796	4,182	20,448
Converting Raw Material to Finished Container	1,536	7,533	0
Transportation Empty Container to Filler	51.9	213	2,453
Transportation of Filled Container to Distribution Center	9.45	11.4	221
Transportation of Filled Container to Store	9.45	23.7	221
Container End-of-Life	-729	4,130	6,620
LC Closure	567	0	725
LC Label	151	0	0
LC Multipack	636	0	6,968
LC Tier Sheets	77.6	262	259
Total	7,106	16,355	37,914
Feedstock Energy	2,956	93.1	2,055
Expended Energy	4,150	16,262	35,859
Expended % of Total	58.4%	99.4%	94.6%
Non-Renewable Energy	5,967	13,451	33,646
Non-Renewable % of Total	96.4%	82.2%	88.7%

RC: Recycled Content; RR: Recycling Rate; LC: Life Cycle; ml: milliliter; oz.: fluid ounce
Source: Franklin Associates 2023
Notes: [1] For glass bottles, there is not a boundary between glass production and container manufacturing, so results for the combined process are reported in the Raw Material results.

Table 3.7-7 illustrates that on a 1,000-gallon basis, the total energy demand associated with 12-ounce single-use glass bottles is approximately five times more than 500-milliliter single-use PET water bottles, with the total energy demand of 16-ounce aluminum cans approximately 2.3 times more than 500-milliliter PET water bottles. The manufacturing process results in the greatest energy consumption for all containers evaluated due to the higher volume of fuel that is used during the process. Data for transport of filled containers are based on the total weight of the packaging (primary container, caps, multipack packaging) transported and do not include impacts associated with the weight of the beverage in the containers.

This policy may lead to an increase in materials placed in black bins if plastic bottles are replaced with non-recyclable materials (e.g., drink cartons or pouches). However, a change in black bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the black bins and the change would be the quantity of material in each bin. For alternative materials that are recyclable (e.g., aluminum and glass), this policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the recyclable beverage containers similar to existing consumer behavior associated with redeeming the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. A ban on single-use plastic bottles may increase the volume of aluminum or glass at recycling facilities. Glass cullet (i.e., crushed glass) has a greater density as compared to crushed plastic bottles. An increase in glass bottles may result in an increase in glass cullet transported to glass recycling/manufacturing facilities. However, recycling glass saves approximately 13% of the energy required for raw-material production and transportation (National Renewable Energy Laboratory 1994). Franklin Associates (2023) estimates the percentage that the energy demand is reduced under assumptions of recycling rates associated with the CRV Program with the energy demand reduced by approximately 5% for recycled 12-ounce glass bottles, 24% for recycled 16-ounce aluminum cans, and 20% for 500-milliliter single-use water bottles (note that these estimates incorporate several assumptions regarding recycling return rates and recycled content of the bottle and are presented herein only for comparative purposes). Accordingly, an increase in recycling volumes of alternative materials would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials.

Although there is no data available to determine to what degree a ban on single-use plastic bottles may encourage use of personal reusable containers, it is conceivable that there would be a decrease in purchase of water in single-use containers as people opt to bring their reusable containers with them and refill them at home, work, or at refill stations. Franklin Associates (2009) evaluated the energy demand for reusable containers using assumptions for number of refills per day, number of years of reuse, number of washings, and container materials. For example, a 20-ounce aluminum bottle, which is one type of reusable water bottle that is currently popular, that is washed once per day with 1 year of use, the net energy consumption is estimated to be 2.25 million BTUs per 1,000 gallons as compared to 9.90 million BTUs per 1,000 gallons associated with an exempt PET single-use water bottle. The majority (82%) of the energy demand for the reusable bottle was associated with home washing of the reusable container which includes energy associated with heating water, treatment of water used in the dishwasher, and treatment of dishwasher effluent. However, this assumes that reusable containers would be washed separately from other everyday dishes. More likely, reusable containers would be integrated into regular daily dishwasher loads at home, which would occur with or without the reusable container present. Conservatively, including the added energy emissions associated with dishwashing as analyzed by Franklin Associates, reusable containers would contribute approximately 77% less energy than single-use plastic water bottles. Thus, an increase in use of refillable containers would offset the overall increase in life cycle energy associated with alternative single-use containers.

Accordingly, an increase in recycling volumes of alternative materials would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials and would be consistent with the energy policies set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed ban on single-use plastic bottles would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed ban would not conflict with the energy or GHG reduction strategies outlined in the 2022 Scoping Plan. As such, the ban of single-use plastic water bottles would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be ***less than significant***.

Refillable Beverage Bottles

Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. New single-use bottles would then need to be transported from the manufacturer to the bottling plant and from the bottling plant to the retailer. In contrast, empty refillable bottles would be returned to the retailer where they would be picked up and transported to the washing and refilling plant and then transported back into the market, thus avoiding trips associated with transport of virgin and/or recycled materials to the bottle manufacturer and then from the manufacturer to the bottling plant. Reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local/regional basis (PricewaterhouseCoopers AG 2011). The relative VMT of single-use beverage bottles/containers may be significantly influenced by the percentage of recycled post-consumer content used in the bottles/containers. In general, the higher the percentage of recycled content used, the lower the VMT of that particular bottle/container type. This is due to the avoidance of a number of upstream processes involved in the production of new bottles/containers, like the extraction and transportation of virgin materials. The weighted average transportation distance of empty PET bottles to fillers reported by three PET bottle producers were between 150 and 200 miles. Empty container transport distances for aluminum cans and glass bottles were estimated as 150 miles and 600 miles, respectively (Franklin Associates 2023). Refillable bottles are typically washed and refilled at the same location. In addition, refill programs typically maximize transport efficiencies by dropping off filled bottles and backhauling empty containers to be washed and refilled. Accordingly, empty bottles used multiple times as part of a local refilling program would require less VMT per bottle than single-use beverage containers that are manufactured in a centralized bottle manufacturing facility and subsequently transported to the beverage filling location.

The assessment of transportation requirements for shipping filled beverage containers from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Due to the density of liquids, shipment of bottled beverages by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled beverage in glass bottles versus plastic bottles, we assume a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divide by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle; Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass beverage bottles compared with plastic beverage bottles. However, local refillable systems may promote competition among companies with regional production and distribution structures, resulting in overall shorter trips from bottler to retailer. Although distribution of beverages in heavier refillable containers may require more truck trips, these trips may be shorter than trips associated with transport of beverages in single-use containers that originate from centralized manufacturing and distribution centers. As such, transition to refillable bottles is not expected to result in an overall increase in VMT.

With respect to life cycle GHG emissions, several LCAs have been performed that compare the life cycle energy demand for single-use plastic bottles versus reusable bottles. A peer-reviewed study conducted by Olatayo et al. (2021), compares 10 single-use 500-milliliter plastic bottles to the same volume of water provided in 500-milliliter plastic reusable bottles. This study indicates that use of reusable PET plastic bottles at least 10 times would decrease life cycle energy demand by 71% (Olatayo et al. 2021). A literature review of many LCAs for plastic packaging as part of the impact assessment for Zero Waste Europe indicates that reusable glass bottles would reduce life cycle GHG emissions (primarily associated with combustion of fuel) by 70% as compared to single-use plastic bottles after 5 uses (ZWE 2020a, 2020b). An increase in distance between the bottling plant and the local distributor was determined to have the greatest impact on how many times a glass bottle would need to be reused in order to have the same impact as single-use bottles. A distance of greater than 500 miles was shown to offset any GHG reductions achieved through energy savings associated with reuse (ZWE 2020b). As discussed above, reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local/regional basis (PricewaterhouseCoopers AG 2011). As such, a distance of greater than 500 miles between the bottling plant and the distributor for reuse systems in the City is unlikely. Therefore, reuse schemes are not expected to result in an increase in fuel consumption as compared to single-use containers.

Accordingly, reuse schemes are not expected to increase VMT over existing conditions and would not contribute to an overall increase in energy demand. Therefore, implementing a requirement that 10% of all beverage bottles be refillable would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials and would be consistent with the energy goals set forth in L.A.'s Green New Deal. Although not directly applicable to the proposed Program, the proposed requirement for percentage of reusable bottles would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, the ban of single-use plastic water bottles would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be ***less than significant***.

Single-Use Plastic Beverage Holder Rings

A ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are often made of HDPE (resin identification code 2), which is recyclable within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited. Depending on the type of material used, this policy may reduce materials placed in black bins (since plastic beverage holders are not recyclable) and an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin.

With respect to life cycle energy demand, one LCA study evaluated plastic Hi-Cone ring beverage holders to paperboard cartons, paperboard KeelClips™, and shrink-wrap and corrugated trays summarized in Table 3.7-8.

Table 3.7-8. Energy Demand Associated with Cradle-to-Grave LCA for Plastic Hi-Cone Rings, Paperboard Cartons, Paperboard KeelClips™, and Shrink-wrap Corrugated trays, 1,000 Beverage Can Basis (Millijoules Lower Heating Value)

Life Cycle Stage	Energy Demand (millijoules)			
	Hi-Cone Plastic Rings	**Wrap+Tray**	**KeelClip™**	**Carton**
Wood	--	--	3.47	6.76
Papermill	--	--	47.2	92.0
Converting Raw Material to Finished Product	--	--	12.8	24.1
Production	69.0	181	--	--
Packaging	0.341	0.0	--	--
Filling	1.16	14.0	10.2	3.57
Transport	0.728	3.94	7.19	13.7
End-of-Life	0.352	1.41	0.809	1.42
Total	71.6	200	81.7	142

The overall results of the study indicate that life cycle energy demand associated with papermill operations and transport are responsible for the majority of the energy demand analyzed under these scenarios. With respect to total energy demand, KeelClips™ performed similarly to Hi-Cone plastic rings, in part because Hi-Cone rings are a fossil-based product, whereas the KeelClip™ is bio-based. The end-of-life calculations performed in this analysis used a “cut-off” approach in which the burdens or benefits associated with material entering the product system for use as secondary content or sent to recycling are not considered, i.e., they are “cut-off”. Therefore, no recycling credit is received for scrap available for recycling at end-of-life. This approach puts emphasis on the use of recycled content but does not reward end-of-life recycling as much as other analysis methodologies would. Accordingly, there may be some energy reductions for alternative materials when recycling content and recycling rates are taken into consideration. Under all scenarios, the net change in energy demand would be highly dependent on the alternative material selected in place of plastic beverage rings. The LCA performed by Sphera (2020) indicates that alternative materials that would not increase overall energy demand are currently available.

Accordingly, a ban on plastic beverage holder rings is not expected to increase VMT over existing conditions and would not contribute to an overall increase in energy demand. Therefore, implementing such a ban would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials and would be consistent with the energy policies set forth in L.A.’s Green New Deal. Although not directly applicable to the proposed Program, the proposed ban on plastic beverage rings would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. As such, the ban of plastic beverage holder rings would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be ***less than significant***.

3.7.3.3.2 Downstream Measures

Impact Criterion a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction of downstream facilities would require the use of fuels (primarily gasoline and diesel) for the operation of construction equipment and vehicles to perform a variety of activities, including excavation, installation of proposed Project components, and vehicle travel (including on-site and commuter trips). Operation of downstream facilities would also require the use of fuels for stationary and mobile sources. Per the methodology presented in Section 3.7.3.2, fuel consumption was estimated for the construction and operation of each type of facility as summarized in Table 3.7-9. As shown in Table 3.7-9, the construction of downstream facilities would result in a maximum consumption of approximately 43,770 gallons of fuel per year. Operation of the Advanced Thermal Recycling facility would be the most energy intensive, with an estimated consumption of 182,140 gallons of fuel per year.

Table 3.7-9. Project Construction and Operation Total Fuel Consumption Estimates

Facility Type	Construction Fuel Consumption (gallons/year)	Operation Fuel Consumption (gallons/year)
Green Bin Facilities		
Anaerobic Digestion	38,560	58,500
Aerobic Composting and Mulching	41,800	107,500
Blue Bin Facilities		
Clean Materials Recovery	38,560	68,560
Resource Recovery	24,450	98,480
Construction and Demolition Materials Processing	38,560	69,500
Black Bin Facilities		
Mixed Material Processing	36,940	67,600
Advanced Thermal Recycling	43,770	182,140
Non-Combustion Thermal Technologies	35,270	46,970

Source: CalEEMod Emissions and Energy Summary Reports in Appendix C

Compliance with the CARB anti-idling and emissions regulations would result in less fuel combustion and energy consumption and thus minimize the energy use during construction and operations. In addition, Project construction would be performed by contractors with an economic incentive to minimize costs, one element of which is fuel conservation. Therefore, construction of downstream facilities would not result in the wasteful, inefficient, or unnecessary consumption of energy.

Following construction, operation of downstream facilities would require natural gas and electric power usage for each facility. As detailed in Section 3.7.3.2, CalEEMod inputs for the defined land use were used to estimate energy consumption for operations. Table 3.7-5 provided in Section 3.7.3.2 shows estimated natural gas and electric power usage for each facility with a maximum electric power usage of 2,518 MWh/year associated with operation of Advanced Thermal Recycling facilities and maximum natural gas consumption of 17,947 gallons per year associated with operation of Non-Combustion Thermal Technologies facility (primarily used for operating the internal combustion engine-generator). The proposed energy use would not be done in a wasteful and/or inefficient manner. Further, the purpose of the proposed Program is to reduce the impacts of single-use plastics, textiles, and related materials with regard to the amount of plastic and textile wastes going into landfills, depositing on beaches, and accumulating on land. Therefore, the Program would result in reduction of waste.

The Anaerobic Digestion Facility would convert organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility (Gopal et al. 2019). Advanced Thermal Recycling facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials (Alao et al. 2022). Idling times on all diesel-fueled commercial vehicles over 10,000 pounds shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure). In addition, idling times on all diesel-fueled off-road vehicles over 25 hp shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes and fleet operators must develop a written policy as required by 13 CCR §2449 ("CARB Off-Road Diesel Regulations"). Implementation of these regulatory measures would further reduce fuel consumption and energy use. Accordingly, with compliance with applicable regulations, construction and operation of downstream facilities would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, impacts would be ***less than significant***.

Impact Criterion b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

As detailed for Impact Criterion (a) above, construction and operation of downstream facilities would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Further, the purpose of the proposed Program is to reduce the impacts of single-use plastics, textiles, and related materials with regard to the amount of plastic and textile wastes going into landfills, depositing on beaches, and accumulating on land. The Anaerobic Digestion Facility would convert organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility (Gopal et al. 2019). Advanced Thermal Recycling facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials (Alao et al. 2022). Development of future downstream facilities for the purpose of diverting waste from landfills directly supports the goals of L.A.'s Green New Deal to reduce municipal solid waste, eliminate organic waste going to the landfill, and increase the proportion of waste products and recyclables productively reused and/or repurposed within the City. In addition, Target 3 of L.A.'s Green New Deal aims to expand the City's anaerobic digestion capacity and expand community and regional infrastructure which would also be directly supported by installation of future downstream facilities. The California Building Energy Efficiency Standards (Title 24, CCR, Parts 6 and 11) are designed to reduce unnecessary energy consumption in newly constructed and existing buildings, such as residential and commercial structures. Further, consistent with the 2045 carbon neutrality goal (CARB 2022), it is projected that zero-carbon emission electric and hydrogen equipment and vehicles will gradually replace traditional liquid-fueled mobile sources in urban fleet applications where overnight recharging and refueling can be done at designated facilities. Thus, the proposed Project would not conflict with Title 24 or obstruct its implementation on applicable land use development projects in California. Thus, downstream facilities would not conflict with or obstruct any adopted energy conservation plans or state or local plans for renewable energy or energy efficiency and impacts are expected to be ***less than significant***.

3.8 Geology and Soils

This section describes the existing geology and soils of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on geology and soils in the City. Table 3.8-1 summarizes impacts on geology and soils that could result from implementation of the Program or alternatives.

Table 3.8-1. Summary of Geology and Soils Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?	Upstream: No Impact	None
	Downstream: Less than Significant	None
b) Result in substantial soil erosion or the loss of topsoil?	Upstream: No Impact	None
	Downstream: Less than Significant	None
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Upstream: No Impact	None
	Downstream: Less than Significant	None
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Upstream: No Impact	None
	Downstream: Less than Significant	None
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Upstream: No Impact	None
	Downstream: Less than Significant	None

Would the Program:	Impact Determination	Mitigation Measure(s)
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM GEO-1: Paleontological Resources Protection Measures

3.8.1 Existing Conditions

3.8.1.1 Geology and Topography

The topography and geology of the City is diverse and varied, including numerous mountain ranges, coastal regions, and a very large valley (San Fernando Valley). The Santa Monica, San Gabriel, and Santa Susana Mountains are east to west mountain ranges (Transverse Ranges), and the Palos Verdes, Baldwin, and Beverly Hills are north-northwest to south-southeast ranges/hills (Peninsular Ranges). Transitional hills/mountains with some features of each province are the Elysian and Repetto Hills (normally placed in the Peninsular Ranges), and the San Rafael Hills and the Verdugo Mountains (normally placed in the Transverse Ranges).

The dividing line between hillside and valley topography is taken at the break between greater and less than 15% slope. Mountains typically have slopes of 15-50%, with steep-walled canyons and relatively narrow ridgelines. Hill areas are generally less rugged, having a less dense drainage network and somewhat gentler slopes. The valley and basin areas have slopes of less than 15%, however where highly dissected by drainages emerging from the adjacent mountains, local slopes may exceed 15%.

The valleys in between the mountains/hills are generally gently sloping and have accumulated the sediments shed from the mountains along streams and across alluvial fans. The San Fernando Valley lies between the Santa Monica, Santa Susana, and Verdugo Mountains. It is a closed basin with only one drainage outlet along the Los Angeles River. The broad Los Angeles basin extends south from the Santa Monica Mountains, west from the Elysian-Repetto Hills, and north from the Palos Verdes Hills to the Pacific Ocean. The Beverly-Baldwin Hills divide the basin into inland and coastal plains (City of Los Angeles 1996).

Erosion of the surrounding mountains has resulted in deposition of thick layers of unconsolidated sediments in low-lying areas by rivers such as the Los Angeles River and its major tributaries. The recent surface sediments are mostly sand and silt. Much of the basin and valley areas have been highly disturbed through development and much of the surface materials consist of undocumented fills (City of Los Angeles 1996).

3.8.1.2 Soils

With the exception of the mountainous regions of the Program Area (e.g., Santa Monica Mountains, San Gabriel Mountains, Griffith Park), the vast majority of the soil types in the City are Urban Land complexes, which consist of mixes of fill and disturbed local soil (Natural Resource Conservation Service [NRCS] 2023).

Soil erosion is caused by the detachment and entrainment of soil particles through the action of water and wind. Soils most susceptible to erosion are those high in coarse silt- and fine sand-sized particles (Balasubramanian 2017), particularly when organic matter content is low and soil structure is weak or nonexistent. In general, areas with less vegetative cover are more prone to soil erosion than heavily vegetated areas. Soil erosion can also be caused by wind in areas with a combination of high winds, removed or disturbed vegetation, fine sandy or silty textures, and low organic matter content. Soil erosion by water is more aggressive on steep slopes than on shallow slopes (i.e., 10% gradient or less). Additionally, surface erosion from high severity wildfires can increase runoff and erosion rates by two or more orders of magnitude relative to unburned conditions (Robichaud et al. 2010).

Expansive soils are those that expand or swell when wet and contract or shrink upon drying. Clay-type soils are considered to be expansive. There are clay-type soils throughout the Program Area (Figure 3.8-1; NRCS 2023). The vertisols shown in Figure 3.8-1 are clay-rich soils that shrink and swell with changes in moisture content.

3.8.1.3 Geologic and Seismic Hazards

The state has established Alquist-Priolo Zones that are buffers around active faults that have been determined to be especially prone to surface fault rupture. The California Geologic Society defines an active fault as one that has had surface displacement within Holocene time (within the last 11,700 years; the USGS uses within the last 15,000 years). There are numerous faults and Alquist-Priolo Fault Zones within the Program Area (Figure 3.8-2):

- The Inglewood, Potrero, Hollywood, and West Pico faults are all within the Newport-Inglewood-Rose Canyon Alquist-Priolo Fault Zone.
- Santa Monica Fault is within the Santa Monica Alquist-Priolo Fault Zone.
- Raymond Fault is within the Raymond Alquist-Priolo Fault Zone.

Liquefaction is the process by which water-saturated granular soils transform from a solid to a liquid state during strong ground shaking. Unstable hillslopes are areas susceptible to landslides, which consist of the downslope movement of soil, rock, and water under the influence of gravity. Large portions of the Program Area are within landslide and liquefaction zones (Figure 3.8-2).

3.8.1.4 Paleontological Resources

Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. Fossils include bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Society of Vertebrate Paleontology defines the rock units with a High Potential for containing fossils, in part, as "…sedimentary formations and some volcaniclastic formations (e.g., ash or tephra), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstone, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstone, fine-grained marine sandstone, etc.)."

The Program Area geology consists of Tertiary and older (66 million years and older) bedrock mountain ranges and hills surrounding and separating Quaternary and younger (1.6 million years and younger) sediment-filled basins and valleys. Bedrock (sedimentary bedrock, and igneous and metamorphic crystalline basement rock, usually pre-Quaternary) underlies the mountains and hills. Sedimentary rocks underlie various areas of the City, including the Santa Monica and Santa Susana Mountains and the Repetto and Palos Verdes Hills; while Igneous and metamorphic rocks, underlie such areas as the Verdugo Mountains, San Rafael Hills, and portions of the Santa Monica Mountains (City of Los Angeles 1996). Holocene (from the present to 11,700 years ago) to Pleistocene (11,700 to 1.6 million years ago) alluvial and older elevated alluvial soils comprise the majority of geologic material exposed at the surface of the Los Angeles Basin and San Fernando Valley.

The following 11 major sedimentary rock units (formations) in the City have yielded or have the potential to yield significant vertebrate fossils:

- Cretaceous Chico Formation
- Middle Miocene Topanga Formation
- Middle Miocene Altamira Shale Member of the Monterey Formation
- Late Miocene Modelo Formation
- Middle Miocene Monterey Formation
- Latest Miocene-Pliocene Pico Formation
- Pliocene Fernando Formation
- Pleistocene Timms Point Silt
- Pleistocene Lomita Marl
- Quaternary San Pedro Sands
- Quaternary Palos Verde Sands or unnamed Quaternary Sediment.

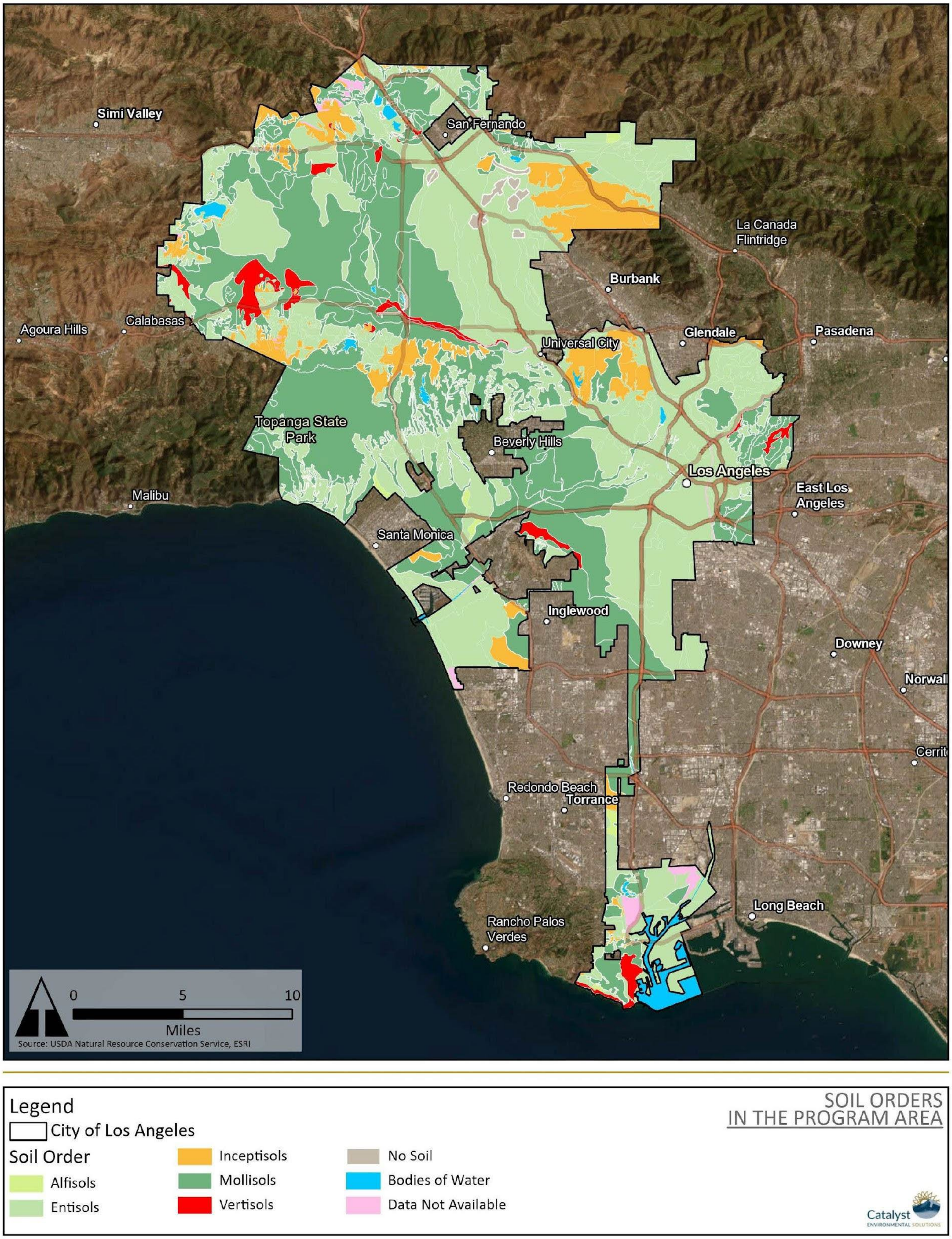


Figure 3.8-1. Soil Types in the Program Area

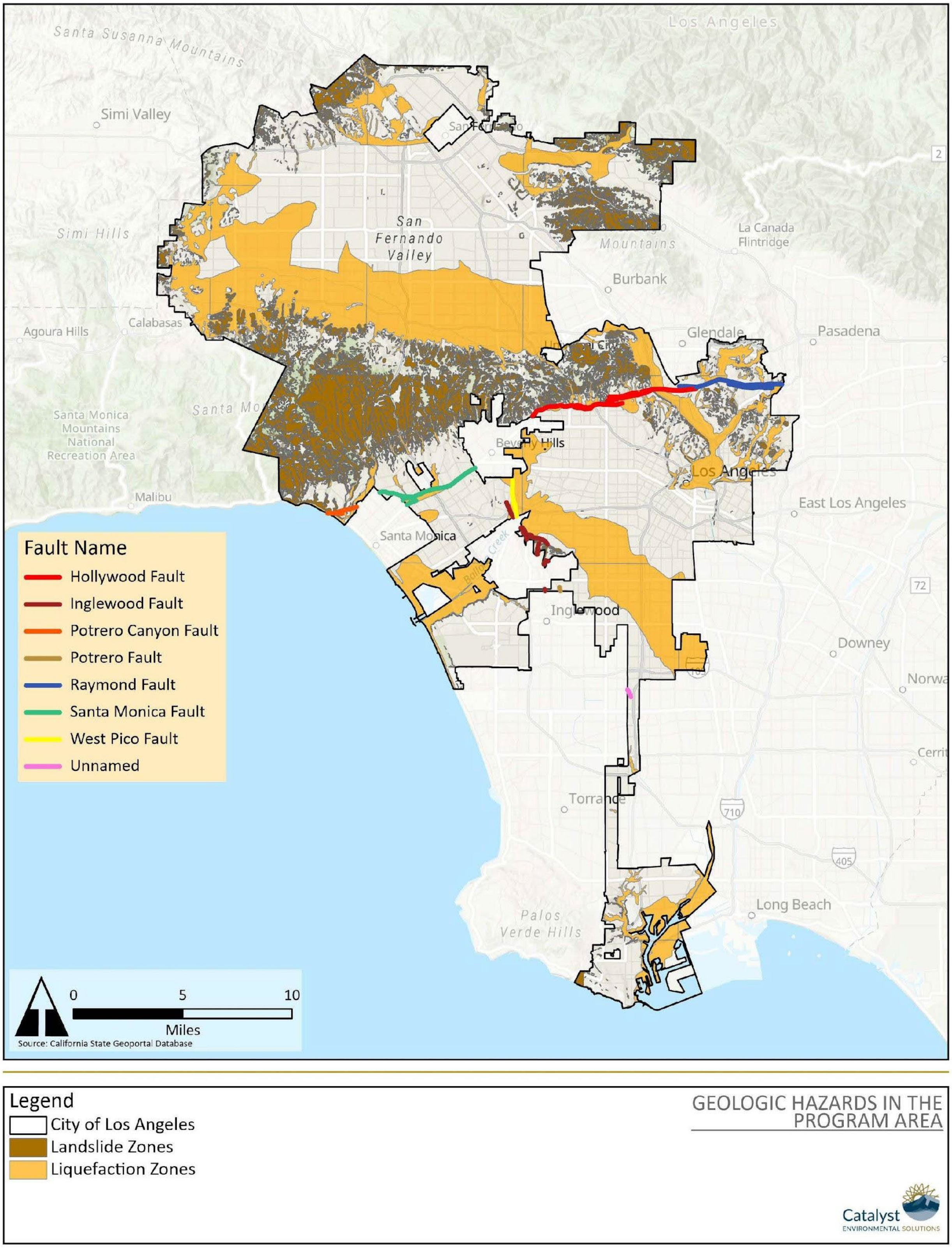


Figure 3.8-2. Geologic Hazards in the Program Area

3.8.2 Regulatory Framework

3.8.2.1 Federal

3.8.2.1.1 Paleontological Resources Preservation Act

The Paleontological Resources Preservation Act of 2002 codifies the generally accepted practice of limited vertebrate fossil collection and limited collection of other rare and scientifically significant fossils by qualified researchers. Researchers must obtain a permit from the appropriate state or federal agency and agree to donate any materials recovered to recognized public institutions, where they would remain accessible to the public and other researchers.

3.8.2.2 State

3.8.2.2.1 Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to provide a mechanism for reducing losses from surface fault rupture on a statewide basis. The main intent of the Alquist-Priolo Act is to ensure public safety by preventing the construction of buildings used for human occupancy on the surface trace of active faults. The law requires the State Geologist to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and to issue appropriate maps. It also prohibits most new construction of structures for human occupancy within these identified hazard zones until a comprehensive geological study has been completed.

3.8.2.2.2 California Building Code

The California Building Code (CBC), codified in Title 24 of the CCR, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2022 CBC provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. In accordance with the CBC, structures should be able to: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage but with some nonstructural damage; and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. The CBC also requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity for construction in areas with high seismic vulnerability and near a major fault.

3.8.2.2.3 Public Resources Code Section 5097.5 and Section 30244

State requirements for paleontological resource management are included in PRC Section 5097.5 and PRC Section 30244. PRC Section 5097.5 states that "a person shall not knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands" and identifies violations as a misdemeanor. This section defines public lands as "lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof."

PRC Section 30244 states that "where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required."

3.8.2.3 Local

3.8.2.3.1 City of Los Angeles General Plan

Conservation Element

Goal 1: a city that preserves, protects and enhances its existing natural and related resources.

- Objective: protect the coastline and watershed from erosion and inappropriate sedimentation that may or has resulted from human actions.
  - Policy 2: continue to prevent or reduce erosion that will damage the watershed or beaches or will result in harmful sedimentation that might damage beaches or natural areas.
- Objective: protect the city's archaeological and paleontological resources for historical, cultural, research and/or educational purposes.
  - Policy: continue to identify and protect significant archaeological and paleontological sites and/or resources known to exist or that are identified during land development, demolition or property modification activities.

Safety Element

Goal 1: A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to fire, water related hazard, seismic event, geologic conditions or release of hazardous materials disasters is minimized.

- Objective 1.1: Implement comprehensive hazard mitigation plans and programs that are integrated with each other and with the City's comprehensive emergency response and recovery plans and program.
  - Policy 1.1.3 Facility/Systems Location and Maintenance: Locate new critical facilities and infrastructure outside of hazard areas, especially VHFHSZs [Very High Fire Hazard Severity Zones], when feasible. If no feasible alternative site exists, ensure that these facilities incorporate all necessary protections to allow them to continue to serve essential community needs during and

after disaster events. Provide redundancy (back-up) systems and strategies for continuation of adequate critical infrastructure systems and services so as to assure adequate circulation, communications, power, transportation, water and other services for emergency response in the event of disaster related systems disruptions and the growing climate emergency.

- Policy 1.1.6 State and Federal Regulations: Assure compliance with applicable state and federal planning and development regulations. Regularly adopt new provisions of the California Building Standards Code, Title 24, and California Fire Code into the LAMC to ensure that new development meets or exceeds statewide minimums. Ensure new development in VHFHSZs adheres to the California Building Code, the California Fire Code, Los Angeles Fire Code and California Public Resources Code. Facilitate compliance with new standards for existing non-conforming structures and evacuation routes.
- Policy 1.1.8 Land Use: Consider hazard information and available mitigations when making decisions about future land use. Maintain existing low density and open space designations in Very High Fire Hazard Severity Zones. Ensure mitigations are incorporated for new development in hazard areas such as VHFHSZs, landslide areas, flood zones and in other areas with limited adaptive capacity.

3.8.2.3.2 LAMC Building Code Chapter IX, Article I

LAMC Building Code Chapter IX, Article I contains extensive regulations for building within the City, incorporating the state CBC by reference. Some relevant sections are as follows:

- 91.1613.9. Seismic Design Provisions for Hillside Buildings establishes minimum regulations for the design and construction of new buildings and additions to existing buildings when constructing such buildings on or into slopes steeper than one unit vertical in three units horizontal (33.3%). These regulations establish minimum standards for seismic force resistance to reduce the risk of injury or loss of life in the event of earthquakes.
- 91.1803.1 requires geotechnical investigations in accordance with CBC Section 1801.
- 91.1803.5.6. Rock Strata. Where subsurface explorations at the project site indicate variations or doubtful characteristics in the structure of the rock upon which foundations are to be constructed, a sufficient number of borings shall be made to a depth of not less than 10 feet (3048 mm) below the level of the foundations and to a depth that would allow investigation of any unsupported bedding planes or any other rock discontinuities that could influence the foundation stability to provide assurance of the soundness of the foundation bed and its load-bearing capacity.

3.8.3 Impact Assessment

3.8.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to geology and soils. The Program would have a significant impact to geology and soils if the Program would:

a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
   ii. Strong seismic ground shaking.
   iii. Seismic-related ground failure, including liquefaction.
   iv. Landslides.

b. Result in substantial soil erosion or the loss of topsoil.
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

3.8.3.2 Methodology

Baseline information for the analysis was compiled from a review of data and reports published by state agencies, environmental documents for projects in the vicinity, as well as information compiled and evaluated by the City of Los Angeles related to local topography, geologic and soil conditions, and seismic hazards. The result of the effort is a general and qualitative analysis of the types of geologic hazards that could be expected relative to the implementation of the proposed Program. Independent of the CEQA process, there is a comprehensive regulatory framework implemented at the state and City levels to mitigate potential hazards associated with geologic and soil conditions. The design-controllable aspects of building foundation support, protection from seismic ground motion, and soil instability are governed by existing regulations. Compliance with these regulations is required, not optional. Project applicants must demonstrate the proposed project complies with these regulations by incorporating these regulations in the project's design before permits for project construction are issued. The analysis presented herein assumes compliance with all applicable laws, regulations, and standards, as part of the initial CEQA baseline and future conditions. In 2015, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management Distric*t (*CBIA v. BAAQMD*[32]), held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project. However, if a project exacerbates a condition in the existing environment, the lead agency is required to analyze the impact of that exacerbated condition on the environment, which may include future residents and users within the project area. The decision from *CBIA v. BAAQMD* will inform the analysis of CEQA Guidelines Appendix G thresholds provided above.

The identification of impacts is based on the potential for reasonably anticipated development from the proposed Program to create or exacerbate geologic or seismic hazards based on review of available

[32] California Supreme Court Docket number S213478, December 17, 2015.

information regarding the types of geologic and seismic hazards present in the City specifically as well as the types of reasonably anticipated development. The analysis focuses on whether or not new development would increase the potential for a particular hazard. Applicable regulations, such as the CBC, Los Angeles Building Code, and National Pollutant Discharge Elimination System (NPDES) General Construction Permit, are considered for the analysis of each potential impact.

The analysis of paleontological resources and unique geological features identifies the likelihood of ground-disturbing activities to encounter rock units with potential for containing significant paleontological resources, which is considered high in quaternary alluvial fan deposits exhibiting a composition conducive to the preservation of fossil resources. Paleontological resources in the Project Area were evaluated qualitatively based on general information about Project Area conditions. In the absence of an inventory of unique geological resources, the potential for such resources to be present and impacted is generally assessed.

3.8.3.3 Program

3.8.3.3.1 Upstream Measures

The Program upstream measures would not result in any construction or ground-disturbing activities. Therefore, they would not directly or indirectly cause potential substantial adverse effects, involving fault rupture, seismic ground shaking, liquefaction, or landslides; would not result in soil erosion or topsoil loss; would not be located on an unstable geologic unit or expansive soil; would not have soils incapable of supporting septic tanks; and would not destroy a unique paleontological resource or geologic feature. Therefore, the Program upstream measures would have ***no impact*** on geology and soils.

3.8.3.3.2 Downstream Measures

Impact Criterion a) Would the Program directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii. Strong seismic ground shaking?

iii. Seismic-related ground failure, including liquefaction?

iv. Landslides?

In light of the California Supreme Court ruling in *CBIA v. BAAQMD*, which held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project, the potential for substantial adverse effects on people or structures from the rupture of a known earthquake, strong seismic ground shaking, seismic-related ground failure (including liquefaction) or landslides, which would result from an existing environmental condition, would not be an impact under CEQA unless the proposed project exacerbated the existing environmental condition.

The type of development that would occur under the Program is typical of urban environments and would not involve mining operations, deep excavation into the Earth, or boring of large areas creating unstable seismic conditions or stresses in the earth's crust that would result in the rupture of a fault. The construction of downstream facilities would not increase development potential, or thereby potentially increase the number of people and structures exposed to seismic ground shaking or seismic related ground failure (including liquefaction or landslides). In addition, construction of downstream facilities would not cause or accelerate existing geologic hazards, including altering the underlying soil or groundwater characteristics that govern liquefaction or landslide potential, and replacement of older structures with new structures that comply with current seismic standards would generally improve seismic safety. While the potential future development of downstream facilities would not increase the risk of an earthquake, construction can have the effect of changing soil conditions that may increase the potential for landslide or liquefaction. Specifically, the City is located in a region of high potential for seismic activity, similar to most of southern California. All of Los Angeles is generally subject to large magnitude earthquakes and is located within Seismic Zone 4, designated as having the highest national seismic potential. As such, additional structures and people could be exposed to the potential effects of seismic ground shaking from regionally generated earthquakes with construction of new downstream facilities. However, reasonably anticipated development of downstream facilities would not increase the potential for earthquakes or otherwise exacerbate ground shaking potential in the area of the proposed project. Moreover, in certain instances, construction of new downstream facilities would replace older buildings subject to seismic damage with structures built to current seismic standards, which would decrease the risk of damage to people and structures.

Continued implementation of City regulations and requirements on all new development would minimize ground shaking hazards through requiring implementation of current geotechnical practices and compliance with CBC requirements, which include specific structural seismic safety provisions. As required by CBC Chapter 16 for the construction of new buildings or structures, specific engineering design and construction measures would be implemented to minimize the potential for adverse impacts to human life and property caused by seismically induced ground shaking. Chapter 33 of the CBC requires all new development to comply with specific geologic design parameters and geotechnical recommendations, which would be incorporated into individual development projects to minimize the potential for adverse impacts. In addition, Policy 1.1.6 of the Safety Element of the City General Plan encourages development to comply with applicable state and federal planning and development regulations, including the Alquist-Priolo Earthquake Fault Zoning Act and the Seismic Hazards Mapping Act. Compliance with applicable regulations and policies would minimize the risk of exposure to hazards associated with seismic ground shaking.

Future downstream facilities could be susceptible to liquefaction risk. However, construction in liquefaction zones would not increase liquefaction potential and new structures would be built to current/improved future building, structural, and seismic codes per the requirements of the CBC. Construction would comply with existing regulations, as included in Chapter 18 of the CBC, to ensure that building foundations are properly anchored and stabilized to withstand damage from potential liquefaction. All new construction in liquefaction-prone areas would be required to prepare a geotechnical report. Additionally, for properties with mapped maximum considered earthquake spectral response, as determined by CBC Section 1613, a liquefaction potential study of the property is required. Required compliance with the recommendations identified in the project-specific geotechnical evaluation, the Los Angeles Building Code, and any specific requirements established by LA Department of Building and Safety and/or the City's Engineer would ensure that future downstream facilities would not be exposed to substantial risks associated with liquefaction.

Strong ground motion can worsen existing unstable slope conditions, particularly if improper construction has already destabilized the underlying soil structure on hillslopes. Seismically-induced landslides can overrun structures, people, or property; sever utility lines; and block roads, thereby hindering rescue operations after an earthquake. Slope stability depends on many factors and their interrelationships. Rock type and pore water pressure are arguably the most important factors, as well as slope steepness due to natural or human-made undercutting. Where slopes have failed before, they may fail again. Compliance with CBC standards would require an assessment of landslide hazards and the incorporation of design measures into structures to mitigate these hazards. Also, any development on steep terrain would require site-specific slope stability design to ensure adherence to the standards contained in Appendix Chapter A33, Excavation and Grading, of the CBC, as well as California Division of Occupational Safety and Health (DOSH, CAL/OSHA) requirements for shoring and stabilization. Any development in areas susceptible to landslides would be required to implement site-specific measures that would generally reduce landslide potential and, as such, would not increase landslide hazards on adjacent properties.

Accordingly, implementation of the proposed Program would not exacerbate existing geologic hazards. Moreover, compliance with applicable regulations, as described above, for all new downstream facilities would achieve applicable seismic safety standards and thus reduce associated risks. In addition, future downstream facilities would not increase the potential for seismic related geological hazards and, in some cases, may reduce the potential for property damage and/or safety concerns by replacing older structures with new structures built to current seismic standards. Thus, impacts would be ***less than significant***.

In addition to the effect of the project on geological conditions provided above, this section also evaluates the potential for geological conditions to affect the new structures. While specific locations for downstream facilities have not been identified, there is a potential for facilities to be located in proximity to active faults or areas prone to liquefaction and landslides. Downstream facilities would employ dozens of workers, depending on the facility type and time of day, that could be exposed to risk. The Los Angeles Department of Building Safety requires fault investigations conducted by a qualified geologist for projects located within an official or preliminary Alquist-Priolo Earthquake Fault Zone and/or within a City of Los Angeles Preliminary Fault Rupture Study Area, which have been established along faults considered active within the City boundaries that the California Geological Survey has not yet zoned; including the Palos Verdes fault zone. The results of the investigations would be used to recommend a setback from active fault traces, with a default building setback of 50 feet. Site-specific geotechnical investigations conducted pursuant to the CBC and LAMC would ensure that the site is characterized and further structural design requirements, including setbacks would be identified during those investigations to further minimize potential seismic risk as necessary. Therefore, the impact of the downstream measures would be ***less than significant***.

Impact Criterion b) Would the Program result in substantial soil erosion or the loss of topsoil?

Any future downstream facility that requires grading would be required to comply with state and local water quality regulations designed to control erosion and protect water quality during construction. For activities that involve disturbance of one or more acres, this includes compliance with the requirements of the NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Construction General Permit Order 2009-0009-DWQ) to comply with CWA Section 402. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. The Construction General Permit requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which must include erosion and sediment control BMPs that would meet or exceed measures required by the Construction General Permit. Erosion control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap sediment once it has been mobilized. The Construction General Permit requires the SWPPP to include a menu of BMPs to be selected and implemented based on the phase of construction and the weather conditions to effectively control erosion and sediment. Compliance with state and county water quality regulations would ensure construction-related erosion impacts are ***less than significant***.

Impact Criterion c) Would the Program be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Impact Criterion d) Would the Program be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Future downstream facilities may be proposed in areas that contain unstable or expansive soils (shown in Figure 3.8-2), which could create a potentially significant impact due to risks to life and property. State and local building code regulations require that a site-specific geotechnical investigation be conducted prior to construction and that soil tests are required in areas likely to have expansive soil. Further design requirements may be identified during those investigations to minimize potential loss related to a facility being sited in an area prone to landslide, lateral spreading, liquefaction, or collapse or on unstable or expansive soils. Therefore, impacts to geological resources would be ***less than significant***.

Impact Criterion e) Would the Program have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

While the specific locations of potential downstream facilities are not known at this time, it is likely that a facility would be located in an area with a connection to the municipal wastewater system (i.e., sewer system). The geotechnical investigation would ensure that soil characteristics of the site are characterized and that the facilities are designed to support septic tank use in the unlikely event that one is needed. Therefore, impacts of downstream measures on geological resources impact criterion (e) would be ***less than significant***.

Impact Criterion f) Would the Program directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

This analysis assumes that potential downstream facilities would be constructed in industrial or commercial areas with previously disturbed soils. As noted above, there are numerous areas of the City with the potential to contain paleontological resources. In general, the potential for a specific development to result in negative impacts to paleontological resources is directly proportional to the amount of ground disturbance associated with the development; thus, the higher the amount of ground disturbances within geological units with a known paleontological sensitivity, the greater the potential for adverse impacts to paleontological resources. Development involving major building foundation construction and subsurface parking would have a high potential for major excavation that could impact subsurface resources. Since the future location of downstream facilities is currently unknown, there is potential for ground-disturbing activities and construction-related and earth-disturbing actions, could damage or destroy fossils in these geologic units, resulting in a potentially significant impact. The City would implement **MM GEO-1** to ensure that impacts to these sensitive resources would be ***less than significant with mitigation***.

MITIGATION MEASURE(S)

MM GEO-1: Paleontological Resources Protection Measures. For all discretionary projects that are excavating at least two subterranean levels below the ground surface, the following measures shall be conducted to identify and avoid potential impacts to such resources:

- **Retention of Qualified Paleontologist.** The project applicant shall retain a Qualified Paleontologist prior to excavations. The Qualified Paleontologist shall direct all mitigation measures related to paleontological resources. A qualified professional paleontologist is defined by the Society of Vertebrate Paleontology (SVP) standards (SVP 2010) as an individual preferably with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least two years (SVP 2010).
- **Paleontological WEAP.** Prior to the start of construction, the Qualified Paleontologist or their designee shall conduct a paleontological WEAP training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff.
- **Paleontological Monitoring**. Full-time paleontological monitoring shall be conducted during the initial phases of ground-disturbing construction activities (i.e., grading, trenching, foundation work) within sediments with a high paleontological sensitivity. Paleontological monitoring shall be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources and meets the minimum standards of the SVP (2010) for a Paleontological Resources Monitor. The duration and timing of the monitoring shall be determined by the Qualified Paleontologist based on the observation of the geologic setting from initial ground disturbance, and subject to the review and approval by the City of Los Angeles. If the Qualified Paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions once the full depth of excavations has been reached, they may recommend that monitoring be reduced to periodic spot-checking or ceased entirely. Monitoring

shall be reinstated if any new ground disturbances are required, and reduction or suspension shall be reconsidered by the Qualified Paleontologist at that time. In the event of a fossil discovery by the paleontological monitor or construction personnel, all work in the immediate vicinity of the find shall cease. A Qualified Paleontologist shall evaluate the find before restarting construction activity in the area. If it is determined that the fossil(s) is (are) scientifically significant, the Qualified Paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources:

- Salvage of Fossils. If fossils are discovered, the paleontological monitor shall have the authority to halt or temporarily divert construction equipment within 50 feet of the find until the monitor and/or lead paleontologist evaluate the discovery and determine if the fossil may be considered significant. Typically, fossils can be safely salvaged quickly by a single paleontologist and would not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. Bulk matrix sampling may be necessary to recover small invertebrates or microvertebrates from within paleontologically-sensitive deposits.
- Treatment of Paleontological Resources. Once salvaged, significant fossils shall be identified to the lowest possible taxonomic level, prepared to a curation-ready condition, and curated in a scientific institution with a permanent paleontological collection (such as the Natural History Museum of Los Angeles County), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the Qualified Paleontologist.

– **Final Paleontological Mitigation Report.** Upon completion of ground-disturbing activity (and curation of fossils, if necessary) the Qualified Paleontologist shall prepare a final report describing the results of the paleontological monitoring efforts associated with the project. The report shall include a summary of the field and laboratory methods, an overview of the project geology and paleontology, a list of taxa recovered (if any), an analysis of fossils recovered (if any) including their scientific significance, and recommendations. The report shall be submitted to the City of Los Angeles. If the monitoring efforts produced fossils, a copy of the report shall also be submitted to the designated museum repository.

– **Treatment of Paleontological Resources**. For discretionary projects, the City shall require that all paleontological resources identified on a project site be assessed and treated. A report shall be prepared according to current professional standards that describes the resource, how it was assessed, and disposition.

3.9 Greenhouse Gas Emissions

This section describes the existing GHG emissions of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on GHG emissions in the City. Table 3.9-1 summarizes impacts on GHG emissions that could result from implementation of the Program or alternatives.

Table 3.9-1. Summary of GHG Emissions Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None

3.9.1 Environmental Setting

3.9.1.1 Greenhouse Gas Global Warming Potential

GHGs are a set of compounds whose presence in the atmosphere is associated with the differential absorption of incoming solar radiation and outgoing radiation from the surface of the earth. GHGs, such as carbon dioxide, methane, nitrous oxide, and certain synthetic chemicals, trap some of the Earth's outgoing energy, thus retaining heat in the atmosphere. This heat trapping causes changes in the radiative balance of the Earth – the balance between energy received from the sun and emitted from Earth – that alter climate and weather patterns at global and regional scales (Intergovernmental Panel on Climate Change [IPCC] 2021). More specifically, GHGs strongly absorb the long-wave radiation emitted by the earth and hence are capable of warming the atmosphere. Regulated GHGs in California are CO_2, methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF_3). Other GHGs, such as water vapor, are not regulated.

In order to attempt to quantify the impact of specific GHGs, each gas is assigned a global warming potential (GWP). Individual GHG compounds have varying GWPs and atmospheric lifetimes. The GWP of a GHG is a measure of how much a given mass of a GHG is estimated to contribute to global warming, relative to CO_2, which is assigned a GWP of 1.0.

The GWP is used to determine the CO_2e mass of each GHG. The calculation of CO_2e is the accepted methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent reference gas, CO_2. For example, CH_4's GWP of 25 indicates that the global warming effect of CH_4 is 25 times greater than that of CO_2 on a unit mass basis. CO_2e is the mass emissions of an individual GHG multiplied by its GWP. The physical properties and sources of GHGs are described in Table 3.9-2.

Table 3.9-2. Global Warming Potential, Properties, and Sources for Selected GHGs

Pollutant	GWP	Description and Physical Properties	Sources
CO_2	1	CO_2 is an odorless, colorless, naturally occurring GHG.	CO_2 is emitted from natural and anthropogenic (human) sources. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
CH_4	25	CH_4 is an organic, colorless, naturally occurring, flammable gas. Its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years) compared to other GHGs.	CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropogenic sources include fossil fuel and biomass combustion, as well as landfilling and wastewater treatment.
N_2O	298	N_2O, also known as nitrous oxide and commonly referred to as “laughing gas,” is a colorless, nonflammable GHG. It is a powerful oxidizer and breaks down readily in the atmosphere.	Nitrous oxide is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, e.g., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars.
HFCs	92 - 14,900	HFCs are synthetic man-made chemicals that form one of the GHGs with the highest GWP.	HFCs are man-made for applications such as automobile air conditioners and refrigerants.
PFCs	6,288 - 17,700	PFCs are colorless, non-flammable, dense gases that have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years.	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.
SF_6	22,800	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Pollutant	GWP	Description and Physical Properties	Sources
NF_3	17,200	NF_3 is an inorganic, colorless, odorless, nonflammable gas.	NF_3 is used primarily in the plasma etching of silicon wafers.

Source: CARB 2023

There is growing concern about GHG emissions and their adverse impacts on the world's climate and environment. These concerns relate to the change in the average climate of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature.

Throughout history, climate has been changing due to forces unrelated to human activity, including solar energy input variation, volcanic activity, and changing concentrations of key atmospheric constituents such as CH_4 and CO_2. These climate changes resulted in ice ages and warm interglacial periods, accompanied by large differences in snow and ice cover and associated changes in ecological systems.

Large-scale combustion of fossil fuels (i.e., coal, oil, and natural gas) by humans beginning in the 19th century resulted in significant increases in emissions of CO_2 and emission of other compounds with high GWP. Multiple lines of evidence confirm that human activities are the primary cause of global warming of the past 50 years. Natural factors, such as variations in the sun's output, volcanic activity, the Earth's orbit, the carbon cycle, and others, also affect Earth's radiative balance. However, beginning in the late 1700s, the net global effect of human activities has been a continual increase in GHG concentrations (IPCC 2021).

3.9.1.2 GHG Emissions Inventory

Emissions inventories identify and quantify the primary human-generated sources and sinks of GHGs. This section summarizes information on global, national, and state GHG emissions inventories. CARB is responsible for developing the California GHG Emission Inventory. The GHG inventory estimates the volume of GHGs emitted to and removed from the atmosphere by human activities within California and supports the AB 32 Climate Change Program. CARB's current GHG emission inventory covers the years 2000 through 2020, and is based on fuel use, equipment activity, industrial processes, and other relevant data (e.g., housing, landfill activity, and agricultural land area).

- **Global Net Anthropogenic GHG Emissions.** Worldwide emissions of GHGs in 2019 totaled 59 billion ± 6.6 billion $MTCO_2e$ (IPCC 2022). Global estimates are based on country inventories developed as part of the programs of the United Nations Framework Convention on Climate Change (UNFCCC).
- **United States Emissions.** In 2019, the United States emitted approximately 6.5 billion $MTCO_2e$. Of the six major sectors – electric power industry, transportation, industry, agriculture, commercial, and residential – the electric power industry and transportation sectors combined account for approximately 55% of the GHG emissions. The majority of the electric power industry and all of the transportation emissions are generated from direct fossil fuel combustion (UNFCCC 2023).
- **State of California Emissions.** According to CARB emission inventory estimates, California emitted approximately 369.2 $MMTCO_2e$ emissions in 2020 (CARB 2022a). GHG emissions from the transportation and electricity sectors are approximately 36.8% and 16.1% of California's emission inventory, respectively. The industrial sector contributes approximately 19.9%. The remaining

sources of GHG emissions are high GWP gases at 5.8%, residential and commercial activities at 10.5%, agriculture at 8.6%, and recycling and waste at 2.4%.

3.9.1.3 Global Climate Change

“Global climate change” refers to change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms, lasting for decades or longer. The term “global climate change” is often used interchangeably with the term “global warming,” but “global climate change” is preferred by some scientists and policy makers to “global warming” because it helps convey the fact that in addition to rising temperatures, other changes in global climate may occur.

The likely range of total human-caused global surface temperature increase from 1850–1900 to 2010–2019 is 33.4°F to 34.3°F, with a best estimate of 33.9°F (IPCC 2021). GHGs were the main driver of tropospheric warming since 1979 and according to the IPCC, it is extremely likely that human-caused stratospheric ozone depletion was the main driver of cooling of the lower stratosphere between 1979 and the mid-1990s (IPCC 2021). Climate change modeling shows that further warming could occur, which could induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of California could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns or more energetic aspects of extreme weather (e.g., droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones). Specific effects from climate change in California may include a decline in the Sierra Nevada snowpack, erosion of California’s coastline, and seawater intrusion in coastal areas and in the Sacramento-San Joaquin River Delta. According to the 2006 California Climate Action Team Report, several climate change effects can be expected in California over the course of the next century (CalEPA 2006). These are based on trends established by the IPCC and downscaled for California and are summarized below:

- A diminishing Sierra Nevada snowpack declining by 70% to 90%, threatening the state’s water supply.
- A rise in sea levels, resulting in the displacement of coastal development. During the past century, sea levels along California’s coast have risen about 7 inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Sea level rises of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats.
- An increase in temperature and extreme weather events. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- Increased risk of large wildfires if rain increases as temperatures rise. Wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30% toward the end of the 21st century because more winter rain will stimulate the growth of more plant fuel available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90% more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.

- Increasing temperatures from 8 to 10.4°F under the higher emission scenarios, leading to a 25% to 35% increase in the number of days that ozone pollution levels are exceeded in most urban areas.
- Increased vulnerability of forests due to forest fires, pest infestation, and increased temperatures.
- Reductions in the quality and quantity of certain agricultural products. The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- Exacerbation of air quality problems. If temperatures rise to the medium warming range, there could be 75 to 85% more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.
- A decrease in the health and productivity of California's forests. Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.
- Increased electricity demand, particularly in the hot summer months.
- Increased ground-level ozone formation due to higher reaction rates of ozone precursors.

3.9.1.4 Existing Operations at Municipal Facilities

The City of Los Angeles Municipal GHG Inventory aggregates GHG emissions that occur from City operations as well as reductions made since the City's baseline year of 2008. It Includes historic data for emissions from 2017 through 2021 (City of Los Angeles 2023a). Total municipal emissions are those associated with the following local government sectors (in order of greatest to least annual GHG emissions):

- Power Generation Facilities
- Solid Waste Facilities
- Building and Other Facilities
- Vehicle Fleet
- Water Reclamation Facilities
- Airport Facilities
- Streetlights and Traffic Signals
- Water Delivery Facilities
- Transit Fleet
- Port Facilities.

In 2021, the total municipal GHG emissions were estimated at 7,530,111 $MTCO_2e$ with power generation representing the largest source of municipal emissions at 7,078,694 $MTCO_2e$, followed by solid waste facilities at 151,485 $MTCO_2e$ (City of Los Angeles 2023a). The solid waste sector includes emissions from the five closed landfills (Bishop Canyon, Gaffey Street, Lopez Canyon, Sheldon-Arleta, and Toyon Canyon) that are owned and operated by the City of Los Angeles. These landfills are closed and no longer accept solid waste; however, they still release fugitive emissions from the landfill gas collection system as well as stationary combustion emissions from the portion of landfill gas that is captured and burned. In 2021, the total GHG emissions for this sector of 151,485 $MTCO_2e$ represents a 23% decrease from the 2008 baseline levels of 196,440 $MTCO_2e$ (City of Los Angeles 2023a). Since the City's landfills are closed and no longer accepting waste, emissions are expected to continue to decrease every year. Additionally, Lopez Canyon Landfill utilizes the landfill gas collected to generate renewable energy.

The vehicle fleet sector accounts for emissions from on-road and off-road vehicles operated by the City, excluding the Los Angeles Department of Transportation's (LADOT) public transit fleet. In 2021, total vehicle fleet GHG emissions were estimated at 137,959 $MTCO_2e$ representing a 28% decrease from the 2008 baseline emissions for this sector of 191,292 $MTCO_2e$ (City of Los Angeles 2023a). The City has continued its efforts to reduce emissions from its mobile fleet. A major part of this reduction comes from decreasing consumption of traditional fuel sources, such as gasoline and diesel, and switching to more low-carbon fuels such as compressed natural gas. This includes the use of renewable natural gas (RNG). These emissions are expected to decrease as the City strives to achieve L.A.'s Green New Deal goal of converting all City fleet vehicles to zero emissions where technically feasible by 2028.

3.9.2 Regulatory Framework

3.9.2.1 Federal

3.9.2.1.1 Clean Air Act

The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency, 127 S. Ct. 1438 (2007)*, that CO_2 and other GHGs are pollutants under the CAA), which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. On December 7, 2009, the USEPA issued an "endangerment finding" under the CAA, concluding that current and projected GHG emissions threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG pollution (USEPA 2017). These findings provide the basis for adopting new national regulations to mandate GHG emission reductions under the federal CAA. The USEPA's endangerment finding paves the way for federal regulation of GHGs.

Under the Consolidated Appropriations Act of 2008 (House Resolution 2764), Congress established mandatory GHG reporting requirements for some emitters of GHGs. In addition, on September 22, 2009, the USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires annual reporting to the USEPA of GHG emissions from large sources and suppliers of GHGs, including facilities that emit 25,000 $MTCO_2e$ or more a year of GHGs.

3.9.2.1.2 Federal Vehicle Standards

In response to the *Massachusetts v. Environmental Protection Agency* ruling discussed above, the Bush Administration issued an Executive Order on May 14, 2007, directing the USEPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final environmental impact statement analyzing proposed interim standards for passenger cars and light trucks in model years 2011 through 2015. The NHTSA issued a final rule for model year 2011 on March 30, 2009 (NHTSA 2009).

On May 7, 2010, the USEPA and the NHTSA issued a final rule regulating fuel efficiency and GHGs from motor vehicles for passenger cars and light-duty trucks for model years 2012–2016 (USEPA and NHTSA 2010). On May 21, 2010, the President issued a memorandum to the Secretaries of Transportation and Energy, and the Administrators of the USEPA and the NHTSA calling for the establishment of additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure (Government Publishing Office 2010).

In response to this directive, USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal GHG and fuel economy standards for model year 2017-2025 light-duty vehicles (Government Publishing Office 2011). The agencies proposed standards projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. California has announced its support of this national program (CARB 2011). The final rule was adopted in October 2012 and NHSTA intends to set standards for model years 2022-2025 in future rulemaking (USEPA and NHTSA 2012; NHTSA 2012).

3.9.2.1.3 Heavy-Duty Engines and Vehicles Fuel Efficiency Standards

In addition to the regulations applicable to passenger cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which apply to vehicles from model years 2014 through 2018 (USEPA and NHTSA 2016). The USEPA and the NHTSA adopted standards for CO_2 emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: (1) combination tractors, (2) heavy-duty pickup trucks and vans, and (3) vocational vehicles. According to the USEPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 6 to 23%. In August 2018, the USEPA and NHTSA issued a proposed ruling to roll back some of the fuel economy and GHG standards for medium- and heavy-duty trucks. The new ruling proposed by the USEPA and NHTSA, the Safer Affordable Fuel-Efficient Vehicle Rules, would replace the Corporate Average Fuel Economy standards set for model year 2022-2025 passenger cars and light-duty trucks, while the 2021 model year vehicles will maintain the Corporate Average Fuel Economy standards. On September 27, 2019, USEPA and NHTSA published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (84 FR 51,310), which became effective November 26, 2019. Part One Rule revokes California’s authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. On March 31, 2020, the USEPA and NHTSA issued Part Two of the Safer Affordable Fuel-Efficient Rule, which went into effect 60 days after being published in the Federal Register. Part Two Rule sets CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026. This issue is evolving as California and 22 other states, as well as the District of Columbia and four cities, filed suit against the USEPA and a petition for reconsideration of the rule on November 26, 2019. The litigation is ongoing.

3.9.2.2 State

3.9.2.2.1 Executive Order S-3-05

On June 1, 2005, Executive Order S-3-05 set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80% below 1990 levels. It calls for the Secretary of CalEPA to be responsible for coordination of state agencies and progress reporting.

3.9.2.2.2 Executive Order B-30-15

In April 2015, Governor Edmund Brown issued an Executive Order establishing a statewide GHG reduction goal of 40% below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Executive Order S-03-05 goal of reducing statewide emissions 80% below 1990 levels by 2050. In addition, the Executive Order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40% below 1990 levels by 2030) that was adopted in October 2014.

3.9.2.2.3 Assembly Bill 32

In September 2006, the California Global Warming Solutions Act of 2006, also known as AB 32, was signed into law. AB 32 focuses on reducing GHG emissions in California and requires CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. CARB initially determined that the total statewide aggregated GHG 1990 emissions level and 2020 emissions limit was 427 MMT CO_2e. The 2020 target reduction was estimated to be 174 MMT CO_2e.

To achieve the goal, AB 32 mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved.

3.9.2.2.4 Assembly Bill 1279

AB 1279 was passed on September 16, 2022, and declares the state would achieve net zero GHG emissions as soon as possible, but no later than 2045. In addition, it declares the state would achieve and maintain net negative GHG emissions and ensure that by 2045, statewide anthropogenic GHG emissions are reduced to at least 85% below the 1990 levels. The bill would require updates to the scoping plan (once every 5 years) to implement various policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies.

3.9.2.2.5 Senate Bill 32

SB 32, signed September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

3.9.2.2.6 Senate Bill 1383

Approved by the governor in September 2016, SB 1383 requires CARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. SB 1383 requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40% below 2013 levels
- Hydrofluorocarbons – 40% below 2013 levels
- Anthropogenic black carbon – 50% below 2013 levels.

SB 1383 also requires CalRecycle, in consultation with CARB, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

3.9.2.2.7 CARB Scoping Plan

CARB adopted the 2017 Scoping Plan on December 14, 2017, in response to Executive Order B-30-15 and SB 32, which provides a framework for achieving the 2030 target. To meet reduction targets, the 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies, such as SB 350 and SB 1383 (see above). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. The 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of 6.0 $MTCO_2e$ by 2030 and 2.0 $MTCO_2e$ by 2050 (CARB 2017). The 2017 Scoping Plan in particular emphasized the importance of the role of local agencies in setting policies to reduce VMT through land use planning.

Local actions that reduce VMT are also necessary to meet transportation sector-specific goals and achieve the 2030 target under SB 32. In its evaluation of the role of the transportation system in meeting the statewide emissions targets, CARB determined that VMT reductions of 7% below projected VMT levels in 2030 (which includes currently adopted SB 375 Sustainable Communities Strategies) are necessary. In 2050, reductions of 15% below projected VMT levels are needed. A 7% VMT reduction translates to a reduction, on average, of 1.5 miles/person/day from projected levels in 2030. It is recommended that local governments consider policies to reduce VMT to help achieve these reductions, including land use and community design that reduces VMT; transit-oriented development; street design policies that prioritize transit, biking, and walking; and increasing low carbon mobility choices, including improved access to viable and affordable public transportation and active transportation opportunities.

In response to the passage of AB 1279 and the identification of the 2045 GHG reduction target, CARB published the Final 2022 Climate Change Scoping Plan in November 2022 (CARB 2022b). The 2022 Update builds upon the framework established by the 2008 Climate Change Scoping Plan and previous updates while identifying new, technologically feasible, cost-effective, and equity-focused paths to achieve California's climate target. The 2022 Update includes policies to achieve a significant reduction in fossil fuel combustion, further reductions in short-lived climate pollutants, support for sustainable development, increased action on natural and working lands to reduce emissions and sequester carbon, and the capture and storage of carbon.

In addition to reducing emissions from transportation, energy, and industrial sectors, the 2022 Update includes emissions and carbon sequestration in natural and working lands and explores how natural and working lands contribute to long-term climate goals. Under the Scoping Plan Scenario, California's 2030 emissions are anticipated to be 48% below 1990 levels, representing an acceleration of the current SB 32 target. Cap-and-Trade regulation continues to play a large factor in the reduction of near-term emissions for meeting the accelerated 2030 reduction target. Every sector of the economy will need to begin to transition in this decade to meet our GHG reduction goals and achieve carbon neutrality no later than 2045. The 2022 Update approaches decarbonization from two perspectives, managing a phasedown of existing energy sources and technologies, as well as increasing, developing, and deploying alternative clean energy sources and technology.

The Scoping Plan also identifies the strategies local agencies can take to help the state meet its goals. Specifically, the Scoping Plan identifies the following priority GHG reduction strategies for local agencies: VMT reduction, transportation electrification, and building decarbonization.

3.9.2.2.8 Title 24 Building Energy Efficiency Standards

CCR Title 24 is referred to as the California Building Standards Code. It consists of a compilation of several distinct standards and codes related to building construction, including plumbing, electrical, interior acoustics, energy efficiency, and accessibility for persons with physical and sensory disabilities. The California Building Standards Code's energy-efficiency and green building standards are outlined below. The 2022 California Buildings Standards Code (the most recent iteration of the code) was adopted by reference with applicable local amendments in LAMC (Ordinance No. 186,488) in August 2022. These standards are updated every 3 years and the Program will be subject to the 2022 California Building Standards as of January 1, 2023.

CCR Title 24, Part 6 is the Building Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. New construction and major renovations must demonstrate their compliance with the current California Energy Code through submittal and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission.

3.9.2.2.9 California Green Building Standards Code

The California Green Building Standards Code, referred to as CALGreen, was added to Title 24 as Part 11, first in 2009 as a voluntary code, which then became mandatory effective on January 1, 2011 (as part of the 2010 California Building Standards Code). The 2022 CALGreen includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures. It also includes voluntary tiers with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory CALGreen standards and may adopt additional amendments for stricter requirements. The mandatory standards applicable to air quality as they would pertain to the Program would require:

- Minimum 20% reduction in indoor water use relative to specified baseline levels;
- Waste Reduction:
  - Minimum 65% non-hazardous construction/demolition waste diverted from landfills;
  - Non-residential and multi-family dwellings with five or more units: Provide readily accessible areas identified for the depositing, storage, and collection of nonhazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastic, organic waste, and metals; and/or
  - Non-residential: Reuse and/or recycling of 100% of trees, stumps, rocks, and associated vegetation soils resulting from primary land clearing;
- Inspections of energy systems to ensure optimal working efficiency;
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards; and
- Electric Vehicle (EV) Charging for New Construction:
  - Non-residential land uses shall comply with the following EV charging requirements based on the number of passenger vehicle parking spaces:
  - 0-9: no EV capable spaces or charging stations required;
    - 10-25: 4 EV capable spaces but no charging stations required;
    - 26-50: 8 EV capable spaces of which 2 must be equipped with charging stations;
    - 51-75: 13 EV capable spaces of which 3 must be equipped with charging stations;
    - 76-100: 17 EV capable spaces of which 4 must be equipped with charging stations;
    - 101-150: 25 EV capable spaces of which 6 must be equipped with charging stations;
    - 151-200: 35 EV capable spaces of which 9 must be equipped with charging stations; and
    - More than 200: 20% of the total available parking spaces of which 25% must be equipped with charging stations;
  - Non-residential land uses shall comply with the following EV charging requirements for medium- and heavy-duty vehicles: warehouses, grocery stores, and retail stores with planned off-street loading spaces shall install EV supply and distribution equipment, spare raceway(s) or busway(s) and adequate capacity for transformer(s), service panel(s), or subpanel(s) at the time of construction based on the number of off-street loading spaces as indicated in Table 5.106.5.4.1 of the California Green Building Standards;
- Bicycle Parking:
  - Non-residential short-term bicycle parking for projects anticipated to generate visitor traffic: permanently anchored bicycle racks within 200 feet of visitor entrance for 5% of new visitor motorized vehicle parking spaces with a minimum of one 2-bike capacity rack; and/or

- Non-residential buildings with tenant spaces of 10 or more employees/tenant-occupants: secure bicycle parking for 5% of the employee/tenant-occupant vehicle parking spaces with a minimum of one bicycle parking facility.

– Shade Trees (Non-Residential):

- Surface parking: minimum No. 10 container size or equal shall be installed to provide shade over 50% of the parking within 15 years (unless parking area covered by appropriate shade structures and/or solar);
- Landscape areas: minimum No. 10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years; and/or
- Hardscape areas: minimum No. 10 container size or equal shall be installed to provide shade of 20% of the landscape area within 15 years (unless covered by applicable shade structures and/or solar or the marked area is for organized sports activities).

3.9.2.3 Local

3.9.2.3.1 SCAQMD Policies

SCAQMD adopted a "Policy on Global Warming and Stratospheric Ozone Depletion" on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the AQMP. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy.

SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds. Most recently, in September 2010, SCAQMD proposed a tiered efficiency target approach to evaluate potential GHG impacts from various uses. This tiered approach allowed for flexibility when analyzing GHG emissions based on project size, land use type, or other characteristics. The various tiers include: (1) potential CEQA exemptions for certain projects; (2) compliance with a qualified GHG reduction strategy; (3) comparison with separate screening level thresholds for industrial (10,000 $MTCO_2e$/year), commercial (1,400 $MTCO_2e$/year), residential (3,500 $MTCO_2e$/year), and mixed-use (3,000 $MTCO_2e$/year) projects or comparison against a single numerical screening threshold of 3,000 $MTCO_2e$/year for all non-industrial projects; (4) consistency with compliance options, including a performance-based reduction analysis (i.e., compare with a Business-as-Usual level), compliance with AB 32, and/or comparison with efficiency-based thresholds (i.e., quantitative thresholds that are based on a per capita efficiency metric; 4.8 $MTCO_2e$/service population/year for project-level analysis and 6.6 $MTCO_2e$/service population/year for plan level analysis relative to the 2020 target date under AB 32); and/or (5) implement off-site mitigation to reduce GHG emission impacts to a less-than-significant level. The draft GHG guidance is included as part of the periodic updates to SCAQMD's Air Quality Handbook; however, the SCAQMD draft interim guidance was never officially adopted, and the proposed thresholds were not designed for versatile application to unique project types such as the Program. These proposed targets have also not been adopted by the SCAQMD or distributed for widespread public review and comment, and the GHG CEQA Significance Threshold Working Group tasked with developing the targets has not met since September 2010.

3.9.2.3.2 Southern California Association of Governments – 2020-2045 RTP/SCS

SCAG functions as the Metropolitan Planning Organization for six counties, including Los Angeles County, wherein the project site is located. As the designated Metropolitan Planning Organization, SCAG is required by federal law to prepare and update a long-range regional transportation plan, keep up with CAA requirements, monitor system performance, and develop SCS to achieve GHG reduction targets set by the CARB.

On September 1, 2020, SCAG's Regional Council adopted an updated RTP/ SCS also known as Connect SoCal (SCAG 2020). The 2020-2045 RTP/SCS is a long-range visioning plan that builds upon and expands land use and transportation strategies of the 2016-2040 RTP/SCS to increase mobility options and achieve a more sustainable growth pattern. The 2020-2045 RTP/SCS projects growth in employment, population, and households at the regional, county, city, town, and neighborhood levels. These projections take into account economic and demographic trends, as well feedback from SCAG's jurisdictions. The 2020-2045 RTP/SCS "Core Vision" centers on maintaining and better managing the transportation network for moving people and goods, while expanding mobility choices by locating housing, jobs, and transit closer together and increasing investment in transit and complete streets. The 2020-2045 RTP/SCS continues efforts to better align transportation investments and land use decisions to improve mobility and reduce GHGs by bringing housing, jobs, and transit closer together. SCAG has determined that the 2020-2045 RTP/SCS would achieve the applicable GHG emissions reduction target for automobiles and light-duty trucks of 19% per capita reduction by 2035, relative to 2005 levels, as established by CARB for the region.

3.9.2.3.3 GreenLA Climate Action Plan

The City of Los Angeles has issued guidance promoting sustainable development to reduce GHG emissions citywide in the form of a Climate Action Plan. The objective of GreenLA is to reduce GHG emissions 35% below 1990 levels by 2030 (City of Los Angeles 2007). GreenLA identifies goals and actions designed to make the City a leader in confronting global climate change. The measures would reduce emissions directly from municipal facilities and operations and create a framework to address citywide GHG emissions. GreenLA lists various focus areas in which to implement GHG reduction strategies. Focus areas include energy, water, transportation, land use, waste and recycling, port, airport, and ensuring that changes to the local climate are incorporated into planning and building decisions.

3.9.2.3.4 Sustainable City pLAn (pLAn)

In addition to GreenLA, Mayor Eric Garcetti released Los Angeles's first-ever pLAn on April 8, 2015 (City of Los Angeles 2015). The pLAn is a roadmap to achieving short-term results and sets a path to strengthen and transform the City in future decades. Recognizing the risks posed by climate change, Mayor Garcetti set time-bound outcomes on climate action, most notably to reduce GHG emissions by 45% by 2025, 60% by 2035, and 80% by 2050, all against a 1990 baseline. Through the completion and verification of the GHG inventory update, the City concluded that:

- The City accounted for approximately 36.2 MMT CO_2e in 1990.
- Emissions fell to 29 MMT CO_2e in 2013.

- Los Angeles' emissions are 20% below the 1990 baseline as of 2013, putting Los Angeles nearly halfway to the 2025 pLAn reduction target of 45%. In addition, the 20% reduction exceeds the 15% statewide goal listed in the First Update to the AB 32 Scoping Plan.

3.9.2.3.5 L.A.'s Green New Deal

The City of Los Angeles addressed the issue of global climate change in Green LA, An Action Plan to Lead the Nation in Fighting Global Warming ("LA Green Plan/ClimateLA") in 2007. This document outlines the goals and actions the City has established to reduce the generation and emission of GHGs from both public and private activities.

In April 2019, L.A.'s Green New Deal (Sustainable City pLAn 2019), was released, consisting of a program of actions designed to create sustainability-based performance targets through 2050 designed to advance economic, environmental, and equity objectives (City of Los Angeles 2019). L.A.'s Green New Deal is the first four-year update to the City's first Sustainable City pLAn that was released in 2015. It augments, expands, and elaborates L.A.'s vision for a sustainable future and tackles the climate emergency with accelerated targets and new aggressive goals.

While not a plan adopted solely to reduce GHG emissions, within L.A.'s Green New Deal, "Climate Mitigation," or reduction of GHG is one of eight explicit benefits that help define its strategies and goals. These include reducing GHG emissions through near-term outcomes:

- Reduce potable water use per capita by 22.5% by 2025; 25% by 2035; and maintain or reduce 2035 per capita water use through 2050.
- Reduce building energy use per square feet for all building types 22% by 2025; 34% by 2035; and 44% by 2050 (from a baseline of 68 mBTU/ft^2 in 2015).
- All new buildings will be net zero carbon by 2030 and 100% of buildings will be net zero carbon by 2050.
- Increase cumulative new housing unit construction to 150,000 by 2025; and 275,000 units by 2035.
- Ensure 57% of new housing units are built within 1,500 feet of transit by 2025; and 75% by 2035.
- Increase the percentage of all trips made by walking, biking, micro-mobility/matched rides, or transit to at least 35% by 2025, 50% by 2035, and maintain at least 50% by 2050.
- Reduce VMT per capita by at least 13% by 2025; 39% by 2035; and 45% by 2050.
- Increase the percentage of electric and zero-emission vehicles in the city to 25% by 2025; 80% by 2035; and 100% by 2050.
- Increase landfill diversion rate to 90% by 2025; 95% by 2035 and 100% by 2050.
- Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028 (from a baseline of 17.85 lbs of waste generated per capita per day in 2011).
- Eliminate organic waste going to landfill by 2028.
- Reduce urban/rural temperature differential by at least 1.7 degrees by 2025; and 3 degrees by 2035.

- Ensure the proportion of Angelenos living within 1/2 mile of a park or open space is at least 65% by 2025; 75% by 2035; and 100% by 2050.

3.9.2.3.6 Green Building Program

The purpose of the City's Green Building Program is to reduce the use of natural resources, create healthier living environments and minimize the negative impacts of development on local, regional, and global ecosystems. The program consists of a Standard of Sustainability and Standard of Sustainable Excellence. The program addresses five key areas:

- Site: location, site planning, landscaping, stormwater management, and construction and demolition recycling;
- Water Efficiency: efficient fixtures, wastewater reuse, and efficient irrigation;
- Energy & Atmosphere: energy efficiency, and clean/renewable energy;
- Materials & Resources: materials reuse, efficient building systems, and use of recycled and rapidly renewable materials; and
- Indoor Environmental Quality: improved indoor air quality, increased natural lighting, and improved thermal comfort/control.

The Standard of Sustainability establishes a requirement for non-residential projects at or above 50,000 square feet of floor area, high-rise residential (above six stories) projects at or above 50,000 square feet of floor area, or low-rise residential (six stories or less) of 50 or more dwelling units within buildings of at least 50,000 square feet of floor area to meet the intent of the U.S. Green Building Council's Leadership in Energy and Environmental Design Certified level. The Standard also applies to existing buildings that meet the minimum thresholds described above when redevelopment construction costs exceed a valuation of 50% of the existing building’s replacement cost. The Green Building Program establishes the Green Building Team to hold public meetings and address technical issues, to review and suggest modifications to the LAMC, to oversee the Standards of Sustainability and Sustainable Excellence, and to establish and maintain City staff education and an educational public outreach program.

3.9.2.3.7 Los Angeles Green Building Code

The City has adopted the Green Building Code to reduce the City's carbon footprint. The Green Building Code is applicable to new buildings and alterations with building valuations over $200,000 (residential and non-residential). The Green Building Code is based on the 2013 California Green Building Standards Code, commonly known as CALGreen that was developed and mandated by the state to attain consistency among the various jurisdictions within the state; reduce the building's ’energy and water use; and reduce waste (see discussion of CALGreen, above).

3.9.2.3.8 City of Los Angeles General Plan

The City of Los Angeles does not have a General Plan Element specific to Global Warming and GHG emissions. However, the following goals and objectives from the Air Quality Element of the City of Los Angeles General Plan would also serve to reduce GHG emissions:

Goal 2: Less reliance on single-occupant vehicles with fewer commute and non-work trips.

- Objective 2.1: Reduce work trips as a step towards attaining trip reduction objectives necessary to achieve regional air quality goals.
- Objective 2.2: Increase vehicle occupancy for non-work trips by creating disincentives for single passenger vehicles, and incentives for high occupancy vehicles.

Goal 4: Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality.

- Objective 4.2: Reduce vehicle trips and vehicle miles traveled associated with land use patterns.

Goal 5: Energy Efficiency through land use and transportation planning, the use of renewable resources and less-polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting.

- Objective 5.1: Increase energy efficiency of City facilities and private developments.

3.9.2.3.9 Mobility Plan 2035

Mobility Plan 2035, updated in September 2016, serves as the Mobility Element of the General Plan. Mobility Plan 2035 establishes new street designations, classifies each of the City's arterial streets and incorporates a "complete street" policy framework (i.e., the idea that transportation facilities should be designed for all types of users, including pedestrians, cyclists, and trucks, as well as passenger vehicles), thus providing a foundation for future policies and principles promoting residents' interaction with their streets. Mobility Plan 2035 also promotes equitable land use decisions that result in fewer vehicle trips by providing greater proximity and access to jobs, destinations, and other neighborhood services. The Mobility Element sets a goal to reduce VMT 20% by 2035.

3.9.2.3.10 City of Los Angeles Solid Waste Programs and Ordinances

In 1989, California enacted AB 939, the California Integrated Waste Management Act, which establishes a hierarchy for waste management practices such as source reduction, recycling, and environmentally safe land disposal. The goal of the mandatory recycling measure is to reduce GHG emission through waste diversion. The RENEW LA Plan aims to achieve a zero waste goal through reducing, reusing, recycling, or converting the resources not going to disposal and achieving a diversion rate of 90% or more by 2025. The City has also approved the Waste Hauler Permit Program (Ordinance No. 181,519, LAMC Chapter VI, Article 6, Section 66.32-66.32.5), which requires private waste haulers to obtain AB 939 Compliance Permits to transport construction and demolition waste to City-certified construction and demolition waste processors. The City's Exclusive Franchise System Ordinance (Ordinance No. 182,986), among other requirements, sets a maximum annual disposal level and diversion requirements for franchised waste haulers to promote waste diversion from landfills and support the City's zero waste goals. These programs reduce the number of trips to haul solid waste and therefore reduce the number of petroleum-based fuels and energy used to process solid waste.

3.9.3 Impact Assessment

3.9.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to GHG emissions. The Program would have a significant impact to GHG emissions if the Program would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

To answer the CEQA Guidelines Appendix G questions above for the implementation of the Program, this analysis will rely on the following thresholds of significance, as presented in the draft interim guidance from SCAQMD (2010) to assess the environmental impacts associated with GHG emissions for the proposed Program:

- Generate net new GHG emissions exceeding 6.0 $MTCO_2e$ per capita per year by 2030 or 2.0 $MTCO_2e$ per capita per year by 2050 (as applicable to upstream measures);
- Generate net new GHG emissions exceeding 10,000 $MTCO_2e$/year (as applicable to downstream measures); or
- Conflict with (and thereby be inconsistent with) the applicable regulatory plans and policies to reduce GHG emissions, which include the emissions reduction measures included within the City's GreenLA Climate Action Plan, L.A.'s Green New Deal, Green Building Code, and the General Plan; SCAG's 2016-2040 RTP/SCS; AB/SB 32 and SB 375; the OPR and Climate Action Team recommendations; and CARB's Climate Change Scoping Plan.

For GHG emissions and global warming, there is not, at this time, one established, universally agreed-upon quantified threshold of significance for GHG impacts. The CEQA Guidelines do not establish a quantified threshold of significance for GHG impacts. Instead, lead agencies have the discretion to establish significance thresholds for their respective jurisdictions. A lead agency may look to thresholds developed by other public agencies or other expert entities, so long as the threshold chosen is supported by substantial evidence. The City has not adopted specific GHG significance thresholds. SCAQMD has not adopted a GHG significance threshold for land use development projects, although it has adopted significance thresholds for industrial-type projects for which it is the lead agency (SCAQMD 2010). Those industrial thresholds are not relevant to the proposed Program upstream measures, although they may be applicable to downstream measures, as the only projects for which the SCAQMD serves as the lead agency are those involving the adoption of air quality rules or regulations, or projects that have not gone through CEQA environmental review via another lead agency. In the absence of adopted thresholds for land use development projects based on SCAQMD guidance, the City has the discretion to use a significance threshold relevant to the proposed Program.

On November 30, 2015, the California Supreme Court issued an opinion on GHG significance thresholds for CEQA in the case *Center for Biological Diversity et al. vs. California Department of Fish and Wildlife*.

The following discussion is paraphrased from that case, which assessed the use of GHG significance thresholds.

The Court stated that California air pollution control officials and air quality districts have made several proposals for numerical thresholds. Multiple agencies' efforts at framing GHG significance issues have not yet coalesced into any widely accepted set of numerical thresholds but have produced a certain level of consensus on the value of AB 32 consistency as a criterion. Neither AB 32 nor the CARB Scoping Plan set out a mandate or method for CEQA analysis of GHG emissions from a proposed project. A 2007 CEQA amendment, however, required the preparation, adoption, and periodic update of guidelines for mitigation of GHG impacts. The resulting state direction was that a lead agency should attempt to describe, calculate, or estimate the amount of GHG emissions a project would emit, but recognized that agencies have discretion in how to do so. It goes on to provide that when assessing the significance of GHG emissions, the agency should consider these factors among others: (1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The Court also acknowledged that the scope of global climate change and the fact that GHGs, once released into the atmosphere, are not contained in the local area of their emission means that the impacts to be evaluated are global rather than local. For many air pollutants, the significance of their environmental impact may depend greatly on where they are emitted; for GHG, it does not. For projects that are designed to accommodate long-term growth in California's population and economic activity in a sustainable manner, such as the proposed Program, this fact gives rise to an argument that a certain amount of GHG emissions is as inevitable as population growth. Under this view, a significance criterion framed in terms of efficiency and conservation in land use (as compared to a business-as-usual pattern of growth) is superior to a simple numerical threshold because CEQA is not intended as a population control measure.

This consideration favors consistency with AB 32's statewide goals as a permissible significance criterion for project GHG emissions. Meeting statewide reduction goals does not preclude all new development. Rather, the Scoping Plan, the State's roadmap for meeting AB 32's target, assumes continued growth and depends on increased efficiency and conservation in land use and transportation from all Californians. To the extent a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall GHG reductions necessary for the entire state, one can reasonably argue that its impact is not cumulatively considerable, because it would be helping to solve the cumulative problem of GHG emissions as envisioned by California law. Given the reality of growth, some GHG emissions from new housing and commercial developments are inevitable. The critical CEQA question is the cumulative significance of a project's GHG emissions and, as discussed previously, from a climate change point of view it does not matter where in the state those emissions are produced. Under these circumstances, evaluating the significance of a project's GHG emissions with respect to their effect on the state's efforts to meet its long-term goals is a reasonable threshold.

The Court found there are potential options for analyzing cumulative significance of a project's GHG emissions, including:

- Business-as-usual Model. Business-as-usual comparison may be conducted based on the Scoping Plan methodology if supported by substantial evidence that the metric used supports what level of reduction a new land use development at the proposed location would contribute from business-as-usual to comply with state goals.
- Consistency with AB 32's goal in whole or in part may be demonstrated by looking at compliance with regulatory programs designed to reduce GHG; provided the project complies with or exceeds the regulations that were adopted by CARB, or state agencies to comply with Scoping Plan; and provided, the significance analysis only relates to impacts within the area governed by the regulation – e.g., reliance on Title 24 energy efficiency rules that are intended to reduce GHG from building would not address GHG impacts from transportation; and/or showing consistency with local GHG reduction plans, (e.g., climate action plan), to provide a basis for the tiering or streamlining of project-level CEQA analysis, including as consistent with CEQA Guidelines Section 15183.3.
- Relying on numerical thresholds for significance for GHG.

CEQA Guidelines Section 15064.4 was amended in 2019 to incorporate the holding in Center for Biological Diversity case as well as others. That section now directs lead agencies as follows:

> Section 15064.4. Determining the Significance of Impacts from Greenhouse Gas Emissions.
>
> (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:
>
> (1) Quantify greenhouse gas emissions resulting from a project; and/or
>
> (2) Rely on a qualitative analysis or performance-based standards.
>
> (b) In determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. A lead agency should consider the following factors, among others, when determining the significance of impacts from greenhouse gas emissions on the environment:

> (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
>
> (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
>
> (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (see, e.g., Section 15183.5(b)). Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.
>
> (c) A lead agency may use a model or methodology to estimate greenhouse gas emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision-makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use.

Based on the above legal standards, analyzing the Project's GHG emissions through consistency with the state's laws and programs to address climate change, including AB 32, SB 32, SB 375, 2022 Scoping Plan, regional plans to address climate change consistent with state laws and plans, including the 2020-2045 RTP/SCS, and local plans, ordinances and policies to address climate change, including GreenLA Climate Action Plan and L.A.'s Green New Deal, is an appropriate threshold. Calculating and analyzing per capita GHG emissions, is a useful indicator as to whether regional GHG impacts are consistent with the 2022 Scoping Plan, AB 32, and SB 32. Per capita GHG emissions reflect on average GHG emissions taking into account population density. The 2020-2045 RTP/SCS indicates that the SCAG region will achieve a 19% reduction in per capita passenger vehicle GHG emissions by 2035 relative to 2005 levels. With that said, while the City completed a Climate Action Plan in 2007, this Climate Action Plan does not qualify for tiering under CEQA (specifically, State CEQA Guidelines Section 15183.5) because the Climate Action Plan has not undergone CEQA review per the tiering requirements from CEQA Guidelines Section 15183.5. Therefore, the Program-specific analysis herein cannot rely on a qualitative tiering analysis with the City's Climate Action Plan. Using consistency with AB 32's statewide goal for GHG reduction, among the other regulations, standards, and policies, rather than a numerical threshold, as a significance criterion is also consistent with the broad guidance provided by CEQA Guidelines Section 15064.4. Section 15064.4 was drafted to reflect that there is no iron-clad definition of significance. CEQA Guidelines Section 15064.4 was not intended to restrict agency discretion in choosing a method for assessing GHG emissions, but rather to assist lead agencies in investigating and disclosing all that they reasonably can, regarding a project's GHG emissions impact.

Further, while no numeric thresholds have officially been adopted, as detailed in Section 3.9.2.3.1 (SCAQMD Policies), the SCAQMD has been evaluating GHG significance thresholds since April 2008. Most recently, in September 2010, SCAQMD proposed a tiered efficiency target approach to evaluate potential GHG impacts from various uses. This tiered approach allowed for flexibility when analyzing GHG emissions based on project size, land use type, or other characteristics. The various tiers include: (1) potential CEQA exemptions for certain projects; (2) compliance with a qualified GHG reduction strategy; (3) comparison with separate screening level thresholds for industrial (10,000 $MTCO_2e$/year), commercial (1,400 $MTCO_2e$/year), residential (3,500 $MTCO_2e$/year), and mixed-use (3,000 $MTCO_2e$/year) projects or comparison against a single numerical screening threshold of 3,000 $MTCO_2e$/year for all non-industrial projects; (4) consistency with compliance options, including a performance-based reduction analysis (i.e., compare with a Business-as-Usual level), compliance with AB 32, and/or comparison with efficiency-based thresholds (i.e., quantitative thresholds that are based on a per capita efficiency metric); and/or (5) implement off-site mitigation to reduce GHG emission impacts to a less-than-significant level. The draft GHG guidance is included as part of the periodic updates to SCAQMD's Air Quality Handbook; however, the SCAQMD draft interim guidance was never officially adopted, and the proposed thresholds were not designed for versatile application to unique project types such as the proposed Program. These proposed targets have also not been adopted by the SCAQMD or distributed for widespread public review and comment, and the working group tasked with developing the targets has not met since September 2010.

Additionally, the efficiency targets proposed under SCAQMD's Tier 4 threshold are no longer applicable as they were specific to outdated AB 32 goals and do not consider the recently adopted 2030 GHG reduction targets contained in SB 32 and EO B-30-15. Instead, the 2017 Climate Change Scoping Plan was approved by CARB on December 14, 2017, and sets the state on a course to reduce GHG emissions an additional 40% below 1990 levels by 2030 under SB 32 (CARB 2017). Under the 2017 Climate Scoping Plan, the CARB recommends statewide efficiency targets of no more than 6.0 $MTCO_2e$/service population/year by 2030 and no more than 2.0 $MTCO_2e$/service population/year by 2050; however, it is important to note that these efficiency targets are intended to apply to the sum of all sectors and are not appropriate for evaluating GHG emissions specific to the land use sector. In light of these available numeric threshold concepts recommended by expert agencies, for the purposes of this CEQA analysis, a project's contribution to cumulative impacts to global climate change would be considered significant if the proposed Program would exceed these numeric thresholds as applicable to the proposed Program (i.e., per capita thresholds are more relevant to the upstream measures, whereas the 10,000 $MTCO_2e$/year threshold for industrial projects would only be applicable to downstream facilities).

3.9.3.2 Methodology

3.9.3.2.1 Upstream Measures

The impact analysis of bans on certain types of plastics focuses on the alternative materials that replace the banned material. LCA is a widely used tool for measuring and comparing the environmental impacts of products, processes, and services through their entire life cycle from raw material extraction, through the manufacturing process, to the end-of-life of a product. The results of an LCA can provide concrete numbers for specific environmental attributes, such as the amount of water or energy used in the production process. In the context of this PEIR, LCAs can be used to better understand the environmental impacts of material replacement behavior, including reuse and recycling, by accounting for the inputs and outputs of materials, energy, and emissions throughout the life cycle stages.

Pursuant to CEQA Guidelines 15145, CEQA guidance currently does not require life cycle analysis of energy and GHG emissions since the term is not well defined and too speculative, and the OPR removed the term "lifecycle" from CEQA Guidelines in 2010 (California Natural Resources Agency 2009). Generally, production of goods is usually too far removed from use to attribute responsibility for upstream emissions to an individual project, and the supply chain for each of the thousands of products consumed is often complex and can vary with time. Market conditions are speculative but also play a large part in LCA: plants open and close, mines play out, resources are substituted, manufacturing techniques change, new products are introduced, and technologies advance. Finally, production facilities for alternative materials are often not new impacts but part of the existing conditions. Despite LCAs being inherently speculative and not required to be used in CEQA analysis, this PEIR summarizes the findings from published LCAs for the purpose of providing context in the analysis of GHGs with the goal of identifying and avoiding unanticipated consequences of alternative materials. Additional methodologies include estimates for the relative change in local vehicle trips and VMT presented in Section 3.18, Transportation, resulting from shifts in materials and waste management and/or reuse practices.

3.9.3.2.2 Downstream Measures

GHG emissions result from both direct and indirect sources. Direct emissions include emissions from fuel combustion in vehicles and natural gas combustion from stationary sources. Indirect sources include off-site emissions occurring as a result of electricity and water consumption and solid waste. In addition, construction activities would result in direct and indirect emissions.

Although no specific development projects have been proposed as part of the proposed Program, GHG emissions associated with construction and operation activities were forecasted for a comparative analysis using the CalEEMod Version 2022.1.1.18. Methodologies, assumptions, and inputs to the CalEEMod model are the same as those described for the analysis of criteria pollutants described in Section 3.4.3.2. In summary, the CalEEMod model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. Mobile source emissions were estimated using VMT data presented in Tables 3.18-5 and 3.18-6 provided in Section 3.18, Transportation. GHG emissions result from the energy used to supply, distribute, and treat water and wastewater, as well as from methane and CO_2 gas is emitted as a result of solid waste disposal by landfilling, recycling, or composting. Area source emissions related to operational demand for water, wastewater treatment and conveyance, solid waste disposal, and energy were obtained based on CalEEMod for the defined land use (refer to Table 3.7-5 provided in Section 3.7, Energy). For the advanced thermal recycling technology, a 1 million BTU per hour gas-fired boiler/process heater was included as a stationary source, operating 24 hours per day. For the non-combustion thermal technology facility, a 1 million BTU per hour synthesis gas fired internal combustion engine-generator was included as a stationary source, also operating 24 hours per day (emission calculation spreadsheets are provided in Appendix C). Note that the energy use estimates generated in CalEEMod are conservative since they do not account for potential energy efficiency measures required by subsequent Title 24 updates in 2022, 2025, and 2028. Electricity emissions are calculated by multiplying the energy use by the carbon intensity of the utility district per kilowatt hour (CAPCOA 2022). The downstream facilities would be served by LADWP. Therefore, LADWP's specific energy intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kWh) are used in the calculations of GHG emissions. The energy intensity factors included in CalEEMod are based on 2019 data. Per SB 100, the statewide RPS Program requires electricity providers to increase procurement from eligible renewable energy sources to 60% by 2030; interim procurement targets are 44% by 2024 and 52% by 2027. As of 2020, LADWP procured 37% of its electricity from renewable sources (LADWP 2022).

3.9.3.3 Program

3.9.3.3.1 Upstream Measures

Impact Criterion a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact Criterion b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

GHG impacts associated with the implementation of the upstream Program policies and programs are primarily related to the transition to alternative materials along with the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. Table 3.9-3 provides the results of an analysis of potential impacts that could result from implementation of the upstream policies and programs associated with the Program relative to GHGs. As shown in Table 3.9-3, many of the policies and programs associated with the Program would not result in a change in GHG emissions while others may result in a shift in materials disposed as municipal solid waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific calculation of direct GHG emissions cannot be conducted. However, as discussed in detail below, the nature of these policies is such that they would not generate GHGs, either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Table 3.9-3. Analysis of Upstream Measures - GHG Impacts

Measure	GHG Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Implementation of a ban on single-use plastic water bottles would increase the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, and non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. Use of alternative single-use materials could result in an increase in life cycle GHG emissions. However, an increase in use of personal reusable water bottles filled at home, work, or refill stations would offset the increase in life cycle GHGs associated with replacement of plastic with other container materials. The relative increase in life cycle emissions associated with alternative container materials would not have the potential to increase per capita GHG emissions above the statewide per capita goal of 6.0 $MTCO_2e$ by 2030 and 2.0 $MTCO_2e$ by 2050 (CARB 2017). Accordingly, the ban of single-use plastic water bottles would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHGs. As such, impacts would be less than significant. *This impact is discussed in further detail below.*	Less than Significant
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets and certain jugs be refillable would encourage reuse and refilling of products in the provided refillable containers. The materials used for these refillable containers are assumed to not be significantly different than the containers that are currently used for these products but instead could be refilled at the retailer via bulk dispensing stations. Therefore, this policy is not likely to alter the shipping requirements from the manufacturer or distribution to the retailer except that 25% of the product would be shipped in bulk containers, rather than individually packaged products. Similarly, consumers are assumed to continue to either purchase products in the reusable containers or would participate in product refill programs. Under the refill scenario, consumer trips to the retailer would not change as a result of this policy under the assumption that consumers would return with the empty containers to be refilled at the same retailer that they would have otherwise purchased single-use packaged items. With respect to end-of-life transportation requirements, this policy would lead to a decrease in the use and disposal of single-use packaging which would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. As such, implementation of a requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets would not increase VMT as compared with products in single-use packaging. With respect to life cycle GHG emissions, in general the GHGs associated with the production phase are evenly distributed through the number of uses for the reusable packaging. However, the GHGs associated with washing of the containers are present in every use. In general, studies show that reusable packaging should be used at least 10 to 15 times to have a smaller impact than single-use packaging (ZWE 2020b). An LCA comparing HDPE single-use and refillable HDPE liquid detergent containers indicates that GHGs would be less for refillable containers than single-use containers after two uses (Nessi et al. 2014). Accordingly, increasing the use of refillable containers compared with single-use packaging would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment and would not conflict with an applicable plan, policy, or regulation	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	adopted for the purpose of reducing GHGs. As such, impacts would be less than significant.	
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. Overall, the transition to refillable bottles is not expected to result in an increase in VMT. In addition, reuse schemes would not increase life cycle GHG emissions as compared with single-use containers. As such, this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant. *This impact is discussed in further detail below*.	Less than Significant
Plastic Bottle Policies: Leashed Lids	As detailed in Section 3.18, Transportation, a requirement that all lids on plastic beverage bottles be leashed to the bottle would not result in a change in transportation requirements for these materials. In addition, a range of lid tethering systems have been developed that do not require modification to existing bottle design and filling systems and would not result in a change in trips from the manufacturer to the point of sale or distribution of the GHGs associated with their use. Therefore, requiring that lids are leashed would not result in a net change in overall GHGs and this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. No impacts with respect to GHGs are expected.	No Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are often made of HDPE (resin identification code 2), which is recyclable within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited. Depending on the type of material used, this policy may reduce	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	materials placed in black bins (since plastic beverage holders are not recyclable) and an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. With respect to life cycle GHG emissions, one LCA study evaluated plastic Hi-Cone ring beverage holders to paperboard cartons, paperboard KeelClips™, and shrink-wrap and corrugated trays. The overall results indicate that the Hi-Cone plastic rings resulted in the fewest life cycle GHGs when end-of-life assumptions are considered. However, when excluding end-of-life GHG emissions due to uncertainties in recycling rates and landfill operations, the carton and KeelClip™ alternative materials would result in less GHG emissions than the plastic beverage holder rings. Further, implementation of a ban on plastic beverage holder rings would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed ban on plastic beverage holder rings would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed ban would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant. *This impact is discussed in further detail below*.	
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in consumption and use of single-use foodware items which would lead to a decrease in materials placed in blue bins or black bins which may result in an overall decrease in trips associated with solid waste disposal and management. Similarly, a shift toward use of reusable foodware would decrease the consumption of single-use foodware at restaurants which would result in a decrease in trips associated with distribution of single-use foodware materials. Therefore, this policy would not increase VMT and associated emissions of GHGs as a result of its implementation. With respect to life cycle GHG emissions, total GHGs associated with reusable foodware as compared to single-use foodware would be reduced with each reuse. In a meta-analysis of 10 LCAs for single-use (including paper and various plastics) and reusable beverage cups, the United Nations Environmental Programme (UNEP) determined that reusable cups have less life cycle GHG emissions than disposable cups, regardless of material, although the number of reuses to break-even with disposable cups in terms of GHG emissions various with the material used (UNEP 2021). Most of the studies reviewed by the United Nations determined a break-even point for GHG emissions and non-renewable energy use ranging from 10 to 140 uses depending on the materials compared, end-of-life assumptions, and washing assumptions (UNEP 2021). In their literature review of GHG impacts, the Clean Water Fund (2017) found that while comparative life cycle studies of single-use versus reusable clamshells, plates, bowls, and flatware have been less detailed than those for cups and water systems (i.e., bottled water, tap water, and home/office delivery water),	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	they generally reported low usage levels (environmental break-even points) beyond which reusables have lower overall GHG emissions or energy usage than single-use products. Improvements in dishwashing energy efficiency and changes in the electrical grid suggest that reusable cups have lower life cycle impacts than disposable cups in many situations (Clean Water Fund 2017). Two other comparative LCAs of disposable and reusable tableware confirm these findings, reporting that reusable tableware reaches a break-even point after 4 to 13 uses (Genovesi et al. 2022; Hitt et al. 2023). Further, implementation of a ban on single-use foodware would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed requirement for reusable foodware for dine-in services would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed ban would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	
Foodware Policies: Single-Use To-Go Foodware	Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, and/or all single-use to-go foodware be recyclable or compostable, and/or all single-use to-go foodware contain a minimum of 30% post-consumer recycled content would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Currently, reusable foodware programs are operated either by individual restaurants where customers return the used containers back to same restaurant or as a collective with collection points located at restaurants and cafés as well as at or close to various common destinations for takeaway food, such as hotels and offices, enabling consumers to drop off their reusables while carrying out other errands. Under the collective scenario, system service providers collect items, clean them, and redistribute them back to restaurants and cafés. Cleaning the packaging at the café or restaurant rather than a centralized cleaning model generates fewer trips as compared with a centralized cleaning model delivered by system service providers. It should be noted that this policy may also encourage customers to bring in their own containers for to-go orders, which would also reduce trips as compared with reusable foodware provided by the restaurant. With respect to customer behavior associated with return of the foodware, there may be no additional trips generated if customers return the foodware the next time they return to the restaurant or while carrying out other errands. Alternatively, customers may make a trip solely to return the containers, resulting in additional VMT as compared with single-use to-go foodware. The relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of customers that make a dedicated trip to return the containers. As an example, assuming 5% of customers make a special	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	trip to return foodware, the additional VMT would be 250 miles for every 1,000 to-go meals for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of customers make a special trip, representing 0.00007 Household VMT per capita and 0.0003 Household VMT per capita, respectively (i.e., 500 miles/1,000 to-go meals ÷ 3,822,238 population for the City of Los Angeles in 2022=0.0001 miles/person for every 1,000 to-go meals;1,000 miles/1,000 to-go meals ÷ 3,822,238 population for the City of Los Angeles in 2022=0.0003 miles/person for every 1,000 to-go meals). A parametric LCA modeling of reusable and single-use restaurant food container systems that considers consumer behavior and "extra trips" indicates that depending on the single-use container being replaced, the reusable to-go foodware can break-even in life cycle GHGs with 4 to 13 uses (Hitt et al. 2023). As such, implementation of a ban on single-use to-go foodware would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed requirement for a percentage of reusable to-go foodware would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed policy would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. This shift in materials may increase the materials that can be placed in green bins (i.e., compostable materials) or blue bins (i.e., recyclable materials) but may decrease the amount of materials placed black bins (i.e., general waste) since bioplastics are not currently compostable or recyclable at the City's existing facilities. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. The transport of alternative single-use materials to the point of sale or distribution is expected to be comparable to bioplastics as the density and volume of alternative single-use products (e.g., recycled content plastics or paper products) are comparable to bioplastic products. Therefore, this policy would not result in a net change in VMT as compared with PLA products. With respect to life cycle GHG emissions, a life cycle assessment comparing single-use PLA to single-use bagasse to-go clamshells indicates that bagasse clamshells would result in roughly 30% less life cycle GHG emissions as compared to PLA clamshells (Hitt et al. 2023). Thus, it is not expected that a ban on PLA foodware would result in a net increase in GHG emissions. Although not directly applicable to the proposed Program, the proposed ban on PLA foodware would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed policy would not conflict with the GHG reduction strategies outlined	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	
Foodware Policies: Meal Kit Reuse and Recycling	Prohibiting the sale of delivery meal kits in the City unless the meal kit manufacturers/providers establish and fund take-back and/or reuse programs for non-recyclable components of their meal kits would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. It is assumed that take-back programs would be facilitated from existing operation locations and would not require construction of new facilities. For the implementation of take-back and reuse programs, there would be the potential for an increase in trips to return items to the specified take-back location. Some meal kit providers, such as Imperfect Foods, take back reusable and recyclable packaging when the next delivery is dropped off, thus avoiding extra trips. Other schemes require a customer to schedule pickup of reusable meal kit items from their home. With respect to extra trips associated with return of reusable meal kit components, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance, percentage of extra trips, and whether pickups are coordinated and optimized to reduce VMT. As an example, assuming 5% of meal kits require an extra trip to pick up the reusable components, the additional VMT would be 250 miles for every 1,000 pickups for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of reusable meal kit components require an extra trip. Given the range of materials used in meal kits and potential alternative recyclable materials versus reusable items, a comparison of life cycle GHG emissions would be speculative. However, for the purposes of this PEIR, relative GHG emissions are assumed to be similar to that associated with reusable to-go foodware as analyzed above. A parametric LCA modeling of reusable and single-use food container systems that considers consumer behavior and "extra trips" indicates that depending on the single-use container being replaced, the reusable to-go foodware can break-even in life cycle GHGs with 4 to 13 uses (Hitt et al. 2023). As such, implementation of this policy would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed ban of non-recyclable or reusable meal kit packaging components would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed policy would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
Foodware Policies: City Reusable Foodware Pilot Projects	Establishing pilot programs with the goal of reducing plastic pollution and encouraging replacement of single-use foodware with reusable products would result in a decrease in materials placed in blue bins or black bins and would not result in an increase in trips associated with distribution of alternative foodware materials. In addition, it is assumed that most food service establishments have the required washing equipment on-site in accordance with CHSC Section 114099. However, it is assumed that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. As this type of modification would be minor, the contribution of GHGs associated with construction equipment and/or vehicle trips would be insignificant as a result. Therefore, implementation of this policy would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, pilot projects would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed pilot projects would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	Less than Significant
Foodware Policies: Plastic Tea Bags	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of tea bags constructed of or containing plastic components would not result in a change in VMT (and associated GHG emissions) associated with distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to tea bags with plastic components. In addition, alternative materials (e.g., loose leaf tea or tea bags made with alternative adhesive materials) are not expected to result in an increase in life cycle GHG emissions. Therefore, impacts would be less than significant.	Less than Significant
Foodware Policies: Beverage Pods	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of single-use beverage pods would not result in a change in trips associated with distribution, purchase, or disposal of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to that associated with coffee/beverage pods. With respect to life cycle GHG emissions, including those associated with transportation, a LCA comparing single-serve coffee and bulk coffee brewing indicates that single-serve coffee pods result in the same or more GHG emissions than several scenarios where coffee is brewed at home (Quantis 2015). Thus, a ban on single-use beverage pods is not expected to result in a net increase in GHG emissions. Further, implementation of this policy would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, pilot projects would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
	proposed pilot projects would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed pilot projects would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	
Textile Policies: Textile Disposal Policies	Prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would result in less material placed in black bins. For the implementation of take-back/resale/donation programs, textiles would be diverted from the landfill and instead transported to take-back/resale/donation collection points. As detailed in Section 3.18, Transportation, the transport of processed items to the resale location is assumed to be comparable to transport of new materials to retailers. Similarly, customer behavior is assumed to not be affected by this policy. Accordingly, this policy would result in an overall reduction in VMT (and associated GHG emissions) relative to the avoided production of similar virgin products. It is assumed that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. An analysis of the environmental impact of discarded apparel landfilling compared with recycling and reuse indicates that for all scenarios considered in the analysis, recycling textiles has the potential to decrease the life cycle GHG emissions (Moazzem et al. 2021). This is primarily owing to the avoided impacts associated with production of the avoided virgin product and avoided landfill impacts. The findings of that study are reinforced with the findings of Oakdene Hollins (2006) that reuse and recycling of clothing would generate less GHG emissions as compared to disposal. Thus, the proposed textile policies are not expected to result in a net increase in GHG emissions. Further, implementation of this policy would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies. Although not directly applicable to the proposed Program, pilot projects would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed policies would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed textile policies would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be less than significant.	Less than Significant
Textile Policies: Washing Machine Microfiber Filtration	As detailed in Section 3.18, Transportation, a requirement that washing machines be outfitted with microfiber filtration systems would not result in a change in VMT associated with either the distribution, purchase, or disposal requirements associated with operation of these units. In addition, consumption and use of these filtration units would not result in any reduction in energy efficiency of the washing machines and would not result in a measurable net increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
PFAS Ban	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, rental, and sale of items that contain PFAS would not result in a change in VMT (and associated GHG emissions) associated with the distribution, purchase, or disposal of alternative materials/products since it is assumed that alternative materials would have comparable transportation requirements to those that currently contain PFAS. In addition, a ban on PFAS would reduce PFAS in the environment and drinking water, reducing the potential for cleanup and treatment requirements. One study performed for the drinking water in Maine, estimates that treatment of PFAS in the municipal drinking water system would result in annual GHG emissions of 40,000 $MTCO_2e$ (or 2.1 $MTCO_2e$ per user per year) (McAlexander et al. 2022). Although speculative for future conditions in the City, the results of that study suggests that the cleanup of PFAS in drinking water alone would generate more GHGs per capita than the 2050 target of 2.0 $MTCO_2e$ per year. As such, implementing a ban on PFAS would potentially avoid future GHG emissions associated with subsequent cleanup and treatment in the environment. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic bag clips would not result in a change in VMT (and associated GHG emissions) associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic bag clips. In addition, consumption and use of alternative materials would not result in a measurable net increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Aerosol String	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of aerosol string (Silly String™) would not result in a change in VMT (and associated GHG emissions) associated with purchase or disposal of alternative materials/products. In addition, consumption and use of alternative materials would not result in a measurable net increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Sandbags	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic sandbags (with only biodegradable sandbags to be allowed) would not result in a change in VMT (and associated GHG emissions) associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic sandbags. With respect to life cycle GHG emissions, an LCA comparing the GHG emissions for production of polypropylene versus jute (the fiber used to make burlap sacks) estimates that jute would emit 84% less GHG than polypropylene (which is used for making plastic sandbags) (Boyce 1995). Accordingly, production and use of alternative biodegradable materials is not expected to result in an increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant

Measure	GHG Impact Analysis	Significance Conclusion
Additional Product Bans: Lighter-Than-Air Balloons	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of lighter-than-air balloons would not result in a change in VMT (and associated GHG emissions) associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to lighter-than-air balloons. In addition, a ban on lighter-than-air balloons would incrementally reduce the extraction, production, and transport of helium and thus eliminate the associated GHGs. Accordingly, a ban on lighter-than-air balloons is not expected to result in an increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	As detailed in Section 3.18, Transportation, a ban on the sale of single-use e-cigarettes and vape cartridges within the City would not result in a change in VMT (and associated GHG emissions) associated with the distribution, purchase, or disposal of alternative materials/products. In addition, consumption and use of alternative reusable materials would not result in a measurable net increase in direct or indirect GHG emissions. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use Printer Cartridges	A ban on the distribution, offer, provision, and sale of single-use printer cartridges would result in less material placed in black bins. As detailed in Section 3.18 (Transportation), this policy may increase the participation in printer cartridge take-back programs which would have the potential to increase trips required to transport empty printer cartridges to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the empty cartridge by mail to the recycling facility. Where empty cartridges may be returned or refilled at the point of sale, it is assumed that customers would return/refill empty cartridges the next time they purchase a new cartridge. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of printer cartridges require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of empty printer cartridges require an extra trip for return. A comparative study of three end-of-life scenarios for toner cartridges examined the relative GHGs associated with landfilling, remanufacturing of that cartridge by reusing its components, and refilling of that empty cartridge (Farouk 2016). In this study, refilling and reusing cartridges were found to result in less GHGs as compared to landfilling using several different methods of calculation. Accordingly, a ban on single-use printer cartridges is not expected to result in a measurable net increase in direct or indirect GHG emissions. Therefore, the impacts associated with this policy are considered less than significant as it would not have the potential to result in a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Less than Significant

Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban

Single-use plastic bottles have the potential to contribute to the generation of GHGs through emissions associated with the manufacturing process, through truck trips delivering empty plastic bottles to filling facilities full bottles to retailers, and through disposal as part of landfill decomposition. The ban on single-use plastic bottles would result in an increase in the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, and non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. In 2022, 74% of aluminum cans (the most likely alternative container for water due to relative size and weight of other container options) were recycled in California as compared to 70% of PET beverage bottles (CalRecycle 2023a). This policy would likely lead to a reduction in materials placed in blue or black bins and would not result in a change in LASAN service truck trips.

The manufacturing process for plastic bottles, whether single-use or reusable, starts with petroleum and/or natural gas, and consumes energy that generates GHG emissions. Similarly, GHGs are generated during the extraction of raw materials and manufacturing of alternative materials such as aluminum and glass. The amount of GHG emissions varies depending on the type and quantity of bottles produced. The manufacturing process is the largest emitter of GHGs due to the higher volume of fuel that is used during the process. Delivery trucks that transport empty single-use bottles from manufacturers to the filling facility and full water bottles to the distributors and/or local retailers also generate GHG emissions. Further, most single-use beverage containers that do not become litter or are not recycled are deposited in a landfill where they are left to decompose and degrade. Methane (CH_4) is emitted when beverage container materials degrade in anaerobic conditions in a landfill. In addition, washing and drying of reusable bottles requires energy depending on the method of washing and drying (i.e., hand washing, electric or natural gas-powered washing machine, heat dried or hand dried) and on the frequency of washing.

A recent LCA evaluated the GHG emissions for predominant U.S. beverage container systems for soft drinks and domestic still water (Franklin Associates 2023). The analysis estimates life cycle GHGs of PET plastic water bottles as compared to aluminum cans and glass bottles. Table 3.9-4 summarizes the GHG emissions expressed on the basis of equal volume of beverage delivered, 1,000 gallons. It's important to note that the relative volume of beverage to container weight significantly impacts the results. Specifically, increasing the capacity of the container relative to the container's weight reduces impacts per 1,000 gallons across all bottle life cycle stages.

Table 3.9-4. GHG Emissions Associated with Cradle-to-Grave LCA for PET Water Bottles, Aluminum Cans, and Glass Bottles, 1,000 Gallon Basis

Life Cycle Stage	500 ml PET Water 10% RC, 29.1% RR (kg CO_2e)	16 oz. Aluminum Can 73% RC, 50.4% RR (kg CO_2e)	12 oz. Glass Bottle 38% RC, 39.6% RR[1] (kg CO_2e)
Raw Material	176	264	1,605
Converting Raw Material to Finished Container	89.6	435	0
Transportation Empty Container to Filler	4.04	16.6	192
Transportation of Filled Container to Distribution Center	0.74	0.89	17.3
Transportation of Filled Container to Store	0.74	1.87	17.3

Life Cycle Stage	500 ml PET Water 10% RC, 29.1% RR (kg CO_2e)	16 oz. Aluminum Can 73% RC, 50.4% RR (kg CO_2e)	12 oz. Glass Bottle 38% RC, 39.6% RR[1] (kg CO_2e)
Container End-of-Life	22.6	3.47	16.2
LC Closure	22.7	0	61.5
LC Label	4.87	0	--
LC Multipack	21.8	0	242
LC Tier Sheets	2.23	7.54	7.44
Total	346	729	2,159

RC: Recycled Content; RR: Recycling Rate; LC: Life Cycle; ml: milliliter; oz.: fluid ounce
Source: Franklin Associates 2023
Notes: [1] For glass bottles, there is not a boundary between glass production and container manufacturing, so results for the combined process are reported in the Raw Material results.

Table 3.9-4 illustrates that on a 1,000-gallon basis, 12-ounce single-use glass bottles would generate approximately six times more GHGs than 500-milliliter single-use water bottles, with 16-ounce aluminum cans generating approximately twice more GHGs than 500-milliliter PET water bottles. The manufacturing process is the largest emitter of GHGs for all containers evaluated due to the higher volume of fuel that is used during the process. Data for transport of filled containers are based on the total weight of the packaging (primary container, caps, multipack packaging) transported and do not include impacts associated with the weight of the beverage in the containers. This policy may lead to an increase in materials placed in black bins if plastic bottles are replaced with non-recyclable materials (e.g., drink cartons or pouches). However, a change in black bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the black bins and the change would be the quantity of material in each bin. For alternative materials that are recyclable (e.g., aluminum and glass), this policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the recyclable beverage containers similar to existing consumer behavior associated with redeeming the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. A ban on single-use plastic bottles may increase the volume of aluminum or glass at recycling facilities. Glass cullet (i.e., crushed glass) has a greater density as compared to crushed plastic bottles. An increase in glass bottles may result in an increase in glass cullet transported to glass recycling/manufacturing facilities. However, recycling saves approximately 13% of the energy required for raw-material production and transportation (National Renewable Energy Laboratory 1994). Franklin Associates (2009) estimates the total GHG credits for recycling PET plastic bottles versus glass bottles, calculating that GHG emissions would be reduced by approximately 65 kg to 169 kg CO_2e per 1,000 gallons of bottled water versus a reduction of 760 kg CO_2e per 1,000 gallons associated with recycling glass bottles. Note that these estimates incorporate several assumptions regarding recycling return rates and recycled content of the bottle, including the assumption that the recycled content of the bottle is less than the recycle return rate, thus resulting in avoided GHGs for producing more material than used, and are presented herein only for comparative purposes. Accordingly, an increase in recycling volumes of alternative materials would not contribute to a net increase in GHG emissions as compared to plastic water bottles.

Approximately 15 billion gallons of bottled water were consumed in the U.S. in 2020 (IBWA 2023). This represents approximately 45 gallons (5,760 ounces) of bottled water per person per year. Based on the current population of the City of Los Angeles (3,822,238) (U.S. Census Bureau 2023), at a consumption rate of 45 gallons per year, approximately 172,978,286 gallons of bottled water is consumed per year in the City of Los Angeles. Conservatively assuming that all bottled water currently sold in the City of Los Angeles is in single-use PET plastic bottles and using the estimate of 346 kg CO_2e per 1,000 gallons from Table 3.9-4 above, this represents a baseline of 59,850 $MTCO_2e$ per year or 0.015 $MTCO_2e$ per capita per year associated with single-use PET plastic bottles in the City of Los Angeles per year. Comparatively, assuming a transition to all single-use glass bottles with estimated GHG emissions of 2,159 kg CO_2e provided in Table 3.9-4 above, the net increase in GHGs emissions would be approximately 373,460 $MTCO_2e$ per year or 0.09 $MTCO_2e$ per capita per year. Accordingly, although a transition to alternative container materials may incrementally increase in GHGs compared with single-use plastic bottles, the proposed ban on single-use plastic water bottles would not have the potential to increase the per capita emissions above the statewide per capita goal of 6.0 $MTCO_2e$ by 2030 and 2.0 $MTCO_2e$ by 2050 (CARB 2017). As such, the ban on single-use plastic water bottles would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and impacts would be less than significant.

Although there are no data available to determine to what degree a ban on single-use plastic bottles may encourage use of personal reusable containers, it is conceivable that there would be a decrease in purchase of water in single-use containers as people opt to bring their reusable containers with them and refill them at home, work, or at refill stations. A LCA conducted for the Oregon Department of Environmental Quality evaluated the GHG emissions for reusable containers using assumptions for number of refills per day, number of years of reuse, number of washings, and container materials (Franklin Associates 2009). For the 27-ounce steel bottle scenario, which is one type of reusable water bottle that is currently popular, that is washed once per day with one year of use, the estimated GHG emissions were 113 kg CO_2e per 1,000 gallons. The majority (82%) of GHG emissions were associated with home washing of the reusable container which includes the indirect GHG emissions associated with heating water, treatment of water used in the dishwasher, and treatment of dishwasher effluent. However, this assumes that reusable containers would be washed separately from other everyday dishes. More likely, reusable containers would be integrated into regular daily dishwasher loads at home, which would occur with or without the reusable container present. Conservatively including the added GHG emissions associated with dishwashing, reusable containers could contribute approximately 67% less GHGs per 1,000 gallons than single-use plastic water bottles. If just 10% of bottled water purchased in the City is replaced with refilled reusable steel containers, GHG emissions would decrease by approximately 1.96 $MTCO_2e$ per year as compared to single-use PET water bottles. An increase in use of refillable containers would offset the overall increase in GHG emissions associated with alternative single-use containers. Accordingly, implementation of a ban on single-use plastic water bottles would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed ban on single-use plastic bottles would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed ban would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. As such, the ban of single-use plastic water bottles would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be ***less than significant***.

<u>Refillable Beverage Bottles</u>

Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. New single-use bottles would then need to be transported from the manufacturer to the bottling plant and from the bottling plant to the retailer. In contrast, empty refillable bottles would be returned to the retailer where they would be picked up and transported to the washing and refilling plant and then transported back into the market, thus avoiding trips associated with transport of virgin and/or recycled materials to the bottle manufacturer and then from the manufacturer to the bottling plant. Reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local/regional basis (PricewaterhouseCoopers AG 2011). The relative VMT of single-use beverage packaging may be significantly influenced by the percentage of recycled post-consumer content used in the bottle/container. In general, the higher the percentage of recycled content used, the lower the VMT of that particular bottle/container type. This is due to the avoidance of a number of upstream processes involved in the production of new bottles/containers, like the extraction and transportation of virgin materials. The weighted average transportation distance of empty PET bottles to fillers reported by three PET bottle producers were between 150 and 200 miles. Empty container transport distances for aluminum cans and glass bottles were estimated as 150 miles and 600 miles, respectively (Franklin Associates 2023). Refillable bottles are typically washed and refilled at the same location. In addition, refill programs typically maximize transport efficiencies by dropping off filled bottles and backhauling empty containers to be washed and refilled. Accordingly, empty bottles used multiple times as part of a local refilling program would require less VMT per bottle than single-use beverage containers that are manufactured in a centralized bottle manufacturing facility and subsequently transported to the beverage filling location.

The assessment of transportation requirements for shipping filled beverage containers from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Due to the density of liquids, shipment of bottled beverages by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled beverage in glass bottles versus plastic bottles, we assume a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divide by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle; Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass beverage bottles compared with plastic beverage bottles. However, local refillable systems may promote competition among companies with regional production and distribution structures, resulting in overall shorter trips from bottler to retailer. Although distribution of beverages in heavier refillable containers may require more truck trips, these trips may be shorter than trips associated with transport of beverages in single-use containers that originate from centralized manufacturing and distribution centers. As such, transition to refillable bottles is not expected to result in an overall increase in VMT.

With respect to life cycle GHG emissions, several LCAs have been performed that compare the life cycle GHG emissions for single-use plastic bottles versus reusable bottles. A peer-reviewed study conducted by Olatayo et al. (2021) compares 10 single-use 500 milliliter plastic bottles to the same volume of water provided in 500-milliliter plastic reusable bottles. This study indicates that use of reusable PET plastic bottles at least 10 times would decrease life cycle emissions by 71% (Olatayo et al. 2021). A literature review of many LCAs for plastic packaging as part of the impact assessment for Zero Waste Europe indicates that reusable glass bottles would reduce life cycle GHG emissions by 70% as compared to single-use plastic bottles after five uses (ZWE 2020a, b). An increase in distance between the bottling plant and the local distributor was determined to have the greatest impact on how many times a glass bottle would need to be reused in order to have the same impact as single-use bottles. A distance of greater than 500 miles was shown to offset any GHG reductions achieved through energy savings associated with reuse (ZWE 2020b). As discussed above, reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local/regional basis (PricewaterhouseCoopers AG 2011). As such, a distance of greater than 500 miles between the bottling plant and the distributor for reuse systems in the City is unlikely. Therefore, reuse schemes are not expected to result in an increase in GHG emissions as compared to single-use containers.

Accordingly, reuse schemes are not expected to increase VMT over existing conditions and would not contribute to an overall increase in GHG emissions. Therefore, implementing a requirement that a percentage of all beverage bottles be refillable would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be ***less than significant***.

Single-Use Plastic Beverage Holder Rings

A ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are often made of HDPE (resin identification code 2), which is recyclable within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited. Depending on the type of material used, this policy may reduce materials placed in black bins (since plastic beverage holders are not recyclable) and an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin.

With respect to life cycle GHG emissions, one LCA study evaluated plastic Hi-Cone ring beverage holders to paperboard cartons, paperboard KeelClips™, and shrink-wrap and corrugated trays summarized in Table 3.9-5.

The overall results of the study indicate that emissions associated with papermill operations and end-of-life management contribute the most GHG emissions analyzed under these scenarios. End-of-life varies by packaging design and is influenced by incineration of plastic waste and methane emissions from landfill. The end-of-life calculations use a “cut-off” approach in which the burdens or benefits associated with material entering the product system for use as secondary content or sent to recycling are not considered, i.e., they are “cut-off”. Therefore, no recycling credit is received for scrap available for recycling at end-of-life. This approach puts emphasis on the use of recycled content but does not reward end-of-life recycling as much as other analysis methodologies would. Under these assumptions, the Hi-Cone plastic rings resulted in the fewest life cycle GHGs, with paperboard KeelClips™ resulting in the fewest GHGs for the alternative materials considered. However, for the alternative material packaging design scenarios, including credits for recycled content in the analysis results in less GHG emissions as compared to the “cut-off” analysis approach. If end-of-life GHG emissions are excluded (primarily due to uncertainties in recycling rates and other end-of-life assumptions that contribute to a high degree of variability in the results), and only production and transportation are considered, the carton and KeelClip™ beverage holders would result in less GHG emissions than the Hi-Cone plastic ring or shrink-wrap corrugated tray options. As such, a net increase in GHGs is not expected as a consequence of banning plastic beverage rings.

Table 3.9-5. GHG Emissions Associated with Cradle-to-Grave LCA for Plastic Hi-Cone Rings, Paperboard Cartons, Paperboard KeelClips™, and Shrink-wrap Corrugated Trays, 1,000 Beverage Can Basis

Life Cycle Stage	Hi-Cone Plastic Rings (kg CO_2e)	Wrap+Tray (kg CO_2e)	KeelClip™ (kg CO_2e)	Carton kg CO_2e)
Wood[1]	--	--	-11.9	-22.5
Papermill	--	--	7.52	14.7
Converting Raw Material to Finished Product	--	--	0.186	0.349
Production	2.69	1.38	--	--
Packaging	-0.07	0.0	--	--

Life Cycle Stage	Hi-Cone Plastic Rings (kg CO_2e)	Wrap+Tray (kg CO_2e)	KeelClip™ (kg CO_2e)	Carton kg CO_2e)
Filling	0.113	0.851	0.219	0.808
Transport	0.053	0.279	0.542	1.03
End-of-Life	0.37	8.13	7.65	13.4
Total	3.16	10.6	4.24	7.78
Total Excluding End-of-Life GHG Emissions	2.786	2.51	-3.433	-5.613

Source: Sphera 2020
Notes: [1] The carbon uptake during biomass growth for these materials is reflected in the "Wood" category for the carton and KeelClip™ and in the "Production" category for the Wrap+Tray. This carbon is then either fully or partially released back into the atmosphere when the packaging is incinerated or landfilled at end-of-life.

Implementation of a ban on plastic beverage holder rings would be consistent with the policies set forth in L.A.'s Green New Deal including waste reduction strategies and phasing out single-use plastics by 2028. Although not directly applicable to the proposed Program, the proposed ban on plastic beverage holder rings would not conflict with population growth projections of the 2020-2045 RTP/SCS, or its goals associated with GHG reductions since the proposed ban would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. Further, the proposed ban would not conflict with the GHG reduction strategies outlined in the 2022 Scoping Plan. Therefore, implementation of this policy would not generate GHGs, either directly or indirectly, that would have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would, therefore, be ***less than significant***.

3.9.3.3.2 Downstream Measures

Impact Criterion a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The programs and policies identified in the Program apply to residential, commercial, industrial, and institutional generators in the City, including City government generators. Accordingly, the Program identifies a variety of facilities that would need to be constructed to meet the City's future recycling and solid waste infrastructure needs as the composition of waste changes over time as a result of implementation of Program policies. The specific technologies (for downstream facilities) have not been identified at this time and the City would evaluate these in the future based on the then-current and projected composition of the feedstocks to be directed to the facilities. However, GHG emissions associated with construction and operation of downstream facilities have been estimated using the methodology detailed in Section 3.9.3.2 above for a comparative analysis. Specifically, construction and operation GHG emissions were estimated using the SCAQMD's CalEEMod 2022.1.1.18 model (refer to Appendix C) based on assumptions detailed in Section 3.9.3.2, including estimated project construction schedule and operation activities. Short-term construction emissions (e.g., off-road equipment, worker vehicle trips, excavating, and trenching) and annual operation emissions associated with the downstream facilities were evaluated. Based on the results of this modeling, unmitigated construction emissions ranged from 347 to 436 MTCO$_2$e per year (refer to Table 3.7-2 provided in Section 3.7.3.2). SCAQMD guidance recognizes that GHG emission reduction options for construction are extremely limited, and they recommend amortizing construction emissions over a 30-year period and address them as part of operational GHG reduction strategies. In accordance with this guidance, GHG emissions from construction were amortized (i.e., averaged annually) over a 30-year timeframe and added to the operational GHG emissions as summarized in Table 3.9-6. As shown in Table 3.9-6, total GHG emissions for downstream facilities range from a minimum of 1,409 MTCO$_2$e per year associated with the relatively low intensity operations at Resource Recovery Centers/Parks to a maximum of 4,190 MTCO$_2$e per year associated with the relatively energy intensive Advanced Thermal Recycling facility scenario.

Table 3.9-6. Project Construction and Operation GHG Emissions Summary

Facility Type	Construction GHG Amortized Over 30-Years (MTCO$_2$e/year)	Operation GHG (MTCO$_2$e/year)	Total GHG (MTCO$_2$e/year)
Green Bin Facilities			
Anaerobic Digestion	12.9	1,857	1,870
Aerobic Composting and Mulching	14.2	2,607	2,621
Blue Bin Facilities			
Clean Materials Recovery	12.9	1,960	1,973
Resource Recovery	11.6	1,401	1,409
Construction and Demolition Materials Processing	12.9	2,116	2,129
Black Bin Facilities			
Mixed Material Processing	12.3	1,776	1,788
Advanced Thermal Recycling	14.5	4,175	4,190
Non-Combustion Thermal Technologies	11.8	1,458	1,856
Regional Analysis			
Maximum Net New GHG Emissions	--	--	4,190
Net New GHG Emissions Threshold	--	--	10,000
Exceed Threshold?	--	--	No

Source: CalEEMod Emissions Summary Reports in Appendix C

As summarized in Section 3.9.2.3.1, SCAQMD adopted an interim mass emissions threshold of 10,000 MTCO$_2$e per year for stationary source/industrial projects where SCAQMD is the lead agency (SCAQMD 20). Although the SCAQMD is not the lead agency for this PEIR, estimated GHG emissions are compared against this threshold for the purposes of evaluating relative impacts. As shown in Table 3.9-6, the sum of amortized construction emissions and operation emissions are below the SCAQMD significance threshold for industrial projects. In addition, the purpose of the proposed Program is to divert municipal solid waste from the landfills and reduce plastic waste in the City. From 1990 to 2021, the GHG associated with the waste sector has increased approximately 5% (City of Los Angeles 2023b). Since waste management accounts for much of the City's community GHG inventory, implementing programs that support local waste reduction would result in a net reduction in GHG emissions. The proposed Program and associated downstream facilities would directly reduce waste, divert waste from landfills, and encourage reuse and repurposing of products that would otherwise go to waste. Therefore, the overall reduction of solid waste and increased capacity to divert waste from landfills provided by the downstream facilities would offset the minor GHG emissions associated with construction and operation of the facilities. Specifically, achieving the zero-waste goal of L.A.'s Green New Deal will lead to a 42% reduction in GHG emissions (City of Los Angeles 2019). Accordingly, construction and operation of downstream facilities would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and impacts would be ***less than significant***.

Impact Criterion b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The proposed Program and associated downstream facilities would directly reduce waste, divert waste from landfills, and encourage reuse and repurposing of products that would otherwise go to waste. Landfills are the third largest source of anthropogenic CH_4 in California (CalRecycle 2023b). Since landfills are one of the biggest contributors to GHG in the state, implementing programs to support solid waste reduction and diversion from landfills would result in a net reduction in GHG emissions. Therefore, the City has adopted targets for waste reduction with the specific goal of reducing GHGs. Specifically, L.A.'s Green New Deal calls for a 99% reduction in GHG emissions generated from the City's waste sector by 2050, resulting in a reduction of 2 million $MTCO_2e$. L.A.'s Green New Deal is recognized by CARB as a comprehensive GHG reduction plan (City of Los Angeles 2023c). The proposed Program and future downstream facilities would support the City's goal of becoming zero waste by 2050; reducing the volume of single-use plastics, particularly those that cannot be composted or recycled in City-contracted facilities, into the City's waste stream; and encouraging and supporting the use of reusable alternative materials. L.A.'s Green New Deal outlines the goals and actions the City has established to reduce the generation of GHG emissions from the waste sector. Table 3.9-7 includes a discussion of the Program's consistency with applicable GHG-emissions reducing actions from L.A.'s Green New Deal. As discussed below, the proposed Program is found to be consistent with the applicable goals and actions of L.A.'s Green New Deal. These goals align with strategies of CARB's 2022 Scoping Plan Update that include expanding infrastructure to reduce landfill disposal with strategies including composing, anaerobic digestion, and other non-combustion conversion technologies. Table 3.9-7 includes a discussion of the Program's consistency with applicable GHG-emissions reducing actions CARB's 2022 Scoping Plan. As discussed below, the proposed Program is found to be consistent with the applicable goals and actions of the 2022 Scoping Plan Update.

Further, to facilitate implementation of L.A.'s Green New Deal, the City adopted the Los Angeles Green Building Code. Future downstream facilities would be required to comply with applicable requirements of the Los Angeles Green Building Standards Code, and by extension, the California Green Building Standards Code for efficiency and sustainability, including requirements to reduce GHG emissions associated with energy use, water, and waste. Therefore, the downstream facilities would not conflict with or interfere with the City's ability to implement L.A.'s Green New Deal which sets a goal of reducing GHG emissions to 73% below 1990 levels by 2035 and becoming carbon neutral by 2050.

In addition, the SCAG has adopted the 2020-2045 RTP/SCS. Although not directly applicable to the proposed Program, the proposed Program would not conflict with population growth projections of the 2020-2045 RPT/SCS, or its goals associated with GHG reductions since the Program would not create housing or otherwise lead to substantial unplanned population growth in the vicinity. In addition, the Program would support the long range planning efforts of the City. Further, the Program would support the goal of increasing renewable energy production through the installation of downstream facilities capable of generating electricity (i.e., Anaerobic Digestion, Advanced Thermal Recycling, and Non-Combustion Thermal Technologies) as well as promote a green region through policies that would encourage more resource efficient development focused on conservation, recycling and reclamation (e.g., operation of Construction and Demolition Materials Processing Facilities and Resource Recovery Centers/Parks). As detailed in Table 3.9-7, the proposed Program is found to be consistent with the applicable goals and actions of the 2020-2045 RTP/SCS.

Table 3.9-7. Consistency with Applicable GHG Emission Goals and Actions of L.A.'s Green New Deal, 2022 Scoping Plan, Los Angeles Green Building Code, and 2020-2045 RTP/SCS.

Applicable Plan/Policy (Focus Area)	Action	Consistency Analysis
L.A.'s Green New Deal (Renewable Energy)	LADWP will supply 55% renewable energy by 2025; 80% by 2036; and 100% by 2045 Increase cumulative MW by 2025, 2035, 2050, respectively of: Local solar to 900-1,500 MW, 1,500-1,800 MW, 1,950 MW Energy storage capacity to 1,654-1,750 MW, 3,000 MW, 4,000 MW Demand response programs to 234 MW (2025) and 600 MW (2035)	**Consistent**. While this action primarily applies to the City and LADWP, LADWP is required to generate electricity that would increase renewable energy resources to 33% by 2020, 44% by 2024, 60% by 2030, and 100% by 2045 under SB 100. Because LADWP would provide electricity service to the Project Area, the Project would use electricity consistent with the requirements of SB 100 and City goals. In addition, installation of Anaerobic Digestion Facilities would convert organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70% and provide energy. Advanced Thermal Recycling Facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity. Installation of these types of downstream facilities would be consistent with the goals of increasing renewable energy resources in the City.
L.A.'s Green New Deal (Local Water)	Source 70% of L.A.'s water locally and capture 150,000 acre-feet per year of stormwater by 2035 Recycle 100% of all wastewater for beneficial reuse by 2035 Build at least 10 new multi-benefit stormwater capture	**Consistent**. As discussed in Section 3.20 (Utilities), the Program would increase the water demand but minimize water use through water efficient design. In addition, the proposed Program would be required to comply with the City's water use restrictions on timing, area, frequency, and duration of specified allowable water usage. The Program would also be required to comply with the Title 24 standards for Water Efficiency and Conservation that are in effect at the time of development. These standards include actions such as separate water submeters for subsystems, prescriptive

Applicable Plan/Policy (Focus Area)	Action	Consistency Analysis
	projects by 2025; 100 by 2035; and 200 by 2050 Reduce potable water use per capita by 22.5% by 2025; 25% by 2035; and maintain or reduce 2035 per capita water use through 2050 Install or refurbish hydration stations at 200 sites, prioritizing municipally-owned buildings and public properties such as parks, by 2035	reduced flow rates for water and fixtures, and plumbing fixtures and fittings. Further, the proposed Program proposes to implement measures to require or incentivize the installation of water bottle refilling/hydration stations at City-owned facilities and on City-owned property throughout the City. Therefore, the proposed Program would be consistent with the goal of installing hydration stations by 2035.
L.A.'s Green New Deal (Clean and Healthy Buildings)	All new buildings will be net zero carbon by 2030; and 100% of buildings will be net zero carbon by 2050 Reduce building energy use per square foot for all building types by 22% by 2025, 34% by 2035, and 44% by 2050	**Consistent**. Downstream facilities would be designed and operated to meet applicable requirements of the State Green Building Standards Code and the City's Green Building Code. In addition, Anaerobic Digestion Facility would convert organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility. Advanced Thermal Recycling Facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials.
L.A.'s Green New Deal (Waste and Resource Recovery)	Increase landfill diversion rate to 90% by 2025; 95% by 2035; and 100% by 2050	**Consistent**. The proposed Program proposes upstream measures that will directly decrease single-use materials entering the City's waste stream and requiring disposal in landfills, while proposed downstream facilities would increase the City's capacity to divert waste from the landfill by improving processing capabilities and/or developing new facilities to enable repair and reuse materials (e.g., washing stations for reusable foodware and resource recovery centers). Proposed upstream and downstream measures would directly increase landfill diversion and would support the City's landfill diversion goals.
	Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028	**Consistent**. The proposed Program proposes upstream measures that will directly decrease single-use plastics entering the City's waste stream and encourage recycling and reuse of products (e.g., refillable bottles and reusable foodware). Therefore, the proposed Program is aligned with

Applicable Plan/Policy (Focus Area)	Action	Consistency Analysis
		the City's goal of reducing municipal solid waste generation per capita.
	Eliminate organic waste going to landfill by 2028	**Consistent**. The proposed Program proposes downstream facilities such as Anaerobic Digestion Facilities and Aerobic Composting and Mulching Facilities that would increase the City's capacity to divert organic waste from the landfill by improving and expanding organic waste processing capabilities. Proposed downstream measures would directly support the City's goal of eliminating organic waste going to landfill.
	Increase proportion of waste products and recyclables productively reused and/or repurposed within L.A. County to at least 25% by 2025; and 50% by 2035	**Consistent**. The proposed Program proposes upstream measures that will directly encourage recycling and reuse of products (e.g., refillable bottles, reusable foodware, and textile policies), while proposed downstream facilities would enable repair and reuse materials (e.g., washing stations for reusable foodware, and resource recovery centers). Proposed upstream and downstream measures would directly increase the proportion of waste products and recyclables productively reused and/or repurposed within the City.
2022 Scoping Plan (Landfill Methane)	Maximize existing infrastructure and expand it to reduce landfill disposal, with strategies including composting, anaerobic digestion, co-digestion at wastewater treatment plants, and other non-combustion conversion technologies.	**Consistent**. The proposed Program proposes downstream facilities such as Anaerobic Digestion Facilities and Aerobic Composting and Mulching Facilities that would increase the City's capacity to divert organic waste from the landfill by improving and expanding organic waste processing capabilities. Proposed downstream measures would directly support CARB's goal of reducing methane associated with degradation of landfill waste.
Los Angeles Green Building Code	Non-Residential Mandatory Measures	**Consistent**. Future development projects within the Project Area would be required to comply with the City's Green Building Code. As such, installation of downstream facilities would be consistent with the City's strategies for reducing GHG as outlined in the Green Building Code.
2020-2045 RTP/SCS (Sustainable Communities Strategies)	Support Implementation of Sustainability Policies: Continue to support long range planning efforts by local jurisdictions Promote a Green Region: Support local policies for renewable energy production, reduction of urban heat islands, and carbon sequestration Promote more resource efficient development focused on	**Consistent**. The Program would be consistent with L.A.'s Green New Deal. In addition, downstream facilities would be constructed in accordance with Building Energy Efficiency Standards and the Green Building Code for Los Angeles. Therefore, the proposed Program would support long range planning efforts by the local jurisdiction. Downstream facilities such as Resource Recovery Centers/Parks and Construction and Demolition Materials Processing Facilities are intended to promote conservation, recycling, and reclamation of used materials, thereby promoting more resource efficient development. In addition, the Program proposes downstream facilities such as Anaerobic Digestion Facilities that can convert organic waste to energy using. Advanced Thermal Recycling Facilities use

Applicable Plan/Policy (Focus Area)	Action	Consistency Analysis
	conservation, recycling, and reclamation	residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity. Installation of these types of downstream facilities would be consistent with the goals of increasing renewable energy resources in the City.

The plan consistency analysis demonstrates that the proposed Program is consistent with plans, policies, regulations, and GHG reduction actions/strategies outlined in CARB's 2022 Scoping Plan, SCAG's 2020-2045 RTP/SCS, L.A.'s Green New Deal, and adopted Los Angeles Building Code. As the proposed Program would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing emissions of GHGs, the Program's impacts related to GHG emissions would be less than significant. Further, based on the results of the quantitative analysis as described above, maximum GHG emissions are estimated to be 4,190 $MTCO_2e$ per year associated with the Advanced Thermal Recycling facility scenario, which is below the SCAQMD interim threshold of 10,000 $MTCO_2e$ for stationary source/industrial projects. Further, the proposed Program and associated downstream facilities would directly reduce waste, divert waste from landfills, and encourage reuse and repurposing of products that would otherwise go to waste. Therefore, the overall reduction of solid waste and increased capacity to divert waste from landfills provided by the downstream facilities would offset the minor GHG emissions associated with construction and operation of the facilities. Specifically, achieving the zero waste goal of L.A.'s Green New Deal will lead to a 42% reduction in GHG emissions (City of Los Angeles 2019). In addition, construction would be conducted in accordance with applicable BMPs of the Los Angeles Green Building Standards Code and the California Green Building Standards Code for efficiency and sustainability. Because the Program is consistent and does not conflict with the applicable plans, policies, and regulations, and because the Program's incremental increase in GHG emissions of 4,190 $MTCO_2e$ per year would be offset through reductions in waste that would otherwise go to landfills, impacts would be ***less than significant***.

3.10 Hazards and Hazardous Materials

This section describes the existing hazards and hazardous materials of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on hazards and hazardous materials in the City. Table 3.10-1 summarizes impacts on hazards and hazardous materials that could result from implementation of the Program or alternatives.

Table 3.10-1. Summary of Hazards and Hazardous Materials Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM HAZ-3. Phase I/II Environmental Site Assessment MM HAZ-4: Remediation Action Plan/Soil Management Plan

Would the Program:	Impact Determination	Mitigation Measure(s)
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	MM HAZ-5: Airport Safety Hazard Assessment MM TR-1: Traffic Impact Analysis
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Analysis
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Analysis MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

3.10.1 Environmental Setting

There are two active federal Superfund sites and 15 active state response sites in the City (DTSC 2023a). GeoTracker indicates there are approximately 300 active and open remediation sites in the City (SWRCB 2023), and EnviroStor indicates there are over 700 cleanup sites and facilities in the City (DTSC 2023a).

3.10.1.1 Hazardous Waste Classes

There are five classes of waste that are considered hazardous or possibly hazardous: hazardous waste, universal waste, special waste, recyclable materials, and major appliances.

Los Angeles residents can deposit household hazardous waste at a number of S.A.F.E. Centers. These are permanent collection sites for household hazardous waste and electronic waste (e-waste). S.A.F.E. Centers are available in North Valley, Harbor Area, Central Los Angeles, Playa Del Rey, East Valley, West Los Angeles, and East Los Angeles (LASAN 2023).

3.10.1.1.1 Hazardous Waste

Hazardous waste is defined as a waste that can be solid, semi-solid, gaseous, or liquid. These materials are considered hazardous if they exhibit at least one of the following four characteristics: ignitability, corrosivity, reactivity, or toxicity. Additionally, anything classified as a Resource Conservation and Recovery Act (RCRA) "listed waste" is considered a hazardous waste. Listed wastes are based on USEPA criteria. For a waste to be listed as hazardous, it must pose a threat in the absence of special regulation and typically exhibits characteristics that make it hazardous. California also adopted a separate hazardous waste listing for mercury-containing wastes called California M-listed hazardous wastes (22 CCR, chapter 11, article 4.1).

Hazardous wastes are often generated if a facility handles materials where these contents are not entirely consumed during operation, such as:

- Paint, printing inks, dyes, solvents, cleaning fluids, and thinners
- Pesticides
- Acids and bases that dissolve metal, wood, paper, or clothing
- Flammable materials
- Materials that burn or corrode surfaces or cause injury to skin on contact, or bubble or fume upon contact with water
- Products with material data safety sheets indicating they are hazardous
- Impacted oils or other wastes from sites undergoing remediation and cleanup.

3.10.1.1.2 Universal Waste

Universal wastes are hazardous wastes that could pose a lower immediate risk to people and the environment compared to other hazardous wastes. These are commonly produced by households and businesses. California's hazardous waste regulations identify eight categories of hazardous waste as "universal wastes":

- Batteries
- Lamps
- Electronic devices
- Cathode ray tubes
- CRT glass
- Mercury waste
- Non-empty aerosol cans
- Photovoltaic modules.

Universal waste may be transported, handled, and recycled in accordance with their lower risk profile (DTSC 2022).

3.10.1.1.3 Special Waste

Special waste (Title 22, CCR, Section 66261.120) is a subset category of hazardous waste that is not subject to the Resource Conservation and Recovery Act (RCRA), which is discussed in Section 3.10.2 below. Waste that qualifies as special waste is typically generated in larger volumes and poses less hazards. Special wastes are eligible to be managed to less stringent standards, but the management is subject to other agency's approval and not automatic (DTSC 2023b).

- **Criteria and Requirement** – Title 22 CCR Section 66261.122: Special wastes must only be hazardous for inorganic chemicals. The constituent concentrations may only exceed their respective soluble threshold limit concentrations or total threshold limit concentration. The WET-soluble concentration (when expressed in mg/kg) cannot exceed its total threshold limit concentration.
- **Management** – Title 22 CCR Section 66261.126. Special waste can go into non-Class I landfills (e.g., Class II or Class III landfills), but the landfill must have Waste Discharge Requirements (WDRs) for the special waste issued by the Regional Water Quality Control Board with jurisdiction over the facility, and the landfill operator must have a variance from DTSC which allows the disposal of the special waste at that particular facility.

Examples of special wastes include ash, sewage sludge, cement kiln dust, iron blast furnace slag, tailings from copper processing, and many other byproducts of industry (USEPA 2023).

3.10.1.1.4 Recyclable Materials

Recyclable materials may be a hazardous waste, but that does not preclude them being recycled. These may include (DTSC 2023c):

- a residue;
- spent material, including, but not limited to, a used or spent stripping or plating solution or etchant;
- material that is contaminated to such an extent that it can no longer be used for the purpose for which it was originally purchased or manufactured;
- a byproduct listed in Section 66261.31 or Section 66261.32;
- any retrograde material that has not been used, distributed or reclaimed through treatment by the original manufacturer or owner by the later of the following dates:
  - one year after the date when the material became a retrograde material;
  - if the material has been returned to the original manufacturer, one year after the material is returned to the original manufacturer.

3.10.1.1.5 Major Appliances

Bulky appliances (e.g., washers, dryers, freezers, space heaters, furnaces, boilers, air conditioners, microwaves, refrigerators, etc.) are valuable sources of scrap metal when they become obsolete or are no longer needed. However, some appliance components contain materials that can be harmful to human health and the environment if they are not properly removed and managed prior to recycling—these harmful materials are referred to as "Materials that Require Special Handling" (DTSC 2023d).

Because of these potential hazards, California law requires these appliances and their hazardous components are properly removed and managed.

The basic requirements of proper recycling for appliances includes the following:

- Materials that Require Special Handling must be removed prior to processing (including crushing and bailing) major appliances for scrap metal (PRC Section 42175.1; CHSC Section 25212).
- A person who intends to remove Materials that Require Special Handling must obtain certification from the DTSC (CHSC Section 25211.1).
- Certain documentation must accompany discarded appliances to ensure that Materials that Require Special Handling are removed by a Certified Appliance Recycler (CHSC Section 25211.3).

The potential hazards associated with major appliance components includes but are not limited to metal-encased capacitors containing polychlorinated biphenyls or di(2-ethylhexyl) phthalate; chlorofluorocarbons, hydrochlorofluorocarbons, and other non- chlorofluorocarbon refrigerants, injected in air conditioners or refrigeration units; used oil; and mercury from switches and temperature control devices (DTSC 2023).

Certified Appliance Recyclers in the City are located at SA Recycling LLC (two locations: 2104 East 15th Street and 3248 Long Beach Avenue) and Ekco Metals at 2777 East Washington Boulevard) (DTSC 2023d).

3.10.1.2 Airports

Los Angeles International Airport is the primary airport serving the Greater Los Angeles Area and is a hub for several major US carriers. Los Angeles International Airport is also a key international gateway. The Whiteman Airport and Van Nuys Airport are within the City boundary and the Santa Monica Airport and Hollywood Burbank Airport have some property overlapping the City boundary. State law requires cities and counties with public use airports to establish Airport Land Use Commissions. The Regional Planning Commission acts as the Airport Land Use Commission in Los Angeles County. The Airport Land Use Commission reviews proposed updates or expansions of airports as well as development of surrounding properties to make sure they are compatible. Primary concerns are noise, safety hazards, and nearby land uses that could interfere with airport operations. These reviews are based on the Airport Land Use Plan, which sets policies to determine how a project is compatible. The Los Angeles County Airport Land Use Plan, written in 1991 and revised in 2004, covers the airports in the County, including those listed above.

The Los Angeles International Airport Plan is a component of the City's General Plan and provides a land use policy framework to guide implementation of the Master Plan on a broad level by establishing goals, objectives, policies, and programs for development (LAWA 2023). The Los Angeles International Airport Specific Plan (LAMC 11.5.7) guides implementation at a more focused level. It includes zoning and development regulations, and sets out the permitted and prohibited uses for property in the Los Angeles International Airport Zone. Most importantly, it's the principal mechanism by which Master Plan Projects are implemented.

3.10.2 Regulatory Framework

3.10.2.1 Federal

3.10.2.1.1 Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, outlines regulations for cleanup of toxic waste sites nationwide. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III, also known as the Emergency Planning and Community Right-to-Know Act (Title 42, USC, Section 11001 et seq.). This act and the CAA of 1990 established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. These acts require states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such material is stored or handled at a facility.

3.10.2.1.2 Solid Waste Disposal Act/Resource Conservation and Recovery Act (Title 42, USC, Section 6901 et seq.)

RCRA is a federal program established to regulate solid and hazardous waste management. RCRA amends earlier legislation (the Solid Waste Disposal Act of 1965), but the amendments were so comprehensive that the act is commonly called RCRA rather than the Solid Waste Disposal Act. RCRA defines solid and hazardous waste; authorizes USEPA to set standards applicable to the owners and operators of hazardous waste treatment, storage and disposal facilities; for hazardous waste generators and transporters, establishes a permit program for hazardous waste treatment, storage, and disposal facilities; and authorizes USEPA to set criteria for disposal facilities that accept municipal solid waste and other solid waste. RCRA was last reauthorized by the Hazardous and Solid Waste Amendments of 1984. The amendments set deadlines for permit issuance, prohibited the land disposal of many types of hazardous waste without prior treatment or a demonstration that land disposal would not result in hazardous waste migration. Characteristics of hazardous waste are described in terms of ignitability, corrosivity, reactivity, and toxicity, and specific types of wastes are listed.

3.10.2.1.3 Emergency Planning and Community Right-to-Know Act

In 1986, Congress adopted the Emergency Planning and Community Right-to-Know Act (Title 42, USC, Sections 11001-11050) as Title III of the federal Superfund Amendments and Reauthorization Act. The federal Emergency Planning and Community Right-to-Know Act established reporting and planning requirements for businesses that handle or store specified hazardous materials. These reports and plans provide federal, state, and local emergency planning and response agencies with information about the amounts of materials that businesses use, release, and/or spill. They also provide the public with information about potential hazards in their communities.

3.10.2.1.4 Occupational Safety and Health Administration

The Occupational Safety and Health Act of 1970 created the Occupational Safety and Health Administration (OSHA) to ensure worker and workplace safety. The goal was to ensure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions.

OSHA develops and enforces mandatory job safety and health standards. These standards, codified in Title 29, Part 1910 of the CFR, include hazardous materials and personal protective equipment and exposure limits for a wide range of specific hazardous materials. Employers are required to provide personal protective equipment (i.e., protective equipment for eyes, face, or extremities; protective clothing; respiratory devices) to their employees when required by label instructions or as warranted due to chemical hazard (Title 29, CFR, Section 1910.132). The OSHA standards also require that chemical manufacturers, distributors, and importers obtain and develop Safety Data Sheets, which include information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. Employers must have a Safety Data Sheet in the workplace for each chemical they use (Title 29, CFR, Section 1910.1200).

3.10.2.1.5 Risk Management Program

Under the authority of CAA Section 112(r), the Chemical Accident Prevention Provisions require facilities that produce, handle, process, distribute, or store certain chemicals to develop a Risk Management Program, prepare a Risk Management Plan, and submit the plan to USEPA. Applicable facilities were initially required to comply with the rule in 1999, and the rule has been amended on several occasions since then, most recently in 2004.

3.10.2.2 State

3.10.2.2.1 California Code of Regulations, Title 22, Chapter 11

CCR Title 22, Division 4.5, Chapter 11 contains regulations for the identification and classification of hazardous wastes. This code defines a waste as hazardous if it has any of the following characteristics: ignitability, corrosivity, reactivity, or toxicity. Article 3 provides detailed definitions of each characteristic.

Articles 4 and 5 provide lists of RCRA hazardous wastes, non-RCRA hazardous wastes, hazardous wastes from specific sources, extremely hazardous wastes, hazardous wastes of concern, and special wastes.

3.10.2.2.2 California Health and Safety Code

The CEQA Guidelines define “extremely hazardous substances” as those defined by Section 25532(2)(g) of the CHSC. Appendix A of Part 355 (commencing with Section 355.10) of Subchapter J of Chapter I of Title 40 of the CFR provides a list of extremely hazardous substances and their threshold planning quantities. The CEQA Guidelines define “hazardous air emissions” as emissions of air contaminants identified as toxic by the CARB or the designated air pollution control officer. These include substances identified in CHSC Section 44321(a-f).

3.10.2.2.3 California Government Code Section 65962.5: Cortese List

The Cortese List includes all hazardous waste facilities subject to corrective action; land designated as hazardous waste property or border zone property; information received by the DTSC about hazardous waste disposals on public land; sites listed pursuant to CHSC Section 25356 (removal and remedial action sites); and sites included in the Abandoned Site Assessment Program. Pursuant to California Government Code Section 65962.5, the DTSC compiles and updates the Cortese List as appropriate, but at least annually.

3.10.2.2.4 Hazardous Waste Control Act

The Hazardous Waste Control Act established the state hazardous waste management program, which is similar to, but more stringent than, RCRA program requirements. CCR, Title 26 describes the requirements for the proper management of hazardous waste under the Hazardous Waste Control Act, including the following:

- Identification and classification;
- Generation and transportation;
- Design and permitting of recycling, treatment, storage, and disposal facilities; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for the identification, packaging, and disposal of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must document waste from generation to transporter to disposal. Copies of this documentation must be filed with the DTSC. The DTSC operates programs to protect California from exposure to hazardous wastes through numerous practices and procedures.

3.10.2.2.5 Emergency Services Act

Under the Emergency Services Act, California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous material or hazardous waste is an important segment of the plan administered by the California Emergency Management Agency, which coordinates the response of agencies that include the California Environmental Protection Agency, Caltrans, CHP, RWQCBs, air quality management districts, and county disaster response offices.

3.10.2.2.6 California Occupational Health and Safety Administration

Cal/OSHA is responsible for the development and enforcement of workplace safety standards and ensuring worker safety in the handling and use of hazardous materials. Cal/OSHA requires businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Cal/OSHA Hazards Communication Standard requires that workers be informed of the hazards associated with the materials they handle. Businesses are required to label containers, provide Safety Data Sheets in the workplace, and provide worker training.

3.10.2.3 Local

3.10.2.3.1 City of Los Angeles Fire Department Haz Mat Program

The Los Angeles Fire Department (LAFD) provides emergency response and guidance to hazardous materials incidents within the City. The City LAFD Haz Mat Program utilizes a unified approach with allied agencies (i.e., Los Angeles County Fire Department) and many stakeholders to provide preparedness, prevention, response, mitigation, and resiliency to hazardous materials emergencies. The LAFD is an all-hazards response organization, and the Haz Mat Program is designed to address the natural, technological, or purposeful response challenges, including chemical, biological, radiological, nuclear, and explosive threats to the community and national security. The LAFD provides 24-hour emergency services in four Haz Mat Task Forces geographically distributed throughout the City at:

- Fire Station 21 (staffed Haz Mat Squad) – Central
- Fire Station 48 (flex - Haz Mat Squad) – Port of Los Angeles
- Fire Station 87 (flex - Haz Mat Squad) – Valley
- Fire Station 95 (flex - Haz Mat Squad) – Los Angeles World Airport.

LAFD and the Los Angeles Police Department (LAPD) are first responders if a hazardous-materials or a hazardous-waste release incident is reported via 911. They work with many partnering and supportive agencies.

3.10.2.3.2 City of Los Angeles, Fire Development, Plan Review, and Inspection Services

LAFD Fire Protection Engineers review new construction, change of use, and remodeling projects for buildings and structures containing State Fire Marshal occupancy. Plans are reviewed for compliance with national, state, and city codes and standards. Fire/Life safety systems such as fire alarm and two-way radio communication for all buildings and occupancies are reviewed.

3.10.2.3.3 City of Los Angeles Ordinance 185789 Brush Clearance Requirements

Owners of property located in the Very High Fire Hazard Severity Zone (VHFHSZ) shall maintain their property in accordance with the Fire Code (LAMC 57.322). Year-round compliance shall be maintained as described below on all native brush, weeds, grass, trees, and hazardous vegetation within 100 feet of any structures/buildings, whether those structures are on the owner's property or adjoining properties, and within 10 feet of any combustible fence or roadway/driveway used for vehicular travel.

- Areas within 100 feet of structures and/or 10 feet of roadside surfaces or combustible fence: Grass shall be cut to 3 inches in height. Native brush shall be reduced in quantity to 3 inches in height. This does not apply to individual native shrubs spaced a minimum of 18 feet apart, provided such shrubs are trimmed up from the ground to 1/3 of their height with all dead material being removed (see diagram below).
- For trees taller than 18 feet and within 100 feet of any building or structure or within 10 feet of any highway, street, alley, or driveway, trim lower branches so no foliage is within 6 feet of the ground, and remove all dead material. For trees and shrubs less than 18 feet, remove lower branches to 1/3 of their height, and remove all dead material (see diagram below).
- Trees shall be trimmed up so the foliage is no closer than 10 feet from the outlet of a chimney (see diagram below).

- All roof surfaces shall be maintained free of substantial accumulation of leaves, needles, twigs and any other combustible matter. Maintain five feet of vertical clearance between roof surfaces and portions of overhanging trees (see diagram below).
- All cut vegetation and debris shall be removed in a legal manner. Cut vegetation may be machine processed (i.e., chipped) and spread back onto the property at a depth not to exceed 3 inches within 30 feet of structures and six inches beyond 30 feet of structures. In addition, spread material shall not be placed within 10 feet of any usable roadside (in accordance with Fire Prevention Bureau Procedure No. 25).

3.10.2.3.4 City of Los Angeles General Plan

Safety Element

Goal 1: A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to hazards is minimized.

- Policy 1.1.4: Protect the public and workers from the release of hazardous materials and protect City water supplies and resources from contamination resulting from release or intrusion resulting from a disaster event, including protection of the environment and public from potential health and safety hazards associated with program implementation.
- Policy 1.1.5: Reduce potential risk hazards due to disaster with a focus on protecting the most vulnerable people, places and systems.

3.10.3 Impact Assessment

3.10.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to hazards and hazardous materials. The Program would have a significant impact to hazards and hazardous materials if the Program would:

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with hazards and hazardous materials resulting from a project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

- Impact Criterion a)
  - The probable frequency and severity of consequences to people from exposure to the health hazard; and
  - The degree to which project design would reduce the frequency of exposure or severity of consequences of exposure to the health hazard.
- Impact Criterion b)
  - The probable frequency and severity of consequences to people or property as a result of a potential accidental release or explosion of a hazardous substance; and
  - The degree to which project design will reduce the frequency or severity of a potential accidental release or explosion of a hazardous substance.
- Impact Criterion f)
  - The degree to which the project may require a new, or interfere with an existing, emergency response or evacuation plan, and the severity of the consequences.

The City thresholds guide also requires the consideration of the regulatory framework, which is included in the analyses of all criteria evaluated below.

3.10.3.2 Program

3.10.3.2.1 Upstream Measures

Impact Criterion a) Would the project Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

While plastics are not considered to be hazardous materials, they can leach harmful chemicals, including microplastics into food and beverages during use and the environment when they are disposed of in landfills (Wojnowska-Baryła et al. 2022; Teuten et al. 2009; Silva et al. 2021). Microplastics, which can be ingested directly from food containers or indirectly through food and drinking water, have been shown to contain various contaminants such as polychlorinated biphenyls, polycyclic aromatic hydrocarbons, metals, and pesticides, and therefore represent an exposure pathway for toxic compounds (Teuten et al. 2009). They may also serve as an exposure pathway for toxic additives and compounds, including certain plasticizers, dyes, and flame retardants that are adsorbed to them (Campanale et al. 2020). Microplastics ingested via food or water may cause gastrointestinal obstruction because they cannot be digested, adverse immune reactions, and cell damage (Hwang et al. 2020). Therefore, upstream measures focused on reducing the use and disposal of single-use plastics would reduce a source of human exposure to harmful chemicals. The potential impacts of upstream measures are analyzed in Table 3.10-2 below. Overall, the Program's upstream measures would have a ***less than significant*** impact on criterion (a).

Table 3.10-2. Analysis of Upstream Measures - Hazards Impacts

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Single-use plastic water bottles can be a source of exposure to toxicants under certain scenarios (i.e., if exposed to high temperatures for an extended period of time). A recent review found that over 150 chemicals leach from single-use PET beverage bottles, including acetaldehyde and formaldehyde, which are carcinogenic, and endocrine-disrupting compounds. Some of these chemicals leach more from bottles made of recycled materials than virgin materials (Gerassimudou et al. 2022). A previous study found that 24 different types of plastic leached harmful chemicals into water after 10 days at 40°C (Zimmerman et al. 2021). A ban on single-use plastic water bottles would cause a shift to other single-use products (aluminum, cardboard/paperboard, glass) and reusables. The potential exposure to harmful chemicals depends on the material of the single-use or reusable alternative, in addition to other factors for reusable materials such as mechanism of washing, temperature, etc. Glass and stainless steel do not leach chemicals into water (MSU Extension 2015), but reusable PET sports bottles were shown to leach organic compounds into water at room temperature after 24 hours (Tisler and Christensen 2019). The effects of a single-use plastic water bottle ban would depend largely on the alternative materials chosen. The proposed measure would not create a significant hazard to the public through routine transport, use, or disposal of hazardous materials because it involves reducing the use of single-use plastic water bottles. The proposed measure could result in an incremental decrease in public exposure to hazardous materials. Therefore, impacts would be less than significant.	Less than Significant
Plastic Bottle Policies: Refillable Plastic Bottles	Both single-use and refillable plastic bottles have similar exposure routes, depending on the composition of the bottle. Therefore, the requirement for refillable plastic bottles would have a less than significant impact on hazardous materials.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	As noted above, the potential exposure to harmful chemicals depends on the material of the refillable bottle. The use of stainless steel or glass refillable bottles would reduce exposure to potentially harmful chemicals, while the use of refillable plastic bottles may not appreciably reduce exposure to chemicals. Therefore, the requirement for refillable beverage bottles would have a less than significant impact on hazardous materials.	Less than Significant
Plastic Bottle Policies: Leashed Lids	Plastic bottle lids are not considered a hazardous material and they are not a source of plastic exposure to humans. Requiring the lids to be leashed onto bottles would not change their use or have any effect on the public exposure to hazardous materials. Therefore, the measure would result in no impact with regard to public hazards or exposure to hazardous materials.	No Impact

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	Single-use plastic beverage rings are not considered a hazardous material, nor are the potential replacement materials (cardboard, multi-use caps). They are not a source of plastic exposure to humans. Therefore, a City-wide ban on single-use plastic beverage holder rings would have no impact with regard to public hazards or exposure to hazardous materials.	No Impact
Foodware Policies: Dine-In Services	Plastic foodware products have been shown to contain numerous chemicals that cause various toxicity endpoints in in vitro studies (i.e., cell culture), including oxidative stress and endocrine-disrupting activity (Zimmerman et al. 2019). Plastics can leach into the foods and products they are used to contain as well as into the environment when landfilled (Hahladakis et al. 2018). Plastic foodware and accessories are generally made of clear or foamed polystyrene (USEPA 2021), which is made from styrene. The International Agency for Research on Cancer has classified styrene as a probable human carcinogen (Group 2A) based on positive associations between exposure to styrene and lymphohematopoietic malignancies as well as sufficient evidence of carcinogenicity in experimental animals (IARC 2019). Styrene is also listed by OEHHA under Proposition 65 as a chemical known to cause cancer (OEHHA 2016). Most of the general population has detectable levels of styrene in their biological fluids (e.g., blood, breast milk) (IARC 2019). Durable products such as glass and stainless steel do not leach chemicals. A ban on single-use foodware for dine-in services would directly reduce exposure to potentially toxic substances and microplastics from single-use plastic foodware and would have a beneficial impact on hazardous materials.	Beneficial Impact
Foodware Policies: Single-Use To-Go Foodware	As discussed above, the use of single-use plastic foodware represents a potential exposure pathway for toxic substances to humans. A shift to reusable foodware or compostable and recyclable foodware would have a beneficial impact by reducing potential exposure to toxic compounds.	Beneficial Impact
Foodware Policies: Bioplastic Ban	Following disposal of bioplastics, weathering and ultraviolet degradation can lead to release of chemicals, which could have adverse effects on ecosystems, wildlife, and humans (Xia et al. 2022). A study to characterize the toxicity and chemical composition of bio-based and biodegradable materials (mostly food contact materials) was conducted to determine if they were safer, from a chemical perspective, than their conventional plastic counterparts (mainly petroleum-based). The results indicated that the majority (67%) of bioplastics and plant-based products contained toxic chemicals as well as a large number and diversity of compounds (greater than 1,000 chemical features each in 80% of the samples). Toxicity for conventional plastics (mainly petroleum-based) was also found in 67% using the same bioassays. This study showed that bio-based and/or biodegradable materials available on the market are as toxic as conventional plastics in terms of the chemicals they contain (Zimmermann et al. 2020). This study noted that previous reports predominantly focus on PLA, whereas their results imply that chemicals inducing unspecific toxicity are prevalent in all types of bio-based and/or biodegradable products, especially in products made from natural polymers, starch, and cellulose. The study also noted that the toxicological and chemical	Less than Significant

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
	signatures of bioplastics analyzed – polyethylene (Bio-PE), polyethylene terephthalate (Bio-PET), polybutylene adipate terephthalate (PBAT), polybutylene succinate (PBS), PLA, PHA, and bamboo-based materials – varied with respect to the product rather than the material (Zimmermann et al. 2020). While this study did not look specifically at PHB products, the authors noted that studies on the toxicity of PHB-based materials are limited to freshwater species, noting a previous study which found that PHB and PBAT leachates reduced survival of a species of water flea (*Daphnia magna*) after 48 hours of exposure (Gottermann et al. 2015 as cited in Zimmermann et al. 2020). Replacement products could include various materials including petroleum-based and other conventional plastic materials recyclable in the City. Since a similar percentage of conventional foodware products and bioplastic products were found to have toxic chemicals present, it is anticipated that a ban on single-use bioplastics would not result in an increase in hazards to the public or the environment when compared to substitute products. Impacts would be less than significant.	
Foodware Policies: Meal Kit Reuse and Recycling	Meal kit packaging and insulation do not contain hazardous materials. Therefore, an EPR program measure geared towards meal kit components, carried out through existing infrastructure, would have no impact on the exposure of people to hazardous materials.	No Impact
Foodware Policies: City Reusable Foodware Pilot Projects	Reusable foodware pilot projects would help businesses throughout the City incorporate reusable foodware into their business practices. As discussed above, the switch to reusable products would reduce exposure to harmful chemicals that may leach from single-use plastics. Therefore, pilot projects would have a beneficial impact.	Beneficial Impact
Foodware Policies: Plastic Tea Bags	A study reported that the level of plastic potentially ingested when drinking tea packaged in plastic tea bags is several orders of magnitude higher than plastic levels previously reported in foods, with plastic tea bags, made from nylon and PET, leaching up to 3.1 billion nanoplastics and 11.6 billion microplastics into a single cup of the beverage (Hernandez et al. 2019). Another study on plastic tea bags found that up to 94% of the plastic tea bags released microplastic after steeping. Three types of tea bags were included in this study: non-woven PET with no string, non-woven PP with string, and woven nylon 6 with a string. The microplastics released mainly originated from the PET, PP, and PE in the non-woven tea bags and strings made of various plastic materials. The results showed that the nylon material bags had a lower risk of releasing microplastics during steeping and that plastic-free strings can greatly avoid the release of microplastics (Mei et al. 2022). Another study that analyzed microplastics released from paper and plastic tea bags found that steeping the paper tea bags did not result in any detectable amount of micro- or nano-plastic particles, whereas the pyramidal-shaped tea bags (made of a different material than paper) released a very large number of plastic nanoparticles as well as to a lesser extent microplastic particles (Nikolaevich and Nickolaevna 2021). A set of commercially available tea bags were analyzed in a study that used spectral imaging techniques to evaluate the plastic particles released when brewing a cup of tea and characterized the tea bag material into the following	Beneficial Impact

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
	classes: plastic, primarily nylon; a hybrid of paper and plastic with various polypropylene and cellulose ratios; and biodegradable tea bag free from any plastic traces (Xu et al. 2021). Of the six tea bag brands analyzed, four were observed to contain polypropylene at various concentrations, whereas one was almost fully made of nylon, and one was considered to be biodegradable without any sign of plastics in the material. Results showed that polypropylene particles were not detected after steeping cellulose-based bags, which authors attribute to either there being such a small amount of plastic released that it was undetectable or smaller than the detection limit. However, the nylon tea bag released a considerable number of plastic-related particles (Xu et al. 2021). A literature review that looked at studies on microplastic pollution in tea noted the lack of research available on microplastic contamination in tea worldwide, as well as the lack of a standard for detecting and counting microplastics, resulting in a large variation in the reporting of microplastic contamination in tea. This review found that the main sources of microplastics in tea leaves were due to the following: agricultural plastic films, plastic packaging of tea garden inputs, organic fertilizers, atmospheric deposition, and the plastic in the tools or containers used during processing (Xing et al. 2023). Based on the available studies, it appears that in general the paper tea bags studied released fewer microplastics than tea bags made of plastic. Since individual tea packets are not labeled to include the materials the bags consist of, it is often difficult to parse out specific information on paper bags with small amounts of plastic used in the sealing process. There is also a limited sample size and amount of studies on the release of plastics from various tea bag materials. Therefore, by banning the use of any plastic materials in tea bags, this would result in less potential for microplastics to be ingested by humans, which would be a beneficial impact.	
Foodware Policies: Beverage Pods	Plastic beverage pods are not a hazardous material, and a measure requiring an EPR program for single-use plastic pods would not change exposure of the product to humans. Therefore, it would have no impact on the handling of hazards in the City.	No Impact
Textile Policies: Textile Disposal Policies	The scientific literature regarding potential adverse health effects of chemical substances in the textile industry is mainly related with exposure to unsafe work conditions, fire, high temperatures, and harmful chemicals such as dyes, which contain carcinogenic amines, metals, pentachlorophenol, chlorine bleaching agents, formaldehyde, biocides, and fire retardants during production (Brigden et al. 2012). The requirement for a textile EPR program in the City would not cause an appreciable change in these hazards. Therefore, there would be no impact.	No Impact
Textile Policies: Washing Machine Microfiber Filtration	In California, 95% of microfibers are diverted from waterways via treatment of wastewater at municipal facilities, but they are not filtered out of biosolids at wastewater treatment plants (Geyer 2022). Therefore, the installation of microfiber filters on washing machines would result in the removal of microfibers before the water enters the wastewater treatment plant and would reduce the volume of microfibers in biosolids that are applied to agricultural lands as a soil amendment and fertilizer. Therefore, this measure would have a beneficial impact on hazardous materials.	Beneficial Impact

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
PFAS Ban	A growing body of scientific evidence shows that exposure at certain levels to specific PFAS can adversely impact the health of humans and other living things. PFAS are still used in a wide range of consumer products and industrial applications. The study of how PFAS affect the human body is a young field and current understanding is limited. High levels of PFAS in water or food may lead to: increased cholesterol levels; changes in liver enzymes; decreased vaccine response in children; increased risk of high blood pressure or pre-eclampsia in pregnant women; small decreases in infant birth weights; and increased risk of kidney or testicular cancer (ATSDR 2023). In 2016, the USEPA stated "exposure to PFOA and PFOS over certain levels may result in adverse health effects, including developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes)." The removal of PFAS from products in which they are non-essential (see Table 2.2-2) would reduce exposure of City residents who use these products to PFAS. Some PFAS replacements, such as rhamnolipids and pectins, are largely non-toxic. However, some PFAS replacements have been shown to exhibit toxicity (Lehman et al. 2000). The replacement chemical used in a product would depend on various factors including product type, effectivity of the chemical in inferring the required chemical properties, availability, and cost. In general, the replacement materials do not appear to be more toxic than PFAS. Therefore, this impact would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	Single-use plastic bag clips are not hazardous materials, and their replacement products (twist ties, cardboard clips, plastic tape) are not hazardous. They are not a source of plastic exposure to humans. Therefore, a ban on single-use bread clips would have no impact on hazards and hazardous waste in the City.	No Impact
Additional Product Bans: Aerosol String	Aerosol string is not a hazardous material. A ban on aerosol string in the City would have no impact on hazards and hazardous waste.	No Impact
Additional Product Bans: Plastic Sandbags	A ban on plastic sandbags would result in the use of alternative materials, including burlap, jute, cotton and canvas. None of these materials are hazardous. Therefore, there would be no impact on hazards or hazardous material due to a ban on plastic sandbags.	No Impact
Additional Product Bans: Lighter-Than-Air Balloons	Lighter-than-air balloons are not a hazardous material. A ban on lighter-than-air balloons would result in the increased use of alternative products such as flags, tissue paper, garlands, etc., as well as balloons filled with air, rather than helium. None of these alternatives are hazardous materials. Therefore, a ban on lighter-than-air balloons would have no impact on the transport, use, or disposal of hazardous materials.	No Impact
Additional Product Bans: Single-Use E-	Disposable e-cigarettes should not be disposed of in regular waste bins, because they contain electronic components, they are considered e-waste. The FDA states that all e-cigarette waste and e-liquid waste should be handled as household hazardous waste (Earth911 2023). However, e-cigarettes and vape pens are not	Beneficial Impact

Measure	Hazards and Hazardous Materials Impact Analysis	Significance Conclusion
Cigarettes and Vape Cartridges	allowed at the City's Household Hazardous Waste Collection Centers, also known as S.A.F.E. Centers which is where batteries would normally be recycled (LASAN 2023). Most disposable e-cigarettes are not designed to be taken apart easily (House of Commons Library 2022), which makes properly recycling the battery challenging. If the lithium-ion batteries are not able to be removed and recycled at the proper battery recycling locations, these may instead end up as hazardous waste in landfills or as litter in the City. Prohibiting the sale of single-use e-cigarettes and vape cartridges would reduce the number of these products that end up improperly disposed of at landfills and littered in the City, which pose hazards to sanitation workers as well as the public. Under certain conditions, the lithium-ion batteries in single-use e-cigarettes can catch fire or explode, putting workers at waste disposal sites and trucks at risk. Additionally, when littered or improperly discarded, broken devices can leach heavy metals (including mercury, lead, and bromines), battery acid, and nicotine into the environment (Hendlin 2018). Replacement products would be rechargeable and refillable, which would reduce the number of batteries and single-use cartridges which end up as hazardous waste in landfills. Therefore, the proposed measures would result in a beneficial impact on hazards to the public and environment.	
Additional Product Bans: Single-Use Printer Cartridges	The Department of Toxic Substances Control states that used printer toner cartridges, once removed from a printer, are considered treatment residuals and may be classified as exempt empty containers, if they are in fact empty. These empty cartridges may be sent for disposal or refill. The City does not provide guidance on how to properly dispose of spent printer cartridges as part of its Household Hazardous Waste Collection Centers, also known as S.A.F.E. Centers (LASAN 2023). Empty printer cartridges are not considered hazardous waste (DTSC 2012). However, if not empty, these cartridges may be considered hazardous waste and require proper management (DTSC 2012). Printing inks consist of three main components: vehicle, which is the most substantial component and carries the pigment and binder to fix the pigment to the page; pigments; and additives. For most inks, the vehicle component is made from petroleum, but it can also be made from linseed or soybean oil. The pigment is a visible color in ink and most pigments are chemical compounds that may contain trace metals such as cadmium, barium, chromium, copper, or zinc. Additives include waxes, lubricants, drying agents, reducing oils and solvents, binding varnish antioxidants, and resins for printing performance. Petroleum-based solvents used in many inks are VOCs which can contribute to water contamination if the inks are not handled properly or released in large quantities (University of Saskatchewan 2012). If printer cartridges are not empty, there is potential for heavy metals and VOCs, if present in ink, to leach into groundwater and soils when landfilled. The ban on single-use printer cartridges would potentially reduce the number of cartridges that end up in landfills due to replacement products which could be recycled for reuse. Therefore, a ban on single-use printer cartridges would result in a beneficial impact with regard to public exposure to hazardous materials by keeping printer cartridges out of landfills.	Beneficial Impact

Impact Criterion b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact Criterion c) Would the project hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Program's upstream measures do not involve handling hazardous materials and would not cause any physical changes to the environment that would increase the risk of upset or accident conditions. They would not result in hazardous emissions in the vicinity of schools. Therefore, there would be ***no impact*** with regard to Impact Criteria (b) and (c).

Impact Criterion d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Impact Criterion e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Impact Criterion f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Impact Criterion g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The Program's upstream measures would not result in any construction or ground-disturbing activities that would be located on a contaminated site or create noise, create a safety hazard, alter or impede traffic patterns, or alter the ability of emergency response personnel to respond to emergencies. The upstream measures would not result in any physical changes to the environment that would expose people or structures to a significant risk from wildland fires. Therefore, the upstream measures would have ***no impact*** with regard to Impact Criteria (d)-(g).

3.10.3.2.2 Downstream Measures

Impact Criterion a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

CONSTRUCTION

Construction activities associated with the installation of new downstream facilities would involve transport, use, and disposal of hazardous materials. This would include the use of hazardous materials typically used by construction vehicles and heavy equipment (e.g., gasoline, diesel fuel, transmission fluid, brake fluid, hydraulic fluid, solvents, motor oils, and lubricating grease), primarily within the immediate vicinity of the construction areas and at the project staging areas. Additionally, on a temporary basis, construction activities would involve the use of other potentially hazardous materials, including welding materials, propane, paints, canned spray paint, and paint thinner. All hazardous materials would be used, transported, and disposed of in accordance with applicable regulations.

In general, hazardous materials, asbestos-containing materials, lead-containing paint, or other hazardous materials including residual contamination in soils may be encountered during excavation activities. As such, construction activities would also potentially generate hazardous waste that would require disposal including petroleum hydrocarbons and asbestos- and lead paint-containing materials. Accidental discharge of hazardous materials or inappropriate disposal of hazardous materials during construction could result in a hazard to the public or the environment. To reduce the impact from the generation of waste to less than significant, **MM HAZ-1** would require implementation of a Waste Management Plan for all hazardous and non-hazardous waste generated during facility construction and demolition activities. The Waste Management Plan would describe waste management procedures and all aspects associated with construction of a new downstream facility. In addition, to further minimize the potential hazards to the public or the environment associated with hazardous materials, **MM HAZ-2** would require that all parties involved in construction activities are aware of the potential hazards and properly trained to address them.

Construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Construction Permit. LASAN would prepare a SWPPP in compliance with Section 402 of the federal CWA and would file a Notice of Intent with the SWRCB to obtain coverage under the SWRCB NPDES General Construction Permit (Order 2022-057-DWQ). The SWPPP would include spill prevention measures to avoid and, if necessary, clean up accidental releases of hazardous materials. Compliance with all NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and associated BMPs, would minimize the potential for mishandling and/or the release of hazardous materials. Therefore, with incorporation of **MM HAZ-1** and **MM HAZ-2**, construction activities would not result in significant hazards to the public or the environment, and impacts would be ***less than significant with mitigation***.

OPERATION

Waste processing or handling facilities and the types of hazardous waste (i.e., hazardous, universal, special, recyclable materials, and major appliances) that may arrive at these facilities are listed in Table 3.10-3. Provisions to segregate these hazardous wastes at these facilities, and then transport the segregated wastes for recycling or disposal, is required to be integrated into the facility design and operations plans.

Table 3.10-3. Summary of Green Bin, Blue Bin, and Black Bin Facilities and Waste Streams

Facility Type	Waste Accepted	Potential Hazardous Waste Category that May Arrive at Facility
Green Bin Facilities		
Anaerobic Digestion	Residential green bin materials including food scraps, food-soiled paper, and other organics	Provided by commercial vendors and households and considered non-hazardous
Aerobic Composting and Mulching	Yard trimmings, food scraps, source-separated organics, manure, and wood wastes	Provided by commercial vendors and households and considered non-hazardous
Blue Bin Facilities		
Clean Materials Recovery	Residential blue bin materials and commercial source-separated recyclables	Hazardous, Universal, Special, and Recyclable Wastes
Resource Recovery	Self-hauled recyclable and reusable/useable materials	Universal & Recyclable Wastes and Major Appliances
Construction and Demolition Materials Processing	Mixed construction and demolition debris	Provided by commercial vendors and considered inert (non-hazardous) and recoverable
Black Bin Facilities		
Mixed Material Processing	Residential black bin materials and commercial solid waste	Hazardous, Universal, Special, and Hazardous Recyclable Wastes
Advanced Thermal Recycling	Residential black bin materials and commercial solid waste	Hazardous, Universal, Special, and Hazardous Recyclable Wastes
Non-Combustion Thermal Technologies	Residential black bin materials and commercial solid waste	Hazardous, Universal, and Special Wastes

Operation of the downstream green bin, blue bin, and black facilities may involve the transport and disposal of hazardous waste generated by the public. Similarly, other downstream facilities required for foodware and linen washing facilities may involve transport, use, and disposal of hazardous materials (e.g., cleaning products). Depending on the location of future facilities, these activities could present a significant hazard to the public. However, extensive safety procedures and measures required by federal, state, and local laws protect worker health and safety and the environment to the maximum extent possible.

The future location of downstream facilities is not known. Once a location is identified, the potential for hazards would be evaluated using site-specific information. Compliance with all applicable regulations involving the use, transport, and disposal of hazardous substances would minimize the risk of an accidental release of hazardous materials during disposal. Specifically, the Hazardous Materials Release Response Plans and Inventory Act requires facilities using hazardous materials or generating hazardous wastes to prepare Hazardous Materials Business Plans. These plans specify storage, secondary containment, and proper hazardous material and waste management procedures and practices, including personnel training and emergency response actions to contain, cleanup, and report unauthorized releases or spills. The Emergency Planning and Community Right-to-Know Act regulates facilities that use hazardous materials and wastes in quantities that require reporting to emergency response officials of the applicable Local Emergency Planning Committee. The Emergency Planning and Community Right-to-Know Act provides the requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals. Depending on where the future facilities are located and the types of materials they handle, community emergency plans may need to be reviewed and updated. Mandatory compliance with these required procedures would ensure impacts related to disposal of potentially hazardous residual waste are minimized. With compliance to the extensive existing federal, state, and local regulations related to transport, use, and disposal of hazardous materials, impacts would be reduced to below a level of significance. Therefore, impacts would be ***less than significant***.

Impact Criterion b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

CONSTRUCTION

Construction activities could result in the exposure of construction workers and nearby residents to potentially contaminated soils or groundwater due to improper use, storage, or disposal of hazardous materials and/or leakage from underground storage tanks or other chemical containers on site. In the event of a spill, impacts could be significant. Compliance with all NPDES Construction General Permit requirements including the preparation and implementation of a SWPPP and associated BMPs, would minimize the potential for the release of hazardous materials. However, as described in the impact evaluation for Impact Criterion (a), accidental discharge of hazardous materials or inappropriate disposal of hazardous materials during construction could result in a hazard to the public or the environment. To reduce these potentially hazardous impacts from construction activities to less than significant, **MM HAZ-1** would require implementation of a Waste Management Plan for all hazardous and non-hazardous waste generated during facility construction and demolition activities. The Waste Management Plan would describe waste management procedures and all aspects associated with construction of a new downstream facility. Implementation of **MM HAZ-2** would require that Material Safety Data Sheets are provided to on-site personnel for hazardous materials that would be present at the construction site as well as require that all staff undergo WEAP training that would include instructions in case of a spill or release of hazardous materials and would comply with applicable laws and regulation regarding the use, transportation, and disposal of hazardous materials. Implementation of **MM HAZ-1** and **MM HAZ-2** would reduce these potentially hazardous impacts from construction activities to a less-than-significant level. Therefore, impacts are considered ***less than significant with mitigation***.

OPERATION

As discussed for Impact Criterion (a) above, operation of the downstream facilities may involve the transport and disposal of hazardous waste that may be generated. Depending on the location of future facilities, these activities could present a significant hazard to the public. However, extensive safety procedures and measures required by federal, state, and local laws protect worker health and safety and the environment to the maximum extent possible.

The future location of downstream facilities is not known. Once a location is identified, the potential for hazards would be evaluated using site-specific information. Compliance with all applicable regulations involving the use, transport, and disposal of hazardous substances would minimize the risk of an accidental release of hazardous materials during disposal. Specifically, the Hazardous Materials Release Response Plans and Inventory Act requires facilities using hazardous materials or generating hazardous wastes to prepare Hazardous Materials Business Plans. These plans specify storage, secondary containment, and proper hazardous material and waste management procedures and practices, including personnel training and emergency response actions to contain, cleanup, and report unauthorized releases or spills. The Emergency Planning and Community Right-to-Know Act regulates facilities that use hazardous materials and waste in quantities that require reporting to emergency response officials of the applicable Local Emergency Planning Committee. The Emergency Planning and Community Right-to-Know Act provides the requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals. Depending on where the future facilities are located and the types of materials they handle, community emergency plans may need to be reviewed and updated. Mandatory compliance with these required procedures would ensure impacts related to disposal of potentially hazardous residual waste are minimized. With compliance with the extensive existing federal, state, and local regulations related to transport, use, and disposal of hazardous materials, impacts would be reduced to below a level of significance. Therefore, impacts would be ***less than significant***.

Impact Criterion c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

CONSTRUCTION

The future facility locations are currently undetermined. Due to the potentially extensive nature of the proposed Program, it is possible that construction of proposed facilities would occur within one-quarter mile (1,320 feet) of schools in the Los Angeles Unified School District. Because construction activities could potentially involve hazardous materials or substances, construction of new downstream facilities would have the potential to emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. To reduce these potentially hazardous impacts from construction activities to less than significant, **MM HAZ-1** would require implementation of a Waste Management Plan for all hazardous and non-hazardous waste generated during facility construction and demolition activities. The Waste Management Plan would describe waste management procedures and all aspects associated with construction of a new downstream facility. Implementation of **MM HAZ-2** would require that Material Safety Data Sheets are provided to on-site personnel for hazardous materials that would be present at the construction site as well as require that all staff undergo WEAP training that would include instructions in case of a spill or release of hazardous materials and would comply with applicable laws and regulation regarding the use, transportation, and disposal of hazardous materials. Implementation of **MM HAZ-1** and **MM HAZ-2** would reduce these potentially hazardous impacts from construction activities to a less than significant level. Therefore, impacts are considered ***less than significant with mitigation***.

OPERATION

As discussed for Impact Criterion (a) above, operation of the downstream facilities may involve the transport and disposal of hazardous waste that may be generated. Depending on the location of future facilities, these activities could occur within one-quarter mile of a school. However, extensive safety procedures and measures required by federal, state, and local laws protect the public and environment to the maximum extent possible. The future location of downstream facilities is not known. Once a location is identified, the potential for hazards would be evaluated using site-specific information.

The SCAQMD regulates emissions according to the geographic area and potential sensitive receptors. Emissions from waste incineration and potential for handling hazardous wastes must be assessed on a case-by-case basis to determine if siting of waste processing or handling facilities is protective of existing and future school students and staff within one-quarter mile.

In addition, the Hazardous Materials Release Response Plans and Inventory Act requires facilities using hazardous materials or generating hazardous wastes to prepare Hazardous Materials Business Plans. These plans specify storage, secondary containment, and proper hazardous material and waste management procedures and practices, including personnel training and emergency response actions to contain, cleanup, and report unauthorized releases or spills. The Emergency Planning and Community Right-to-Know Act regulates facilities that use hazardous materials and wastes in quantities that require reporting to emergency response officials of the applicable Local Emergency Planning Committee. The Emergency Planning and Community Right-to-Know Act provides the requirements for emergency release notification, chemical inventory reporting, and toxic release inventories for facilities that handle chemicals. Depending on where the future facilities are located and the types of materials they handle, community emergency plans may need to be reviewed and updated.

Compliance with all applicable regulations involving the use, transport, and disposal of hazardous substances would minimize the risks associated with operation of downstream facilities. Mandatory compliance with these required procedures would ensure impacts related to disposal of potentially hazardous residual waste are minimized. As noted above, a Hazardous Materials Business Plan would be required for facilities using hazardous materials or generating hazardous waste. The Hazardous Materials Business Plan would address appropriate land use buffer, proper storage of hazardous materials, updating of community emergency plans, if needed, preparing a health and safety plan for future facilities, and implementing spill containment measures at future facilities. With compliance with the extensive existing federal, state, and local regulations related to transport, use, and disposal of hazardous materials, impacts would be reduced to below a level of significance. Therefore, impacts would be ***less than significant***.

Impact Criterion d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

CONSTRUCTION AND OPERATION

California Government Code Section 65962.5(a)(1) requires DTSC to compile and update, at least annually, a list of all hazardous waste facilities where DTSC has: (1) taken corrective action because a facility owner or operator has failed to comply with corrective action requirements (CHSC Section 25187); or (2) has determined that immediate corrective action is necessary to abate an imminent or substantial endangerment. Due to the uncertainty of where future facilities would be located, there is a potential that the facility could be located on or adjacent to a site that is listed by DTSC as needing corrective action. This represents a potentially significant impact. Implementation of **MM HAZ-3** would require that a Phase I Environmental Site Assessment be conducted prior to siting waste facilities. Based on the Phase I ESA findings, recommendations for further assessment or mitigation measures would assess or mitigate potential environmental impacts. Should the assessments required under **MM HAZ-3** identify contaminants above the applicable cleanup goals, a Remediation Action Plan and Soil Management Plan would be required per **MM HAZ-4** in order to reduce any identified contaminants to below a level of significance. Therefore, with incorporation of **MM HAZ-3** and **MM HAZ-4** this impact is considered ***less than significant with mitigation***.

Impact Criterion e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

CONSTRUCTION AND OPERATION

The future facility locations are currently undetermined. Due to the potentially extensive nature of the proposed Program, it is possible that construction of proposed facilities would occur within two miles of a public airport or public use airport. Industrial uses such as materials handling facilities are generally considered compatible land uses within the LAX Specific Plan Area (per LAX Specific Plan, Ordinance 182542), Van Nuys Airport Plan (per Van Nuys Airport Plan, Ordinance 177327), and City of Los Angeles land use zoning in and surrounding the Hollywood Burbank Airport. However, not all downstream facility types may be compatible with airport land use plans and policies. Therefore, the potential for these future facilities to conflict with an airport land use plan or operations at a public or private airport is dependent upon where future facilities are sited. Due to the uncertainty at this time, a potentially significant impact to airports is identified. Implementation of **MM HAZ-5** would require an assessment of whether the proposed facility would result in any impacts to airport operations or if it would subject people to a significant risk due to airport operations. Per **MM HAZ-5**, if potential impacts are identified, a different site shall be selected or mitigation measures shall be implemented during the project level environmental analysis to reduce the potential impact to airport operations to below a level of significance. Future facilities would be subject to additional review pursuant to CEQA, and any potential conflicts with existing airports would be identified. In addition, **MM TR-1** requires that upon approval of any future facility, a traffic control plan is developed to identify appropriate lane closures/routing and detours. This information would also be provided to local emergency providers to ensure adequate access and travel for emergency vehicles is maintained. Therefore, with incorporation of **MM HAZ-5** and **MM TR-1**, impacts would be ***less than significant with mitigation***.

Impact Criterion f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

CONSTRUCTION AND OPERATION

As future designs are proposed for the facilities, emergency access would be considered for both construction and operation of each facility. LADOT would review the site plan and improvements to ensure that there is adequate emergency access. In addition, incorporation of **MM TR-1** would ensure adequate access and travel for emergency access for the facility. Should construction of any of these facilities result in any kind of temporary road closure, per **MM TR-1**, a traffic control plan would be developed to identify appropriate lane closures/routing and detours. This information would also be provided to local emergency providers to ensure adequate access and travel for emergency vehicles is maintained. However, depending on the project location and construction and operation activities and/or feasibility of mitigation measures, in some circumstances, emergency access may be impeded. Therefore, emergency access impacts during the construction phase and operations of future facilities are considered ***significant and unavoidable***.

Impact Criterion g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Construction and Operation

PRC Section 4126 classifies lands that are state and privately-owned forest, watershed, and rangeland as State Responsibility Areas (SRAs), in which the Department of Forestry and Fire Protection (CAL FIRE) is the primary emergency response agency responsible for fire suppression and prevention. CAL FIRE is required to map Fire Hazard Severity Zones (FHSZs) in SRAs based on factors such as fuel, slope, and fire weather to identify the degree of fire hazard throughout California. As shown in Figure 3.21-1 in Section 3.21, Wildfire, large portions of the Program Area are within VHFHSZs in the Local Responsibility Area (LRA).

Activities associated with construction downstream facilities in VHFHSZs could interfere with adopted emergency response or evacuation plans as a result of temporary construction activities within rights-of-way. However, temporary construction barricades or other construction-related obstructions used for project development that could impede emergency access would be subject to the City's permitting process, which requires a traffic control plan subject to City review and approval (reinforced with implementation of **MM TR-1** which requires a traffic analysis and mitigation of any identified impacts upon approval of any future facilities). Implementation of the traffic control plan would limit the extent to which construction activities would impair or physically interfere with adopted emergency response or evacuation procedures. As part of standard development procedures, future plans for downstream facilities in VHFHSZs would be submitted for review and approval to ensure that the facility has adequate emergency access and escape routes in compliance with existing City regulations.

During operations, to the extent any downstream facility is located in or near VHFHSZs or SRAs as mapped by CAL FIRE and Fire Brush Clearance Zones, regulations require fire risks be minimized during high fire season through vegetation clearance, maintenance of landscape vegetation to minimize fuel supply that would spread the intensity of a fire, compliance with provisions for emergency vehicle access, use of approved building materials and design, and compliance with LAFD hazardous vegetation clearance requirements pursuant to the Los Angeles Fire Code. Part 9 of the California Fire Code mandates minimum building requirements designed to "safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions, …and provide safety and assistance to firefighters and emergency responders." The requirements apply to the construction, alteration, movement, or movement of buildings, in addition to repairs, operation of equipment, use and occupancy of buildings, means of egress, evacuation plans, location, maintenance, removal, and demolition of every building or structure or any appurtenances. PRC Section 4290 establishes minimum standards related to defensible space, including provisions pertaining to road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts. Applicable sections of the PRC mandate standards for firebreaks (PRC Section 4292) and operation of power equipment (PRC Sections 4427, 4428, 4431) intended to minimize risks in areas subject to wildfire. Provisions in the Los Angeles

Fire Code reinforce state safety regulation by defining standards for the design of fire access roads (PRC Section 503), mandating fire safety procedures for the construction and demolition of structures (PRC Section 3301-3317), regulating the types of activities permitted within a VHFHSZ (PRC Section 4908), and requiring that property owners in a VHFHSZ clear brush and other native vegetation within a 200-foot radius of a building (PRC Section 57.322).

Based on all of the above, the City's extensive regulations and project review scheme would ensure that impacts related to the construction and operation of a downstream facility in SRA or VHFHSZ areas, exacerbating wildfire risks and resulting in risks to people and structures from pollutants, flooding, and landslides, would be avoided. However, based on unknown site-specific conditions or hazards or project characteristics impacts may occur. Any new buildings constructed in SRA or VHFHSZ would require plan review by the LAFD, and brush would require clearance in accordance with Ordinance 185789. However, potentially significant impacts could occur if construction or operational activities blocked access for emergency vehicles. Implementation of **MM HAZ-6** would reduce demands on LAFD for fire protection services. In addition, implementation of **MM HAZ-7** would be expected to reduce the risk of construction-related activities impairing an emergency response plan or emergency evacuation plan for those projects LAFD finds pose an unusual threat that existing regulations do not address by limiting parking on streets in areas subject to fire-hazard-related parking restrictions, limiting the amount of heavy machinery on a development site at a given time, regulating traffic related to construction and deliveries, and installing personnel to coordinate traffic to and from the development site. With implementation of **MM TR-1**, **MM HAZ-6,** and **MM HAZ-7** impacts would be reduced. However, based on unknown site-specific conditions or hazards or project characteristics impacts may occur. Therefore, impacts are potentially ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM HAZ-1: Waste Management Plan. No less than 30 days prior to site disturbance activities, LASAN shall prepare and submit a Waste Management Plan to the DTSC and Los Angeles Fire Department (the local Certified Unified Program Agency [CUPA]) for their review and approval to other local agencies, if applicable, for review and comment. The Waste Management Plan shall include, but not be limited to, the following:

- A description of all waste streams, including projections of frequency, amounts generated, and hazard classifications; methods of managing each waste, including storage, treatment methods, and companies contracted with for treatment services; waste testing methods to ensure correct classification; methods of transportation, disposal requirements and disposal sites; and recycling and waste minimization/reduction plans.
- Procedures for managing excavated soil, which may contain residual chemicals from previous operation activities. The procedures shall include the designation of a state registered Professional Engineer or Professional Geologist to oversee soil excavation and, if necessary, investigation and cleanup in the event that contamination is encountered; sampling procedures to assess the nature and extent of contamination; and reporting and notification requirements.
- A work plan for conducting a hazardous building materials survey of structures to be demolished and removed. The materials to be surveyed shall include but not be limited to asbestos-containing

materials, lead-containing paint, PCBs in fluorescent light ballasts, and/or mercury in fluorescent light tubes.

MM HAZ-2: WEAP. LASAN shall develop a WEAP to expand the utility of the SWPPP and **MM HAZ-1**. LASAN shall also prepare a presentation used to train all site personnel prior to the commencement of work. A record of all trained personnel shall be kept. In addition to instruction on compliance with any mitigation measures identified, all construction personnel shall also receive the following:

- A list of phone numbers for the LASAN environmental specialist personnel associated with the Project (archaeologist, biologist, environmental compliance coordinator, and spill response coordinator).
- Instructions regarding the individual responsibilities under the CWA, the Project SWPPP, site-specific BMPs, and the location of Material Safety Data Sheets for the Project.
- Instructions to notify the foreman and spill response coordinator in case of a hazardous materials spill or leak from equipment, or upon the discovery of soil or groundwater contamination.
- A copy of the truck routes to be used for material delivery.
- Instruction that noncompliance with any laws, rules, regulations, or mitigation measures could result in being barred from participating in any remaining construction activities associated with the Project.
- Emergency response measures and routes.

MM HAZ-3: Phase I/II Environmental Site Assessment. Prior to siting waste facilities, a Phase I Environmental Site Assessment shall be conducted in conformance with industry-accepted practices, ASTM Designation E1527-05, and the USEPA All Appropriate Inquiry Rule (40 CFR Section312). Based on the Phase I ESA findings, recommendations for further assessment (i.e., Phase II Environmental Site Assessment) or mitigation measures shall be recommended, as appropriate, to assess or mitigate potential environmental impacts under the oversight of the applicable regulatory agency (e.g., LAFD, DTSC, SWRCB).

MM HAZ-4: Remediation Action Plan/Soil Management Plan. Should the assessments required under **MM HAZ-3** above reveal chemicals of concern above applicable cleanup goals, a qualified environmental consultant shall be retained to prepare a Remediation Action Plan and Soil Management Plan (RAP/SMP), which will be submitted to the appropriate oversight agency (e.g., LAFD, DTSC, SWRCB) for review and approval prior to the commencement of excavation and grading activities. The RAP/SMP shall be implemented during excavation and grading activities on the Project Site to ensure that any contaminated soils are properly identified, excavated, and disposed of off-site, as follows:

- The RAP/SMP shall be prepared and executed in accordance with SCAQMD Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil. The RAP/SMP shall require the timely testing and sampling of soils so that contaminated soils can be separated from inert soils for proper disposal. The SMP shall specify the testing parameters and sampling frequency. Anticipated testing includes total petroleum hydrocarbons (TPH), VOCs, and semi-volatile organic compounds (SVOCs). During excavation, Rule 1166 requires that soils identified as contaminated shall be sprayed with water or another approved vapor suppressant or covered with sheeting during periods of inactivity of greater than an hour to prevent contaminated soils from becoming airborne. Under Rule 1166, contaminated soils shall be transported from the project site by a licensed transporter and disposed of at a licensed storage/treatment facility to prevent contaminated soils from becoming airborne or otherwise released into the environment.

- Prior to the commencement of grading and excavation, the findings of the Phase I/II Environmental Site Assessment (ESA) for the project and additional assessment conducted per **MM HAZ-3**, shall be reported to the appropriate oversight agency (e.g., LAFD, DTSC, SWRCB) for review and comment. The recommendations of the Los Angeles Fire Department Health and Hazardous Materials Division, Site Mitigation Unit and LAFD shall be incorporated in the RAP/SMP.
- A qualified environmental consultant shall be present on the project site during grading and excavation activities in the known or suspected locations of contaminated soils or underground storage tank (UST), and shall be on call at other times as necessary, to monitor compliance with the RAP/SMP and to actively monitor the soils and excavations for evidence of contamination.
- If a UST is discovered, it shall be removed in accordance with LAMC Section 57.31.52 (Abandonment of Underground Storage Tanks). As required by LAMC Section 57.31.52, the Applicant shall notify the LAFD prior to tank removal, inert (remove or neutralize any flammable materials and vapors) the UST prior to transport, and establish to the satisfaction of the LAFD that no release of hazardous materials has occurred. The UST shall be properly disposed of by a licensed contractor in accordance with applicable regulations.
- During the project's excavation phase, impacted materials shall be removed and properly disposed of in accordance with the provisions of the RAP/SMP. If soil is stockpiled prior to disposal, it will be managed in accordance with the project's Storm Water Pollution Prevention Plan, prior to its transfer for treatment and/or disposal. All impacted soils shall be properly treated and disposed of in accordance with SCAQMD Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil, as well as applicable requirements of DTSC and LARWQCB.

MM HAZ-5: Airport Safety Hazard Assessment. If future downstream facilities are sited within an area governed by an airport land use plan or within 2 miles of a public or private airport, analysis shall be undertaken to assess if the proposed facility would result in a violation of airport safety regulations provided by 14 CFR, Part 77. If potential impacts are identified, a different site shall be selected or the assessment shall include recommendations to reduce the potential impact to airport operations. Such measures could include maintaining certain percentages of low-occupancy areas (e.g., undeveloped areas, parking areas), building heights, and building lights.

MM HAZ-6: Emergency Access. For downstream facilities located in or adjacent to an SRA or VHFHSZ, and where LAFD finds it necessary on the basis that existing regulations are not adequate to avoid risk of fire based on unusual site-specific, area, roadway or project characteristics, during construction, access roads and alleyways shall remain clear and unobstructed in order to ensure access for emergency vehicles. If road closures during construction are necessary, a detailed Construction Management Plan including street closure information, a detour plan, haul routes, and a staging plan, shall be prepared and submitted to the LAFD and the LADOT for review and approval. Furthermore, if emergency access gates are provided on a project access road, the gates shall be equipped with approved locking devices for both Los Angeles City and County Fire Departments on both sides of the gate. Signs shall be provided on the project access road.

MM HAZ-7: Hillside Construction Staging and Parking Plan. For downstream facilities located in or adjacent to an SRA or VHFHSZ, where LAFD finds it necessary to add additional conditions above existing regulations to reduce the risk of construction-related activities impairing an emergency response plan or emergency evacuation plan, prior to the issuance of a grading or building permit, the applicant shall submit a Construction Staging and Parking Plan to the Department of Building and Safety and the Fire Department for review and approval. The plan shall identify where all construction materials, equipment, and vehicles would be stored through the construction phase of the project, as well as where contractor, subcontractor, and laborers would park their vehicles so as to prevent blockage of two-way traffic on streets in the vicinity of the construction site. The Construction Staging and Parking Plan shall include, but not be limited to, the following:

- No construction equipment or material shall be permitted to be stored within the public right-of-way.
- If the property fronts on a designated Red Flag Street, on noticed "Red Flag" days, all workers shall be shuttled from an off-site area, located on a non-Red Flag Street, to and from the site in order to keep roads open on Red Flag days.
- During the Excavation and Grading phases, only one truck hauler shall be allowed on the site at any one time. The drivers shall be required to follow the designated travel plan or approved Haul Route.
- Truck traffic directed to the project site for the purpose of delivering materials, construction machinery, or removal of graded soil shall be limited to off-peak traffic hours, Monday through Friday only. No truck deliveries shall be permitted on Saturdays or Sundays.
- All deliveries during construction shall be coordinated so that only one vendor/delivery vehicle is at the site at one time, and that a construction supervisor is present at such time.
- A radio operator shall be on-site to coordinate the movement of material and personnel, in order to keep the roads open for emergency vehicles, their apparatus, and neighbors.

During all phases of construction, all construction vehicle parking and queuing related to the project shall be as required to the satisfaction of the Department of Building and Safety, and in substantial compliance with the Construction Staging and Parking Plan, except as may be modified by the Department of Building and Safety or LAFD.

3.11 Hydrology and Water Quality

This section describes the existing hydrology and water quality of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on hydrology and water quality in the City. Table 3.11-1 summarizes impacts on hydrology and water quality that could result from implementation of the Program or alternatives.

Table 3.11-1. Summary of Hydrology and Water Quality Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM HWQ-1: Hydrology Study MM UTIL-3: Water Conserving Design MM UTIL-4: Water Supply Assessment
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?	Upstream: No Impact	None
	Downstream: Less than Significant	None
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Upstream: No Impact	None
	Downstream: Less than Significant	None

Would the Program:	Impact Determination	Mitigation Measure(s)
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Upstream: No Impact	None
	Downstream: Less than Significant	None

3.11.1 Existing Conditions

Los Angeles is located in a semi-arid area along the Pacific Ocean. LADWP has the responsibility of supplying, conserving, treating, and distributing water for firefighting, agriculture, domestic, and industrial uses in the City. LADWP obtains its water supply from local wells in the Los Angeles area groundwater basin, the Los Angeles aqueducts, and by purchasing from the Metropolitan Water District. As of 2021, the 5-year average for water resources indicated that 41% was purchased from Metropolitan Water District, 48% came from the LA Aqueduct (Eastern Sierra Nevada), 9% came from groundwater, and 2% was recycled water (LADWP 2022). Water use in the City is estimated to be about 106 gallons per person per day (LADWP 2022).

Los Angeles has a goal of recycling all of its wastewater, fully utilizing groundwater, and capturing and cleaning stormwater in order to use less water per capita and reflect that conservation is a California way of life (City of Los Angeles 2019). To that end, the City has set goals to:

- Source 70% of L.A.'s water locally and capture 150,000 AFY of stormwater by 2035;
- Recycle 100% of all wastewater for beneficial reuse by 2035;
- Build at least 10 new multi-benefit stormwater capture projects by 2025; 100 by 2035; and 200 by 2050;
- Reduce potable water use per capita by 22.5% by 2025 and 25% by 2035; and maintain or reduce 2035 per capita water use through 2050; and
- Install or refurbish hydration stations at 200 sites, prioritizing municipally-owned buildings and public properties such as parks, by 2035.

The City maintains that sourcing water locally uses less energy and makes the City's water supply more resilient to expected natural disasters and shocks. The L.A. Aqueduct is gravity fed, producing hydro-electric energy as it moves water (City of Los Angeles 2019).

3.11.1.1 Surface Water

Surface waters in the City consist of many channels and washes, many of which are concrete-lined. The City encompasses portions of four watersheds: Los Angeles River (Hydrologic Unit Code [HUC] 18070105), Ballona Creek (HUC 18070104), Santa Monica Bay (HUC 18070104), and Dominguez Channel (HUC 18070104). The major watershed and drainage is the Los Angeles River, which begins near Canoga Park and flows south to San Pedro Bay at Long Beach. Important tributaries include the Rio Hondo, Dominguez Channel, and Ballona Creek. Numerous reservoirs are also present within the City (Figures 3.11-1 through 3.11-3).

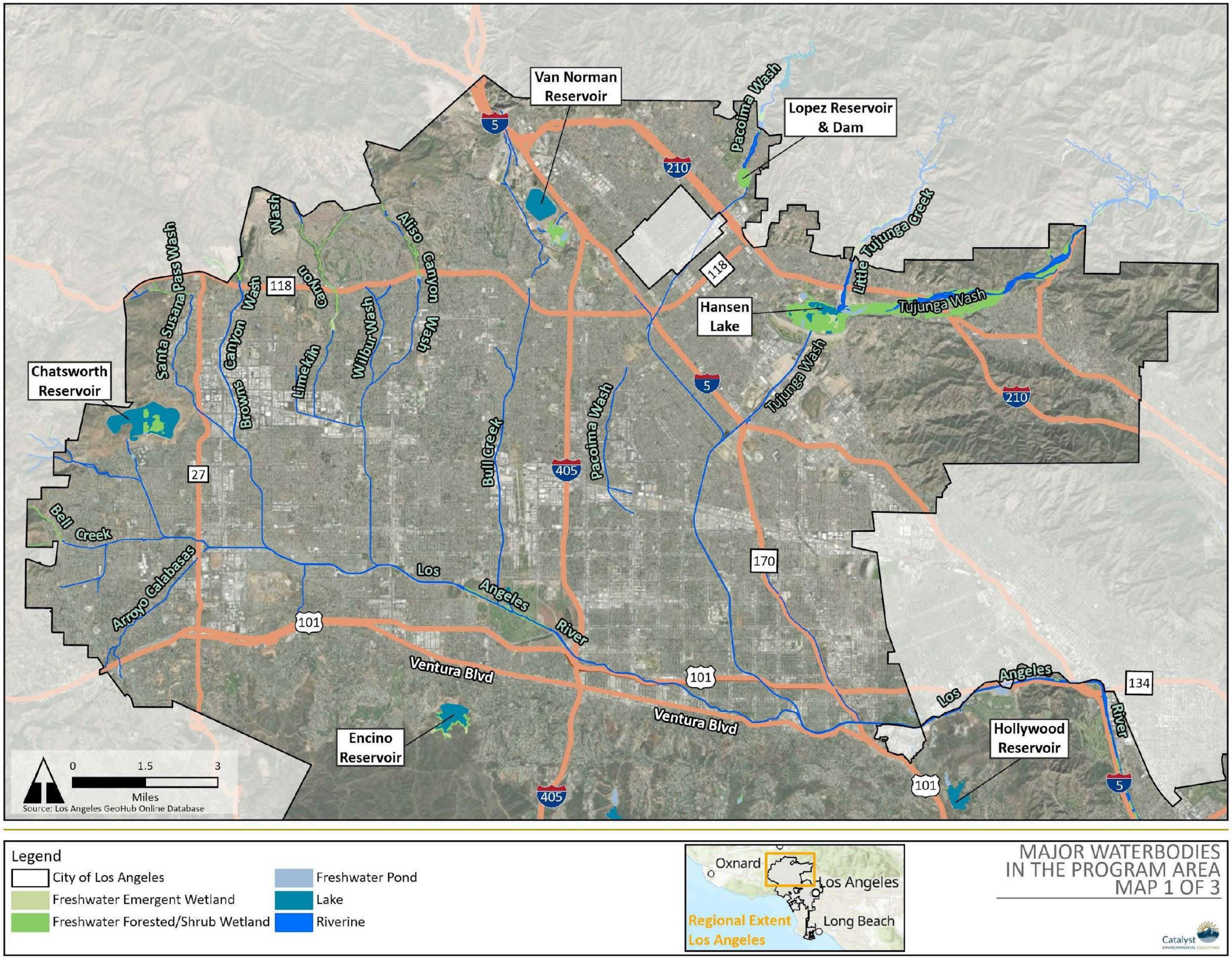


Figure 3.11-1. Major Waterbodies in the City (1 of 3)

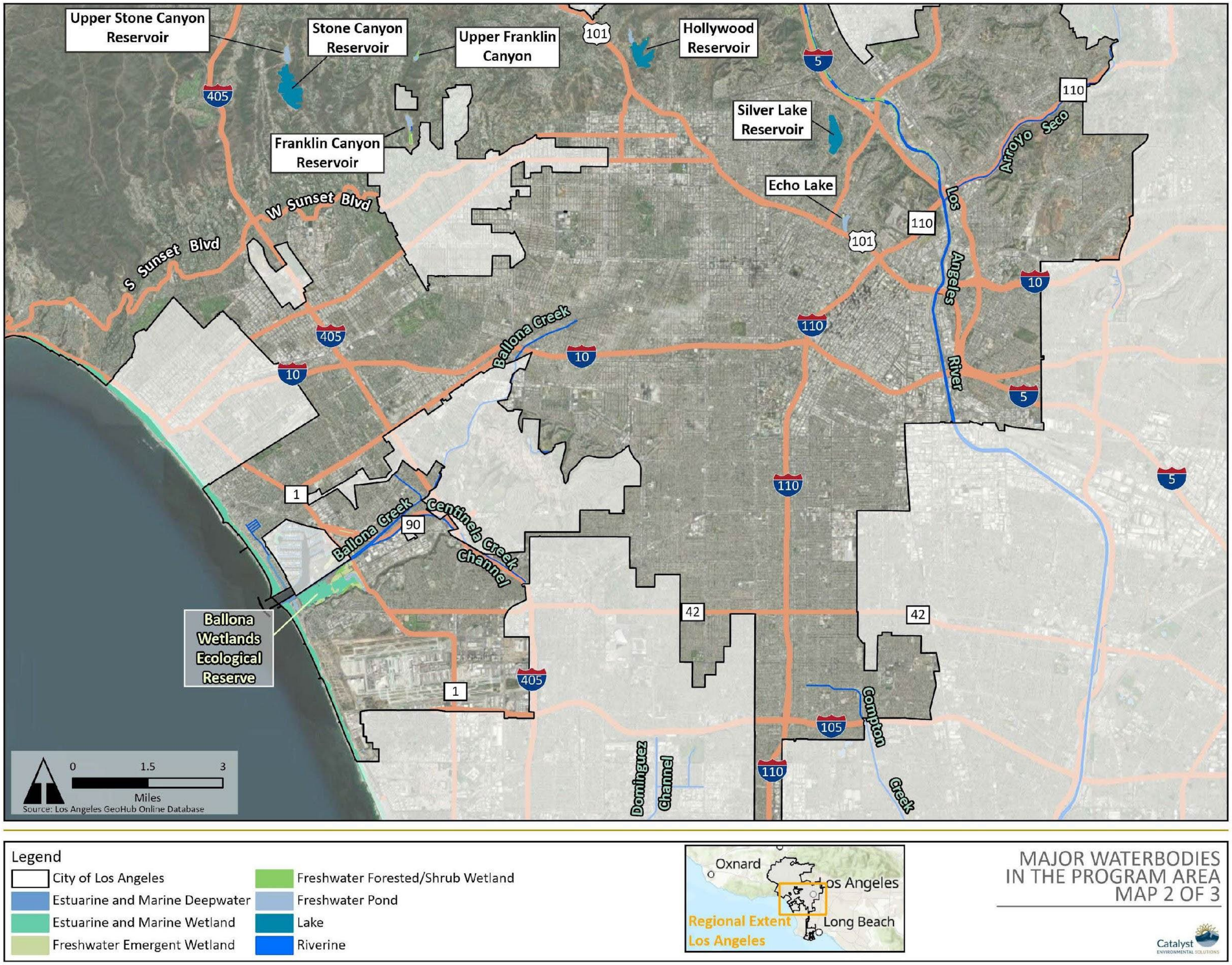


Figure 3.11-2. Major Waterbodies in the City (2 of 3)

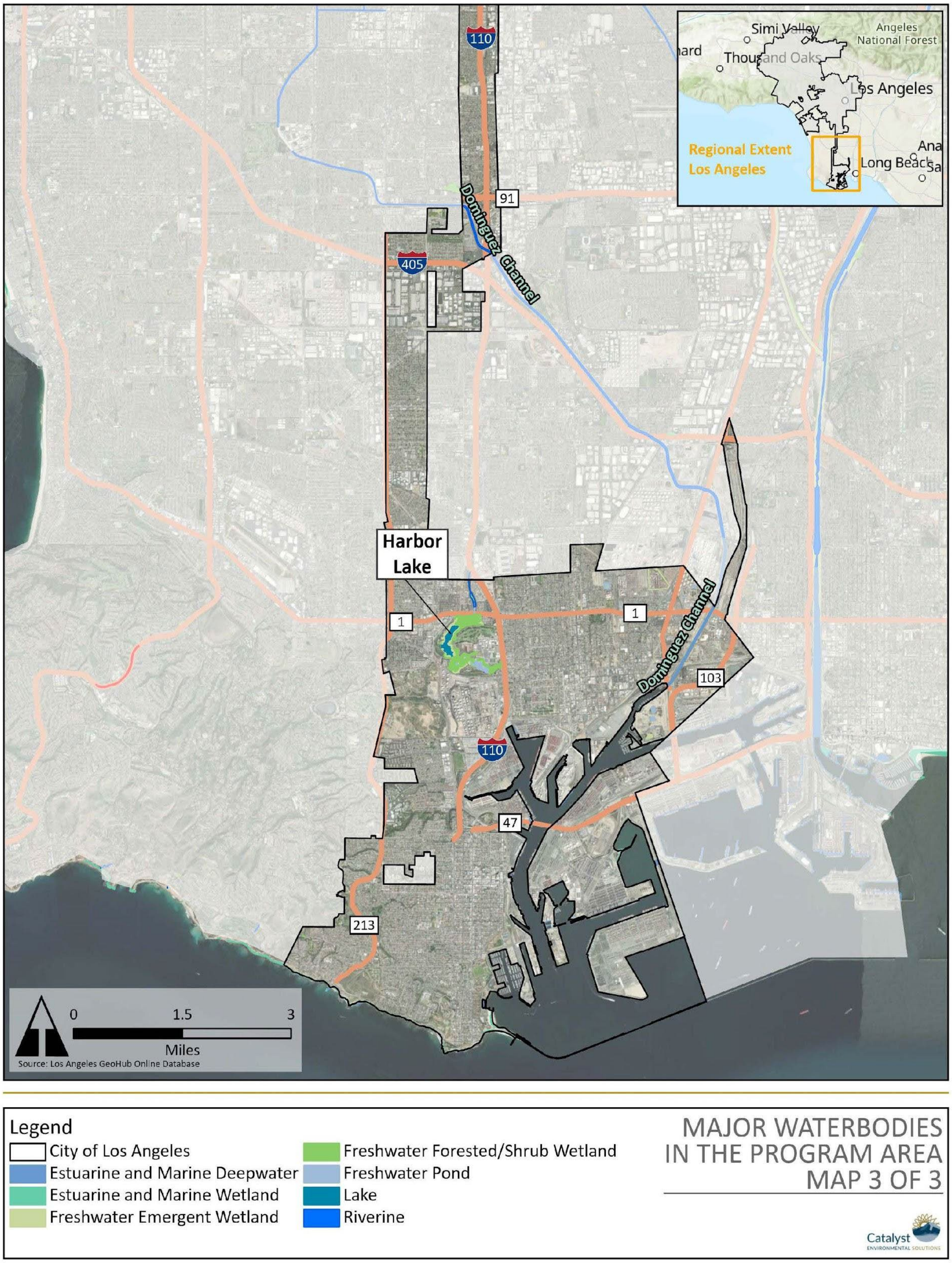


Figure 3.11-3. Major Waterbodies in the City (3 of 3)

3.11.1.2 Groundwater

Situated on a semi-arid coastal plain, the greater Los Angeles area relies on groundwater for 9% of its water supply. Numerous groundwater basins underlay the City. Recharge occurs naturally by precipitation or artificially with imported or reclaimed water. Artificial recharge is used to offset declining groundwater levels and create storage for use in times of drought. Historically, groundwater development in the Central and West Coast Basins caused a sharp decline in groundwater levels as well as seawater intrusion.

The groundwater basins in the San Fernando Valley are grouped into the San Fernando Hydrographic Subunit (e.g., Sylmar, Verdugo, Tujunga, Eagle Rock, and San Fernando basins). The San Fernando Basin is the largest of the four basins in the Los Angeles River Area. Los Angeles, Glendale, and Burbank all have the right to extract and utilize a predetermined volume of water from the San Fernando Basin as well as to store groundwater in the Basin by artificial spreading activities or by in-lieu activities and to extract equivalent amounts (Upper Los Angeles River Area Watermaster [ULARA] 2023). Groundwater levels in the San Fernando Basin have declined in recent years. This is likely due to increased urbanization, runoff leaving the basin, reduced artificial recharge, and continuing groundwater extractions (ULARA 2023).

The groundwater basins of the Los Angeles Coastal Plain are grouped into the Central Basin, which consists of a series of underground aquifers beneath much of south Los Angeles County (e.g., Central, West Coast, Santa Monica, and Hollywood basins). The basin is recharged through spreading grounds on the San Gabriel River and utilizes injection facilities in the Alamitos Gap to block seawater intrusion (Water Replenishment District 2023).

3.11.1.3 Water Quality

Many of the surface waters in the Los Angeles Region have been heavily impacted by urbanization, development, channelization, dewatering, or pollution over the years. The City and other jurisdictions have been coordinating to improve watershed management, stormwater management, open space development, and water conservation efforts to improve water quality. New ordinances like the Low Impact Development Ordinance require specific private development projects to mitigate runoff and capture rainwater (City of Los Angeles Department of City Planning 2017), and the County's Safe Clean Water program.

There are numerous waterbodies in the City that are impaired for various contaminants and that have total maximum daily loads (TMDLs), including but not limited to metals, chloride, nutrients, trash, pesticides, bacteria, exotic vegetation, dissolved oxygen, pH, and sedimentation (Los Angeles RWQCB 2023). TMDLs are pollution control plans triggered by the CWA Section 303(d) list (discussed in Section 3.11.2.1.1 below). The TMDL is a "pollution budget," designed to restore the health of a polluted waterbody and provide protection for beneficial uses. Waterbodies in the City with TMDLs are shown in Table 3.11-1 below.

The listing of "trash" is relevant to this Program. Trash is defined as "litter, debris, and other types of discarded solid waste". Trash can be contaminated with toxins or bacteria, and it harms fish and wildlife that eat it or become entangled in it. In areas where people swim or wade, trash can present a human health and/or safety threat (USEPA 2023a).

Table 3.11-2. Waterbodies in the City with established TMDLs

Waterbody Name	TMDL Pollutants
Aliso Canyon Wash	Copper; Indicator Bacteria; Selenium
Arroyo Seco Reach 1 (LA River to West Holly Ave.)	Indicator Bacteria; Trash
Ballona Creek	Copper; Trash; Zinc; Lead; Viruses (enteric); Toxicity; Indicator Bacteria
Ballona Creek Estuary	PCBs (Polychlorinated biphenyls); DDT (Dichlorodiphenyltrichloroethane); Cadmium; Zinc; Chlordane; Indicator Bacteria; PAHs (Polycyclic Aromatic Hydrocarbons); Copper; Toxicity; Lead; Silver
Bell Creek	Indicator Bacteria
Bull Creek	Indicator Bacteria
Bull Creek (Los Angeles County)	Ammonia
Burbank Western Channel	Lead; Copper; Trash; Indicator Bacteria
Cabrillo Beach (Outer)	PCBs (Polychlorinated biphenyls); DDT (Dichlorodiphenyltrichloroethane)
Compton Creek	Lead; Trash; Copper; pH; Zinc
Dockweiler Beach	Indicator Bacteria
Dominguez Channel (lined portion above Vermont Ave)	Zinc; Copper; Toxicity; Lead
Dry Canyon Creek	Selenium, Total
Los Angeles River Reach 2 (Carson to Figueroa Street)	Trash; Nutrients (Algae); Ammonia; Indicator Bacteria; Copper; Lead
Los Angeles River Reach 3 (Figueroa St. to Riverside Dr.)	Trash; Ammonia; Nutrients (Algae); Copper; Indicator Bacteria
Los Angeles River Reach 4 (Sepulveda Dr. to Sepulveda Dam)	Trash; Nutrients (Algae)
Los Angeles River Reach 5 (within Sepulveda Basin)	Ammonia; Trash; Nutrients (Algae); Copper; Lead
Los Angeles River Reach 6 (Above Sepulveda Flood Control Basin)	Selenium; Indicator Bacteria; Copper
McCoy Canyon Creek	Nitrogen, Nitrate; Selenium, Total; Nitrate
Point Fermin Park Beach	PCBs (Polychlorinated biphenyls); DDT (Dichlorodiphenyltrichloroethane)
Rustic Canyon Creek	Not Applicable
Santa Monica Canyon	Indicator Bacteria
Sepulveda Canyon	Indicator Bacteria; Selenium; Lead; Copper; Zinc
Torrance Carson Channel	Lead; Copper

Waterbody Name	TMDL Pollutants
Tujunga Wash (LA River to Hansen Dam)	Ammonia; Copper; Trash; Indicator Bacteria
Venice Beach	Indicator Bacteria
Verdugo Wash Reach 1 (LA River to Verdugo Rd.)	Indicator Bacteria; Copper; Trash
Verdugo Wash Reach 2 (Above Verdugo Road)	Indicator Bacteria; Trash
Will Rogers Beach	Indicator Bacteria

Source: SWRCB 2018

3.11.1.4 PFAS Drinking Water Limits

In 2023, the USEPA proposed a National Primary Drinking Water Regulation to establish legally enforceable levels (e.g., MCLs) for six PFAS in drinking water (Table 3.11-3). PFOA and PFOS as individual contaminants, and PFHxS, PFNA, PFBS, and HFPO-DA (commonly referred to as “GenX Chemicals”) as a PFAS mixture. USEPA is also proposing health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these six PFAS. The proposed rule would require public water systems to monitor for these PFAS, notify the public of the levels of these PFAS, and reduce the levels of these PFAS in drinking water if they exceed the proposed standards.

Table 3.11-3. Proposed National Primary Drinking Water Regulation MCLs and MCLGs for PFAS.

<table>
<tr><th>Compound</th><th>Proposed MCLG</th><th>Proposed MCL (enforceable level)</th></tr>
<tr><td>perfluorooctanoic acid (PFOA)</td><td>Zero</td><td>4.0 ppt (or ng/L)</td></tr>
<tr><td>perfluorooctane sulfonic acid (PFOS)</td><td>Zero</td><td>4.0 ppt</td></tr>
<tr><td>perfluorononanoic acid (PFNA)</td><td rowspan="4">1.0 (unitless) Hazard Index</td><td rowspan="4">1.0 (unitless) Hazard Index</td></tr>
<tr><td>perfluorohexane sulfonic acid (PFHxS)</td></tr>
<tr><td>perfluorobutane sulfonic acid (PFBS)</td></tr>
<tr><td>hexafluoropropylene oxide dimer acid (HFPO-DA) and its ammonium salt</td></tr>
</table>

Source: USEPA 2023b

The OEHHA and California Division of Drinking Water have issued drinking water notification and response levels for PFAS, but no state enforceable MCLs have yet been established. Notification levels are nonregulatory, health-based advisory levels for contaminants that are established as precautionary measures. Response levels are nonregulatory, precautionary health-based measures that are set higher than notification levels and represent a recommended level that water systems consider taking a water source out of service or provide treatment if that option is available to them. Measured PFAS levels in drinking water wells and wastewater facilities in the City often substantially exceed the proposed USEPA MCL (SWRCB 2023).

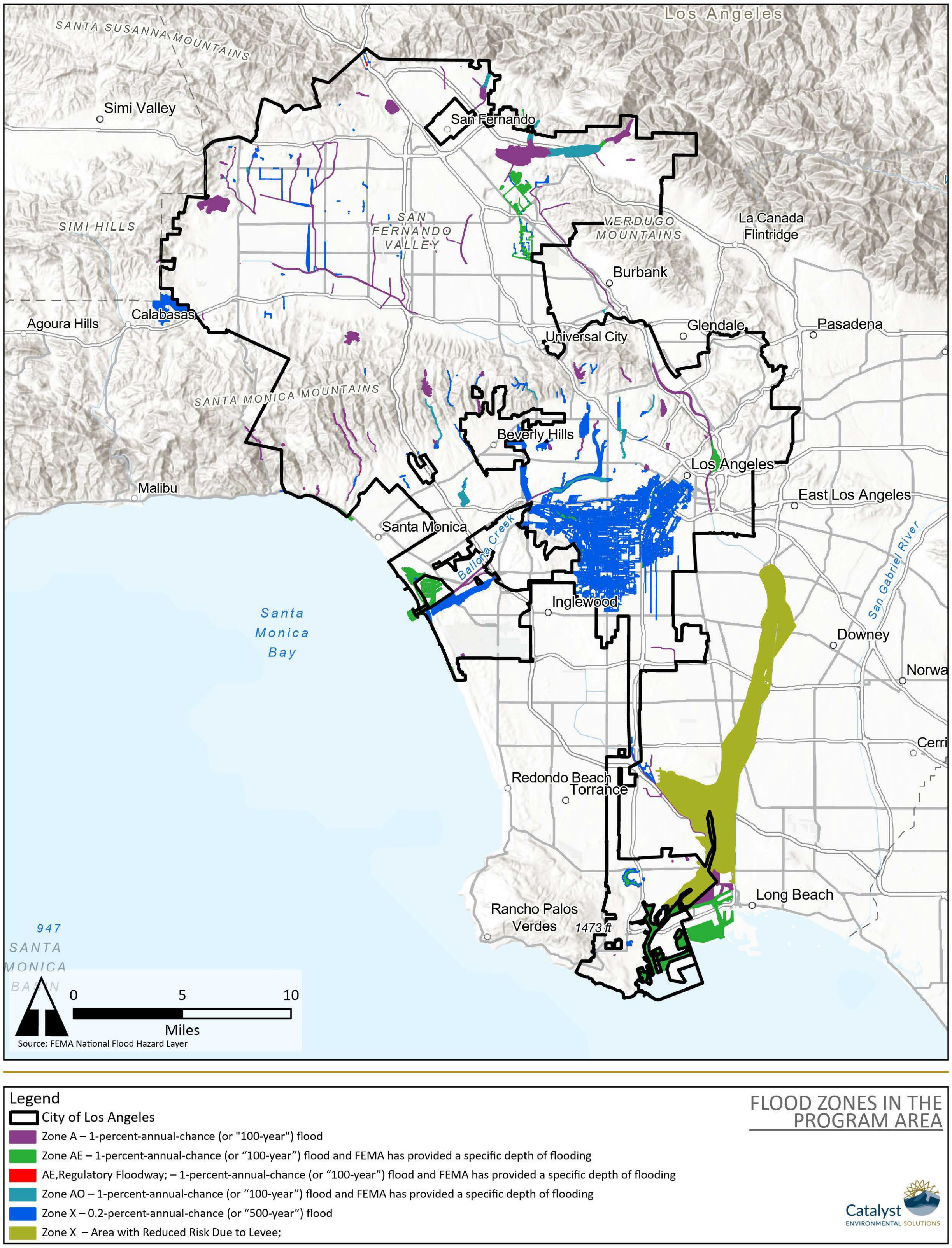


Figure 3.11-4. Flood Zones in the City and Vicinity

3.11.1.5 Floods, Seiche, Tsunami, and Mudflow

Various parts of the City are in 100- and 500-year flood zones (Figure 3.11-4).

A seiche is a wave that oscillates in a waterbody following seismic or atmospheric disturbance, which can result in flooding. Lakes and bays are subject to potential seiche.

Tsunamis are caused by the sudden displacement of large volumes of water. Los Angeles has many coastal and low lying areas that could be flooded during a tsunami. Communities in tsunami hazard zones typically have developed warning plans, evacuation routes, and more as part of their general plans. Tsunami hazard zones in the City include all coastal areas (CDOC 2023).

Mudflows are fast-moving downhill flows of mud and soil. They are typically mobilized following rain or snow melt and steeper slopes are most susceptible. Wildland fire damage makes slopes more unstable and prone to mudslides.

3.11.2 Regulatory Framework

3.11.2.1 Federal

3.11.2.1.1 Clean Water Act

Regulatory authorities exist on both the state and federal levels for the control of water quality in California. The USEPA is the federal agency responsible for water quality management pursuant to the CWA of 1977 (33 U.S.C. Section 1251 et seq.). The purpose of the CWA is to protect and maintain the quality and integrity of the nation’s waters by requiring states to develop and implement state water plans and policies. The relevant sections of the CWA are summarized below.

3.11.2.1.2 CWA Section 401: Water Quality Certification

Section 401 of the CWA (33 U.S.C. Section 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into navigable waters, including the crossing of rivers or streams during road, pipeline, or transmission line construction, to obtain a certification from the state in which the discharge originates. The certification ensures that the discharge would comply with the applicable effluent limitations and water quality standards. The state agency responsible for implementing Section 401 of the CWA in California is the SWRCB.

3.11.2.1.3 CWA Section 402: National Pollutant Discharge Elimination System

The NPDES is the primary federal program that regulates point-source and non-point-source discharges to waters of the United States. Section 402 of the CWA contains general requirements regarding NPDES permits. The USEPA has granted the SWRCB primacy in administering and enforcing the provisions of CWA and NPDES through the local RWQCBs. Each NPDES permit for point discharges contains limits on allowable concentrations of pollutants contained in discharges.

Point sources are discrete conveyances such as pipes or man-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. Permits contain specific water quality-based limits and establish pollutant monitoring and reporting requirements. Discharge limits in NPDES permits may be based on water quality criteria designed to protect designated uses of surface waters, such as recreation or supporting aquatic life.

The CWA was amended in 1987 to require NPDES permits for non-point source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of NPDES stormwater regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of structural and non-structural BMPs. BMPs can include the development and implementation of various practices including educational measures (e.g., workshops informing the public of what impacts results when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage facility design), public policy measures, and structural measures (e.g., filter strips, grass swales, and detention ponds).

3.11.2.1.3.1 NPDES Construction General Permit

A NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2022-057-DWQ; Construction General Permit)) is required for construction that disturbs more than 1 acre of land. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines. In the Program Area, the Construction General Permit is implemented and enforced by the Los Angeles RWQCB.

The Construction General Permit requires the development and implementation of a SWPPP that includes specific BMPs designed to prevent sediment and pollutants from contacting stormwater from moving off-site into receiving waters, including erosion control (e.g., limiting certain activities to dry periods), sediment control (e.g., installing sediment barriers such as silt fence and fiber rolls), waste management, and good housekeeping (e.g., maintaining equipment and vehicles used for construction), and to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a waterbody listed on the 303(d) list for sediment. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

3.11.2.1.3.2 Stormwater Industrial General Permit

Section 402(p) of the CWA requires certain industries that discharge stormwater into a storm drain system or to surface waters to obtain an NPDES permit. In California, these industrial facilities may comply by applying for coverage under the state's General Permit for Stormwater Discharges Associated with Industrial Activities (Industrial General Permit) or for an individual NPDES Permit. The Industrial General Permit is an NPDES permit that regulates stormwater discharges from any facility associated with 10 broad categories of industrial activities, including landfills and recycling facilities.

The Industrial General Permit requires the implementation of Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to achieve performance standards, as well as the development of a SWPPP and a monitoring plan. The SWPPP identifies the site-specific sources of pollutants and describes the best management practices implemented at the facility to prevent dry weather runoff and to reduce pollutants in stormwater discharges. The SWRCB and RWQCBs enforce the Industrial General Permit.

3.11.2.1.3.3 Section 303(d)

CWA Section 303(d) requires that states develop a list of water quality limited segments that do not meet water quality standards. A TMDL is then established for water quality limited segments in order to improve water quality. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

3.11.2.1.4 Safe Drinking Water Act

The Safe Drinking Water Act is the principal federal law in the United States that ensures safe drinking water for the public. Pursuant to the Act, the USEPA is required to set standards for drinking water quality and oversee all states, localities, and water suppliers who implement these standards. The Act applies to every public water system in the United States.

The Act requires the USEPA to establish National Primary Drinking Water Regulations for contaminants that may cause adverse public health effects. The regulations include both MCLs and non-enforceable health goals (MCLGs) for each included contaminant. Notification levels have been determined for some contaminants that do not have MCLs.

3.11.2.1.5 National Flood Insurance Act

The U.S. Congress established the National Flood Insurance Program with the passage of the National Flood Insurance Act of 1968. The National Flood Insurance Program is a federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. Participation in the National Flood Insurance Program is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available in the community as a financial protection against flood losses. This insurance is designed to provide an alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods. Flood Insurance Rate Maps are developed by the Federal Emergency Management Agency to determine if a particular parcel lies in a designated 100-year flood zone.

3.11.2.1.6 California Toxics Rule

The USEPA has established water quality criteria for many toxic substances, such as heavy metals, industrial compounds, and pesticides, via the California Toxics Rule. The California Toxics Rule establishes acute and chronic surface water quality standards for bodies of water, such as inland surface waters and enclosed bays and estuaries that are designated by the local RWQCB as having beneficial uses protective of aquatic life or human health.

3.11.2.2 State

3.11.2.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. The Act establishes the authority of the SWRCB and the nine RWQCBs. The SWRCB administers water rights, sets state policy for water pollution control, and implements various water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and most enforcement activities. The proposed Program is within the jurisdiction of the Los Angeles RWQCB.

The Porter-Cologne Water Quality Control Act requires the SWRCB and/or the RWQCBs to adopt statewide and/or regional water quality control plans, the purpose of which is to establish water quality objectives for specific waterbodies. In the Los Angeles region, the Basin Plan (described below) serves as the legal, technical, and programmatic basis of water quality regulation in the region and along the coast. The Act also authorizes the SWRCB and RWQCBs to implement the NPDES program, which establishes discharge limitations and receiving water quality requirements for discharges to waters of the United States. The Act also authorizes the NPDES program under the CWA, which establishes effluent limitations and water quality requirements for discharges to waters of the state. The Basin Plan and the NPDES permits relevant to the proposed Program are discussed further below.

3.11.2.2.2 Anti-Degradation Policy

The SWRCB Anti-Degradation Policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Water in California (SWRCB Resolution No. 68-16), restricts degradation of surface and ground waters. Specifically, this policy protects waterbodies where existing quality is higher than necessary for the protection of beneficial uses and requires that existing high quality be maintained to the maximum extent possible.

Under the Anti-Degradation Policy, any actions that can adversely affect water quality in all surface and ground waters must: (1) be consistent with maximum benefit to the people of California; (2) not unreasonably affect present and anticipated beneficial use of the water; and (3) not result in water quality less than that prescribed in water quality plans and policies. Furthermore, any actions that can adversely affect surface waters are also subject to the federal Anti-Degradation Policy (40 CFR Section 131.12) developed under the CWA. Discharges from the proposed Program that could affect surface water quality would be required to comply with the Anti-Degradation Policy, which is included as part of the NPDES permit requirements for point discharges.

3.11.2.2.3 Water Quality Control Plan for the Los Angeles Region (Basin Plan)

The Los Angeles RWQCB's Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional terrestrial surface waterbodies (e.g., creeks, rivers, streams, and lakes), groundwater, coastal drainages, estuaries, coastal lagoons, and enclosed bays within the Los Angeles RWQCB's jurisdictional area. The preparation and adoption of Basin Plans are required by California Water Code Section 13240. According to Water Code Section 13050, Basin Plans establish the beneficial uses to be protected for the waters within a specified area, water quality objectives to protect those uses, and an implementation program for achieving the objectives. Because beneficial uses, together with their corresponding water quality objectives, can be defined per federal regulations as water quality standards, the Basin Plans are regulatory references for meeting the state and federal requirements for water quality control. The water quality objectives are thus incorporated into NPDES permits, which are discussed further below.

The Basin Plan is designed to preserve and enhance water quality and protect beneficial uses of all waters. Specifically, it:

- Designates beneficial uses for surface water and groundwater.
- Sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy.
- Describes implementation programs for achieving objectives to protect all waters in the region.

In addition, the Basin Plan incorporates all applicable SWRCB and RWQCB plans and policies and other pertinent water quality policies and regulations. Beneficial uses for groundwater include "uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers."

3.11.2.2.4 Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act established a new structure for managing California's groundwater resources at the local level by requiring Groundwater Sustainability Agencies to form in the state's high- and medium-priority basins and subbasins by June 30, 2017. The Groundwater Sustainability Agencies are required to draft and implement Ground Sustainability Plans. No Groundwater Sustainability Agency oversees the Program Area.

3.11.2.3 Local

3.11.2.3.1 City of Los Angeles General Plan

Conservation Element

- Objective: protect and enhance the diversity and sustainability of the natural ecologies of the Santa Monica and San Pedro bays, including the bay fishery populations.
    - Policy: Continue to reduce pollutant discharge into the bays from both natural and human sources.
    - Policy: Continue to support and/or participate in programs to clean bay sediments and/or mitigate potentially harmful effects of contaminants in the sediments and waters of the bays.

Framework Element

Stormwater Goal 9B: A stormwater management program that minimizes flood hazards and protects water quality by employing watershed-based approaches that balance environmental, economic, and engineering considerations.

- Objective 9.7: Continue to develop and implement a management practices based stormwater program which maintains and improves water quality.

- Policy 9.7.1: Continue the City's active involvement in the regional NPDES municipal stormwater permit.

Open Space Element

- Policy: Alteration of drainage patterns shall be minimized in the development of any land in mountain areas.
- Policy: Stream and wash areas should be conserved except where improvements are necessary to protect life and property.

3.11.2.3.2 Los Angeles County Municipal Separate Storm Sewer System Permit

The Municipal Stormwater Permitting Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). Stormwater runoff and authorized non-storm flows are regulated under NPDES stormwater permits. The MS4 permits require the discharger to develop and implement a Stormwater Management Plan/Program with the goal of reducing the discharge of pollutants to the maximum extent practicable, the performance standard specified in CWA Section 402(p), typically through the application of BMPs.

The current Los Angeles County MS4 Permit (Order No. R4-2012-0175-A01) became effective on September 8, 2016. Stormwater runoff and authorized non-storm flows from unincorporated areas of Los Angeles County and 84 cities within the Los Angeles County Flood Control District (the Permittees), including the City of Los Angeles, are regulated under the MS4 NPDES permit. The MS4 permit contains minimum standards that the Permittees must enforce when construction activities disturb an area greater than 1 acre. Compliance with MS4 construction requirements includes implementation of worksite BMPs similar to those described for the Construction General Permit for erosion, sediment, non-stormwater management, and waste management.

Stormwater discharges must meet water quality-based effluent limitations, or water quality standards for discharges leaving the site, and must not cause or contribute to the exceedance of receiving water limitations (i.e., water quality standards for receiving waters). The MS4 permit requires implementation of a Planning and Land Development Program for all "New Development" and "Redevelopment" projects subject to the Order to accomplish the following objectives:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development toward existing communities via infill or redevelopment, and safeguarding of environmentally sensitive areas.
- Minimize the adverse impacts from stormwater runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of waterbodies in accordance with requirements under CEQA.
- Minimize the percentage of impervious surfaces on land developments by minimizing soil compaction during construction, designing projects to minimize the impervious area footprint, and employing low-impact development (LID) design principles to mimic predevelopment water balance hydrology through infiltration, evapotranspiration, and rainfall harvest and use.
- Maintain existing riparian buffers and enhance riparian buffers when possible.

- Minimize pollutant loadings from impervious surfaces such as rooftops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), LID Strategies, and Treatment Control BMPs.
- Properly select, design, and maintain LID and Hydromodification Control BMPs to address pollutants that are likely to be generated, reduce changes to predevelopment hydrology, ensure long-term function, and avoid the breeding of vectors.
- Prioritize the selection of BMPs to remove stormwater pollutants, reduce stormwater runoff volume, and beneficially use stormwater to support an integrated approach to protecting water quality and managing water resources.

The Municipal NPDES permit provisions require that proposed projects include a Standard Urban Stormwater Mitigation Plan, or functional equivalent document, to address potential water quality impacts on-site using LID, and that the potential impact on downstream waterbodies is evaluated. BMPs are required in all drainage areas to be developed. Additionally, the NPDES permit requires owners or operators to implement BMPs to retain the 0.75-inch, 24-hour rain event, or the 85th percentile, 24-hour storm event, whichever is greater, and achieve applicable water quality-based effluent limitations and/or receiving water limitations established pursuant to TMDLs. The discharger would be required to prepare a Monitoring and Reporting Program documenting outfall-based stormwater monitoring data (where stormwater exits the facility), wet and dry weather receiving water monitoring data, outfall-based non-stormwater monitoring data, and other relevant regional studies.

The proposed Program would be required to comply with the MS4 permit. As such, discharges of the Program covered under the MS4 permit requirements would be required to adhere with the Waste Load Allocations assigned to MS4 discharges for applicable TMDLs.

3.11.3 Impact Assessment

3.11.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to hydrology and water quality. The Program would have a significant impact to hydrology and water quality if the Program would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:
    i. result in substantial erosion or siltation on- or off-site;
    ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;

iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv. impede or redirect flood flows.

d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with hydrology and water quality resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

– Impact Criterion a)
  - If discharges associated with the proposed Program create pollution, contamination, or a nuisance, as defined in Section 13050 of the California Water Code, or cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or water quality control plan for the receiving waterbody;
  - Affect the rate or change the direction of movement of existing contaminants; or
  - Expand the area affected by contaminants.

– Impact Criterion b)
  - Change potable water levels sufficiently to:
    - Reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
    - Reduce yields of adjacent wells or well fields (public or private);
    - Adversely change the rate or direction of flow of groundwater; or
    - Result in demonstrable and sustained reduction of groundwater recharge capacity.

– Impact Criterion c)
  - Cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources; or
  - Substantially reduce or increase the amount of surface water in a waterbody.
  - Result in a permanent adverse change to the movement of surface water, enough to produce a substantial change in the current or direction of the water flow?

3.11.3.2 Program

3.11.3.2.1 Upstream Measures

Impact Criterion a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

As shown in Table 3.11-4 below, the main impacts of the Program's upstream measures would be the reductions of single-use plastic items in the City that can end up as litter and impede the City's ability to meet trash TMDL goals. Impacts to water quality would be ***less than significant***.

Table 3.11-4. Analysis of Upstream Measures – Hydrology and Water Quality Impacts

Measure	Hydrology and Water Quality Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	As discussed in Section 2.2.1, single-use plastic water bottles are a commonly littered item in the City. A ban on these items would shift uses to single-use alternative materials, including aluminum, cardboard, and glass, as well as reusable water bottles. While other single-use bottles still have the potential to be littered, it is anticipated that even a small shift to reusable water bottles would provide a beneficial impact to the City's water quality by helping it meet the goals of the trash TMDLs for waterbodies in the City.	Beneficial Impact
Plastic Bottle Policies: Refillable Plastic Bottles	As discussed in Section 3.2.3, plastic bottles and jugs used for food, personal care products, and home care products are not frequently littered items. Therefore, single-use plastic bottles and jugs do not currently affect the City's water quality. Impacts with regard to water quality would be less than significant.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. As discussed in Section 2.2.1, single-use plastic water bottles are a commonly littered item in the City. A shift to refillable water bottles would provide a beneficial impact to the City's water quality by helping it meet the goals of the trash TMDLs for waterbodies in the City.	Beneficial Impact
Plastic Bottle Policies: Leashed Lids	Plastic bottle caps and lids are commonly littered items. Bottle caps and lids have been the third-most collected item on California beaches during the California Coastal Commission's Cleanup Day, since the cleanups began in 1988, accounting for over 9% of all debris/litter collected (California Coastal Commission 2020), and they were also the third-most collected item on Los Angeles beaches during Heal the Bay's Clean-up Month in September 2021 (Heal the Bay 2021). Requiring the lid to be leashed to the plastic bottle would ensure that the lid is recycled along with the bottle, which can be processed by a MRF, and that it is not littered. Therefore, a requirement for leashed lids would reduce potential plastic litter in the City and have a beneficial impact on water quality through helping the City meet its trash TMDL goals.	Beneficial Impact

Measure	Hydrology and Water Quality Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	Single-use plastic beverage holder rings are not recyclable in the City and may end up as litter even when properly disposed of due to their light weight. Alternatives, which include rigid plastics made of HDPE and paperboard/cardboard made of unbleached plant fibers, are recyclable and/or compostable in the City. These alternative products may also end up as litter. Therefore, impacts with regard to water quality would be less than significant.	Less than Significant
Foodware Policies: Dine-In Services	A ban on single-use foodware for dine-in services would lead to the washing of reusable replacement products. Washing would occur using soaps and detergents in accordance with California Health Code Section 114099, and used water would be treated in the City's wastewater treatment facilities. Therefore, impacts with regard to water quality would be less than significant.	Less than Significant
Foodware Policies: Single-Use To-Go Foodware	Requiring to-go food service providers to offer reusable foodware would remove single-use products from the City's waste stream and the chance that they are littered and negatively impact water quality in the City. Requiring compostable and recyclable foodware would result in a reduction of single-use plastic to-go foodware, but compostable and recyclable products can also be littered and negatively impact water quality if they end up in local waterbodies. Similarly, a requirement for post-consumer recycled content in plastic to-go foodware would not influence the potential for littering of these products. Therefore, with regard to water quality, impacts would be less than significant.	Less than Significant
Foodware Policies: Bioplastic Ban	Single-use foodware made from bioplastics may impact water quality through improper disposal, urban runoff, or wastewater effluent (for micro and nanoplastics). Following disposal of bioplastics, weathering and ultraviolet degradation can lead to release of chemicals, which can affect water quality. Discarded starch- and cellulose-based bioplastics that end up as litter in the marine environment or in landfills can leach chemical additives directly into water systems or runoff from landfills (Xia et al. 2022). There are several LCAs that compare production and disposal of bioplastics to fossil-based plastics (PLA and TPS bioplastics in Hottle et al. 2017; PHB bioplastics in Rueda et al. 2023). Limitations of such studies to CEQA are discussed in Section 3.1.1, but they generally indicate that production-related effects, including fertilizer use for corn production, of all bioplastics (which occurs outside the City) tend to produce greater impacts to water acidification and eutrophication compared to the fossil fuel-based plastics studied. A bioplastics ban would reduce the amount of single-use products made from bioplastic. However, it is not anticipated to reduce the overall amount of waste that is disposed of improperly in the City. Rather, replacement products that are reusable or recyclable or compostable at City-contracted facilities would take the place of existing single-use foodware products made from bioplastics, which could also end up as litter. Since most bioplastics act similarly to conventional plastics in the environment and result in similar effects, it is anticipated that a ban on bioplastics would have a less than significant impact on water quality.	Less than Significant
Foodware Policies: Meal Kit Reuse and Recycling	Requiring an EPR program for the non-recyclable components of meal kits in the City would result in those components going back to the producer for recycling and reuse and being kept out of the City's waste stream. However, meal kits do not currently impact water quality, and therefore an EPR program would have a less than significant impact on water quality.	Less than Significant

Measure	Hydrology and Water Quality Impact Analysis	Significance Conclusion
Foodware Policies: City Reusable Foodware Pilot Projects	Reusable foodware pilot projects would help businesses throughout the City incorporate reusable foodware into their business practices and would have no impact on water quality in the City.	No Impact
Foodware Policies: Plastic Tea Bags	A ban on plastic tea bags would lead to increased use of alternative products including paper- and fiber-based single-use tea bags as well as loose leaf tea and a reusable diffuser. Plastic tea bags do not have a substantial impact on water quality nor do replacement products. Therefore, a ban on single-use plastic tea bags would have a less than significant impact on water quality.	Less than Significant
Foodware Policies: Beverage Pods	Single-use beverage pods do not impact water quality in the City. Therefore, an EPR program for the pods would have no impact on water quality.	Less than Significant
Textile Policies: Textile Disposal Policies	Textiles are estimated to be responsible for about 20% of global clean water pollution, but this is mainly from dyeing and finishing products during the manufacturing of the products (European Parliament 2023). Textile disposal in the City does not influence water quality, and requiring an EPR program for textiles in the City would have a less than significant impact on water quality.	Less than Significant
Textile Policies: Washing Machine Microfiber Filtration	Microfiber filters on washing machines would remove fibers less than 100 µm from water prior to reaching wastewater treatment plants. Laundering synthetic clothes accounts for 15-35% of primary microplastics released into the environment worldwide (European Parliament 2018). In California, 95% of microfibers are diverted from waterways via treatment of wastewater at municipal facilities but are not filtered out of biosolids at wastewater treatment plants. Even with the high efficiency of microfiber removal at wastewater treatment plants, the application of filters on washing machines has been shown to reduce microfibers in wastewater effluent even further. When washing machine filters were applied in approximately 10% of households in a small town in Canada, the effluent from the wastewater treatment plant had significantly fewer microfibers than amounts measured prior to filtration installation (Erdle et al. 2021). Thus, washing machine microfiber filters can work in conjunction with wastewater treatment plants to achieve fewer microfibers in treated effluent. In California, the release of microfibers occurs through mainly terrestrial environments via application of biosolids to agricultural fields (Geyer et al. 2022). Therefore, requirements for microfiber filtration on residential and commercial washing machines would have a beneficial impact on water quality in the City by removing microfibers from wastewater before it gets to the wastewater treatment plant.	Beneficial Impact
PFAS Ban	Regulatory levels of PFAS in drinking water have not been finalized. The USEPA's proposed MCLs (USEPA 2023), which would become the enforceable level, is 4.0 nanograms/liter (ng/L) for both PFOA and PFOS (see Table 3.11-3). Measured PFAS levels in drinking water wells and wastewater facilities in the City often substantially exceed the proposed MCL (SWRCB 2023). Therefore, removing any PFAS uses from upstream sources would result in a lower concentration of PFAS entering the environment and ultimately the drinking water supply, and impacts to water quality would be beneficial.	Beneficial Impact

Measure	Hydrology and Water Quality Impact Analysis	Significance Conclusion
Additional Product Bans: Plastic Bag Clips	Single-use plastic bag clips do not have any effect on the City's waterways, and their replacement materials (twist-ties, cardboard clips, and plastic tape) would not adversely affect water quality. Therefore, a ban on single-use plastic bag clips would have a less than significant impact on water quality.	Less than Significant
Additional Product Bans: Aerosol String	Aerosol string is often sprayed outdoors and users do not typically clean it up, leaving the cleanup to City workers (LAPD 2004). Therefore, it can enter directly into rivers, streams, and lakes after being sprayed or enter the City's water system through stormwater drains after rain events. Removing this source of contaminants from use in the City will reduce inflow to storm drains, streams, wetlands, estuaries, or other waters. Therefore, banning aerosol string from use in the City would have a beneficial impact on water quality.	Beneficial Impact
Additional Single-use Plastic Bans: Plastic Sandbags	Plastic sandbags are meant to interface with water during flooding events. Therefore, they represent a source by which microplastics and large pieces of the bag, if broken, can enter the City's waterways. A ban on plastic sandbags would remove this source of plastic from the City's waterways. Replacement materials such as jute and burlap would naturally biodegrade in the environment. Therefore, a ban on plastic sandbags would have a beneficial impact on water quality.	Beneficial Impact
Additional Product Bans: Lighter-Than-Air Balloons	Banning lighter-than-air balloons from use within the City would reduce the amount of plastic and latex trash entering local waterways following accidental or purposeful release. Balloons would still be available for sale in the City, but would be less likely to be lost to the wind. Balloons filled with regular air would be more likely to enter the waste stream as trash. Therefore, a ban on lighter-than-air balloons would have a beneficial impact on water quality.	Beneficial Impact
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	As noted in Section 3.2, Aesthetics, e-cigarettes were in the top 10 most collected items on Los Angeles beaches during Heal the Bay's Cleanup Month in 2021 (Heal the Bay 2021). Following disposal of single-use e-cigarettes and cartridges, weathering and ultraviolet degradation can lead to release of chemicals, which can affect water quality. When littered or improperly discarded, broken devices and degraded batteries can leach heavy metals (including mercury, lead, and bromines), battery acid, and nicotine into the environment (Hendlin 2018; Pourchez et al. 2022). Reducing the quantity of single-use e-cigarettes and cartridges discarded in the City would have a beneficial impact on water quality by resulting in lower rates of e-waste, chemical leachate, and associated contaminants entering surface water, groundwater, and marine environments. Replacement products would be rechargeable e-cigarettes and refillable cartridges, which can be reused. Additionally, if replacement rechargeable e-cigarettes were to be disposed of eventually, the batteries can be removed and recycled prior to disposal. Therefore, any impacts on water quality would be beneficial.	Beneficial Impact
Additional Product Bans: Single-Use Printer Cartridges	In a 2021 resolution, the City stated that the use of single-use printer cartridges is growing rapidly due to increased flow of aftermarket, new built, single-use printer cartridges that are imported from foreign manufacturers. In this resolution the City notes that single-use printer cartridges can take between 450 and 1,000 years to decompose in landfills. Single-use printer cartridges are rarely littered, so banning single-use printer cartridges would have a less than significant impact to surface water and groundwater.	Less than Significant

Impact Criterion b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The Program's upstream measures that would result in or require a shift to reusable alternatives would lead to increased water use due to the need to wash reusable alternatives. These measures include the ban on single-use plastic water bottles, requirements for refillable plastic bottles, requirements for refillable beverage bottles, a ban on single-use foodware in dine-in restaurants, and a requirement that establishments offer reusable foodware for to-go food. The greatest water use for single-use foodware items is in the resource extraction and manufacturing phases whereas the greatest water use for reusable alternatives is in washing. The amount of water used for alternative materials would depend on consumer behavior including frequency of washing, duration of washing, and handwashing versus using a dishwasher. LCAs have shown that various reusable foodware products use less water over their lifetime than single-use products, with break-even points of 2 to 200 uses, depending on the reusable material (Upstream 2020). Americans use up to 27 gallons of water to hand wash the equivalent of a full dishwasher load of dishes while dishwashers use less than 5 gallons per load (Natural Resources Defense Council 2018). In restaurants, kitchen/dishwashing accounts for 50% of their water use (USEPA 2012). This analysis assumes that reusable alternatives would be washed along with existing dish loads and would not lead to a substantial increase in water use. When two Minnesota middle schools made a switch to reusable foodware products, purchasing 12,000 metal reusable utensils rather than 700,000 plastic utensils, they noted negligible impacts on water use (Minnesota Pollution Control Agency 2014). In addition, the City derives only approximately 9% of its water supply from groundwater. Therefore, increased water use due to reusable materials is not expected to substantially decrease groundwater supplies, and impacts would be ***less than significant***.

Impact Criterion c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; impede or redirect flood flows?

Impact Criterion d) Would the project be located in flood hazard, tsunami, or seiche zones, and risk release of pollutants due to project inundation?

The Program's upstream measures would not result in any construction or ground-disturbing activity that would alter the drainage pattern of an area nor would they be located on a physical site that would be in a flood hazard, tsunami, or seiche zone. Therefore, the Program's upstream measures would have ***no impact*** on Impact Criteria (c) and (d).

Impact Criterion e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

As discussed in Table 3.11-4, the Program's upstream measures would have either beneficial impacts or no impact on water quality. The Program Area does not have a groundwater management plan. However, as discussed in Impact Criterion (b), upstream measures that would require increased water use for washing of reusable materials are not expected. Therefore, the Program's upstream measures would have ***no impact*** on water quality or groundwater plan.

3.11.3.2.2 Downstream Measures

Impact Criterion a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

CONSTRUCTION

Activities associated with construction of new downstream facilities may include demolition of existing structures and facilities, soil excavation, stockpiling, backfilling, and facility construction. These activities have the potential to expose site soils to erosion and mobilize sediments in stormwater. Additionally, hazardous materials such as fuels, oils, grease, and lubricants from construction equipment could be accidentally released during construction. Accidental discharge of these materials during construction could adversely affect water quality and/or result in violation of water quality standards.

Construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Construction Permit. LASAN would prepare a SWPPP in compliance with Section 402 of the Federal CWA and would file a Notice of Intent with the SWRCB to obtain coverage under the SWRCB NPDES General Construction Permit (Order 2022-057-DWQ). The SWPPP would include BMPs to control erosion and sedimentation, as well as spill prevention measures to avoid and, if necessary, clean up accidental releases of hazardous materials. The BMPs would include, but would not be limited to, physical barriers to prevent erosion and sedimentation, construction of sedimentation basins, limitations on work periods during storm events, use of infiltration swales, protection of stockpiled materials, and a variety of other measures that would substantially reduce or prevent erosion from occurring during construction. Compliance with all NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and associated BMPs, would minimize the potential for mishandling and/or the release of hazardous materials. Through compliance with the NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and BMPs, potential violations of water quality standards and/or waste discharge requirements would be minimized; therefore, impacts associated with construction of downstream facilities would be ***less than significant***.

OPERATION

Operation of future downstream facilities has the potential to impact water quality. Table 3.11-5 contains a summary of the facilities and the anticipated pollutants generated.

Table 3.11-5. Summary of Green Bin, Blue Bin, and Black Bin Facilities Anticipated Pollutants

Facility Type	Anticipated Pollutants
Green Bin Facilities	
Anaerobic Digestion	Sediment, Nutrients, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease, Bacteria & Viruses, Pesticides
Aerobic Composting and Mulching	Sediment, Nutrients, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease, Bacteria & Viruses, Pesticides
Blue Bin Facilities	
Clean Materials Recovery	Sediment, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease
Resource Recovery	Sediment, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease
Construction and Demolition Materials Processing	Sediment, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease
Black Bin Facilities	
Mixed Material Processing	Sediment, Nutrients, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease, Bacteria & Viruses, Pesticides
Advanced Thermal Recycling	Ash residue (including unused flue gas cleaning reagents (i.e., lime, carbon, ammonia or urea), Sediment, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease
Non-Combustion Thermal Technologies	Ash residue (including unused flue gas cleaning reagents (i.e., lime, carbon, ammonia or urea), Sediment, Heavy Metals, Organic Compounds, Trash & Debris, Oxygen Demanding Substances, Oil & Grease

Composting facilities, mixed material processing facilities, and alternative technology biological facilities include anticipated pollutant generation of nutrients, bacteria and viruses, and pesticides due to the handling of food waste and other “non-clean” recyclable materials. Much of the Program Area is largely built out with the resultant adverse effects to surface water quality. In addition, the Program Area has various reaches of rivers and streams that are CWA 303(d) impaired water bodies due to urban runoff, as described in Section 3.11.1.3 above.

Prior to issuance of grading permits, the applicant would be required to submit a Low Impact Development (LID) Plan and/or Standard Urban Stormwater Mitigation Plan to the City of Los Angeles Bureau of Sanitation Watershed Protection Division for review and approval. The Low Impact Development Plan and/or Standard Urban Stormwater Mitigation Plan would be prepared consistent with the requirements of the *Planning and Land Development Handbook for Low Impact Development* (City of Los Angeles 2016). In accordance with the LID Plan, future downstream facilities would be required to comply with the LID Ordinance and Stormwater and Urban Runoff Pollution Control Ordinance, which require the inclusion of BMPs in a project’s design to prevent, control, and reduce stormwater pollutants. Typical BMPs include source prevention and treatment control, such as catch basin filters and infiltration/detention basins, as well as minimizing impervious paving. The City’s Stormwater and Urban Runoff Pollution Control Ordinance requires future development to comply with the Standard Urban Stormwater Mitigation Plan requirements, if applicable; integrate LID practices and standards for stormwater pollution mitigation; and maximize open, green, and pervious space on all development consistent with the City's landscape ordinance and other related requirements. BMP requirements are enforced through the City's plan approval and permit process and plans for all new downstream facilities projects would be subject to City inspection. Compliance with the LAMC would ensure that future downstream facilities would not violate water quality standards or discharge requirements or otherwise substantially degrade water quality. Future project-related activities would also be subject to Sections A and B of the LAMC Article 4.4, which generally prohibits discharge of specific materials into the storm drain system or receiving waters, such as the Los Angeles River.

Compliance with federal, state, and local regulations would reduce impacts resulting from future downstream facilities to a less than significant level. Furthermore, the proposed Program would not introduce any features that would preclude implementation of or alter these policies and procedures in any way. Therefore, the operation of future downstream facilities would not violate any water quality standards or waste discharge requirements, and impacts would be ***less than significant***.

Impact Criterion b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

CONSTRUCTION

The construction of downstream facilities would require water for construction activities including dust suppression. Public water sources would likely be utilized during construction through existing utility service connections. The volume of water needed for construction would be limited and only required temporarily for the duration of construction. In addition, the City derives approximately 9% of its water supply from groundwater sources. As such, water use would not deplete groundwater supplies available within the West Coast Basin. The relatively small quantities of water used for construction activities and dust suppression would be less than significant.

Construction activities may require dewatering where deep excavations encounter shallow groundwater. Dewatering for construction would be temporary, highly localized, and would involve the extraction of low volumes of shallow groundwater. Construction dewatering would not involve substantial groundwater extraction from aquifers used for municipal or industrial water supply. As such, dewatering activities conducted during construction would not result in significant long-term effects to local groundwater supplies. In addition, any dewatering would be subject to Los Angeles RWQCB approval for withdrawal and disposal, and discharges would be conducted in adherence with the Los Angeles RWQCB Dewatering Permit (NPDES Permit No. CAG994004), which requires testing and treatment of all dewatering discharges. Accordingly, impacts associated with construction activities would be ***less than significant***.

OPERATION

The location of future downstream facilities is unknown. Each downstream facility could potentially increase the amount of impervious area that could interfere with groundwater recharge. The associated impact would be relative to the increase in impervious area, existing infiltration rates, and groundwater resource affected. Depending on the type of facility, the footprint of development would range from 2 acres for a resource recovery facility to 100 acres for a large-scale composting facility. In addition, operating waste-to-energy facilities such as Advanced Thermal Recycling may require large quantities of water for the boilers, with quantity depending on the throughput. Similarly, depending on the feedstock, Anaerobic Digestion Facilities require substantial quantities of water for processing. If the water source is a groundwater aquifer, there is a potential for depleting the aquifer if water withdrawal exceeds recharge. However, it is anticipated that future downstream facilities would not require new or additional water supplies that would be sourced from new or additional groundwater withdrawals. In addition, the City owns water rights in the San Fernando, Sylmar, Eagle Rock, Central, and West Coast Basins (LADWP 2020). All of these basins are controlled by court adjudications, which prevent depletion of groundwater supplies and limit the amount of groundwater resources the City may extract.

Future facilities would be required to investigate, quantify, and mitigate impacts to groundwater recharge and supply from individual facilities. At the time future projects are proposed, additional environmental analysis would be undertaken including an assessment of cumulative impacts from projects that are in the vicinity of proposed facilities. The Basin Plan identifies water quality standards and control measures for surface and ground waters in the Project Area. Development of project facilities would require the review, consideration, and implementation of the applicable Basin Plan directives. Individual facility planning would attempt to best define additional future facilities and include those potential future impacts in the overall considerations for implementing mitigation measures. Review of basin-wide or jurisdiction-wide master plans would allow individual project facility development to evaluate larger scale impacts to the region. Implementation of **MM HWQ-1** would require a project-specific hydrology and water quality study and the potential for additional site-specific mitigation measures to reduce impacts to groundwater resources. In addition, **MM UTIL-4** (refer to Section 3.20, Utilities and Service Systems) would require a site-specific water supply study for proposed downstream facilities for future downstream facilities greater than 40 acres of land, having more than 650,000 square feet of floor area, or employing more than 1,000 persons, which would further ensure that water supplies are not significantly impacted. In addition, **MM UTIL-3** requires water conservation measures. However, even with implementation of **MM HWQ-1, MM UTIL-3,** and **MM UTIL-4**, downstream facilities may alter groundwater recharge. MM HWQ-1 specifies that in this case, the facility location would be avoided. Therefore, impacts would be ***less than significant with mitigation***.

Impact Criterion c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; impede or redirect flood flows?

CONSTRUCTION

Construction activities, including demolition, excavation, fill placement, and stockpiling, would have the potential to expose site soils to erosion and mobilize sediments in stormwater. Additionally, hazardous materials, such as fuels, oils, grease, and lubricants, from construction equipment could be accidentally released during construction. Increased erosion and the accidental discharge of hazardous materials during construction could adversely affect water quality and/or result in violation of water quality standards. Construction of future downstream facilities would require obtaining a NPDES General Construction Permit to comply with Section 402 of the federal CWA that would include a SWPPP. The

SWPPP would include provisions to control erosion and sedimentation, as well as spill prevention measures to avoid and, if necessary, clean up accidental releases of hazardous materials. Through compliance with the NPDES Construction General Permit requirements, including the preparation and implementation of a SWPPP and BMPs, construction of future downstream facilities is not expected to provide substantial sources of polluted runoff.

In addition, the construction activities and staging areas associated with future downstream facilities are not anticipated to result in increased areas of impermeable surfaces. Accordingly, the construction activities associated with future downstream facilities would not lead to increased runoff rates or quantities, nor result in impacts relative to creating or contributing runoff that could exceed the capacity of existing or planned stormwater drainage systems. With compliance with federal, state, and local regulations, impacts during construction would be ***less than significant***.

OPERATION

The location of future downstream facilities is unknown. Volume, flow rate, duration, and velocity of runoff can create significant damage to a drainage system. Hydromodification requirements identify what local agencies have determined are acceptable levels of increased project runoff for the local drainage systems. Additionally, project development could increase flood flows to a point that downstream drainage facilities cannot safely convey runoff during design storm events. Each waste processing facility could potentially increase the amount of runoff from the project through impervious area increases and diversion or redirection of flows. This increase in runoff volume, rate, duration, and velocity could create sediment transport issues for existing natural streams, resulting in increased channel erosion, bank failure, increased scour at crossing structures, change of channel form, etc. Increase in flood discharges could also create downstream flooding and failure of drainage facilities. Site-specific hydrology analysis would be required upon determination of the facility location. Specifically, prior to approval of any new facility, the applicant would be required to submit a LID Plan and/or Standard Urban Stormwater Mitigation Plan to the City of Los Angeles Bureau of Sanitation Watershed Protection Division for review and approval. The LID Plan and/or Standard Urban Stormwater Mitigation Plan would incorporate design BMPs to capture and treat runoff, in accordance with regulations deriving from the Los Angeles County NPDES MS4 permit (i.e., Standard Urban Stormwater Mitigation Plan, LID Ordinance, LID Handbook). As discussed under Impact Criterion (a), design of future downstream facilities would be required to include BMPs to prevent stormwater contamination and reduce runoff, pursuant to LAMC Article 4.4, and potentially the NPDES General Construction Permit depending on the size of future development projects. Therefore, future development would not introduce substantial additional sources of polluted runoff.

With compliance with applicable federal, state, and local regulations future projects would be required to implement stormwater BMPs, and project development would not generate a substantial increase in runoff that would result in substantial erosion, siltation, flooding on- or off-site, or increased polluted runoff. Impacts related to drainage and runoff would be ***less than significant***.

Impact Criterion d) Would the project be located in flood hazard, tsunami, or seiche zones, and risk release of pollutants due to project inundation?

CONSTRUCTION AND OPERATION

The potential for a facility to be impacted by a flood hazard, tsunami, or seiche depends on the ultimate site of the future downstream facilities. The three general areas subject to tsunami risk are the Port of Los Angeles area, coastal areas south of the City of Santa Monica and north of the South Bay Cities (Venice Beach, Marina Del Rey, and Playa del Rey), and the coastal stretch of the City north of Santa Monica and south of the City of Malibu. Tsunami flooding risk is limited to a relatively narrow stretch of land closest to the coast. The majority of the City lies outside the Tsunami Inundation Zone. Advanced tsunami warning systems are in place to notify people in low-lying areas. Additionally, the City has established response procedures as described in the City's Local Hazard Mitigation Plan to mitigate risks associated with tsunamis. Given the planning measures that are in place with regard to a tsunami, in the event a future facility is located in a tsunami inundation area, it is anticipated that emergency systems would be activated in the event of a tsunami, and impacts would be ***less than significant***.

According to the City's Local Hazard Mitigation Plan, there are 27 reservoirs and associated dams with the potential to impact the City should dam failure or seiche occur (City of Los Angeles 2018). The California Division of Safety of Dams oversees the design and construction of dams and conducts yearly inspections to ensure that the dams are performing and being maintained in a safe manner. Dams that could impact the City are regularly inspected and meet current safety regulations. Dams and reservoirs are monitored during storms and measures are instituted in the event of potential overflow. In addition, the City's Local Hazard Mitigation Plan provides a list of existing programs, proposed activities, and specific projects that may assist the City in reducing risks and injury from natural and human-made hazards, including dam failure, tsunami, and flooding. Thus, given that dams in the vicinity of the City are regularly inspected by the California Division of Safety of Dams and existing programs and activities are in place to reduce possible risks of dam failure and overtopping due to seiche, the failure of the dam during a catastrophic event, such as a severe earthquake, is considered unlikely. In addition, future facilities would be developed in accordance with the requirements of the Flood Hazard Management Ordinance No. 186952 (effective April 19, 2021) which requires specific construction limitations based on the location of the development in Special Hazard Areas (i.e., floodway, flood-prone, and mudflow). Therefore, with compliance with federal, state, and local regulations and site plan requirements, risks related to the release of pollutants due to inundation would be minimized to ***less than significant***.

Impact Criterion e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

CONSTRUCTION

As discussed for Impact Criterion (a), construction of downstream facilities would require an NPDES General Construction Permit to comply with Section 402 of the federal CWA that would include a SWPPP. The SWPPP would include provisions to control erosion and sedimentation, as well as spill prevention measures to avoid and, if necessary, clean up accidental releases of hazardous materials. As such, compliance with these provisions would ensure that surface water quality is not adversely impacted during construction. As a result, activities associated with construction of downstream facilities would not obstruct or conflict with the implementation of the Los Angeles Regional Basin Plan and any potential impact would be ***less than significant***.

OPERATION

Potential water quality and groundwater impacts associated with the downstream facilities are discussed above under Impact Criteria (a), (b), and (c). The implementation of the Program would not contain any policies that would conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Furthermore, operation of future projects would be required to comply with the existing regulations discussed under Impact Criteria (a), (b), and (c) and would not otherwise substantially degrade water quality. Impacts would be ***less than significant***.

MITIGATION MEASURE(S)

HWQ-1: Hydrology Study. Prior to obtaining a grading permit or other entitlements of any future facility and to assist in preparation of final engineering documents, a project-specific hydrology and water quality study would be required for development of any facility demonstrating the impacts on local and regional surface water hydrology and groundwater resources. The study shall include a review of the facility siting and design and demonstrate that facility operations would not have a significant impact on surface water and groundwater resources. If the study shows that the facility would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level, the facility shall be redesigned (for example, with the inclusion of such elements as permeable pavers and bioretention) so as not to substantially deplete groundwater supplies or interfere substantially with groundwater recharge. If the facility cannot be redesigned or would still impact groundwater resources even after redesign, it shall be re-sited to a location where it would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge.

MM UTIL-3: Water Conserving Design. See Section 4.20, Utilities and Service Systems.

MM UTIL-4: Water Supply Assessment. See Section 4.20, Utilities and Service Systems.

3.12 Land Use and Planning

This section describes the existing land use and planning of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on land use and planning in the City. Table 3.12-1 summarizes impacts on land use and planning that could result from implementation of the Program or alternatives.

Table 3.12-1. Summary of Land Use and Planning Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Physically divide an established community?	Upstream: No Impact	None
	Downstream: Less than Significant	None
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Upstream: No Impact	None
	Downstream: Less than Significant	None

3.12.1 Existing Conditions

Over 75% of the City is developed land, with 4.4% of the City developed for commercial use, 7.7% for industrial use, and 38% for residential use. Over 22% is open space protected from extensive urban development (City of Los Angeles 1996). The LAMC defines zoning within the City and lays out the types of land uses permitted within each zone. Table 3.12-2 highlights particular zones in the Program Area in which solid resources handling facilities are a permitted use.

Table 3.12-2. City Zoning

Zone	Permitted Use
C-1 (Limited Commercial Zone)	Recycling collection and buyback centers in conjunction with a grocery store
C-2 (Commercial Zone)	Community facilities and transfer businesses
C-4 (Commercial Zone)	Recycling collection and buyback centers in conjunction with a grocery store
CM (Commercial Manufacturing) Zone	Recycling material sorting facility
MR2 (Restricted Light Industrial Zone)	Building Materials Salvage Yard when conducted wholly within a completely enclosed building or enclosed by a solid wall or solid fence at least 6 feet in height Junk, paper, rag, scrap metal collection (sorting, storage or baling) when conducted wholly within an enclosed building

Zone	Permitted Use
M2 (Light Industrial Zone)	Building Materials Salvage Yard Chipping and grinding facilities, composting facilities, and mulching facilities (green waste) when operations are conducted within an enclosed building Recyclable Materials Collection Buyback Centers and Mobile Recycling Centers Recycling Materials Processing Facilities
M3 (Heavy Industrial)	Solid waste alternative technology processing facilities Refuse dumps Refuse transfer stations Secondhand furniture and appliance storage Waste Incineration Gardner's refuse collection yards
PF (Public Facilities)	Solid waste alternative technology processing facilities

Other than neighborhood and community parks, large publicly owned spaces in the City include public beaches; Ballona Wetlands; Del Rey Lagoon; Machado Lake; the Rio Hondo, San Gabriel, and Los Angeles Rivers; Griffith Park; Sepulveda Dam Recreation Area; Hansen Dam Recreation Area; the Santa Monica Mountains National Recreation Area; and the Angeles National Forest. Open space can also be privately owned (e.g., the Tujunga wash area).

3.12.2 Regulatory Framework

3.12.2.1 Federal

No federal regulations related to land use and planning are applicable to the proposed Program.

3.12.2.2 State

3.12.2.2.1 California Planning and Zoning Law

The California Planning and Zoning Law requires each county and city to prepare and adopt "a comprehensive, long-term general plan for the physical development of the county or city" and of any land outside its boundaries which bears relation to its planning (California Government Code Section 65300). Under current California Government Code Section 65302, each General Plan must include the following elements: Land Use Element; Circulation Element; Housing Element; Conservation Element; Open Space Element; Noise Element; Safety Element; and Environmental Justice Element. California Government Code Section 65302 also sets forth particular requirements that must be included in each of the eight elements.

3.12.2.2.2 California Coastal Act

The California Coastal Commission was established by the State Legislature through adoption of the California Coastal Act of 1976. The Commission regulates the use of land and water in the coastal zone. Development activities, including construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Coastal Commission or the local government.

The Coastal Act includes specific policies regarding shoreline public access and recreation, terrestrial and marine habitat protection, visual resources, water quality, public works, and other uses. The Coastal Act requires that local governments develop Local Coastal Programs, which are land use planning documents that lay out a framework for development and coastal resource protection within a city or county's coastal zone area and can carry out policies of the California Coastal Act at the local level. Development within the coastal zone may require a coastal development permit from either the Coastal Commission or a local government that has a Commission-certified Local Coastal Program. The City has a Local Coastal Program for the Venice Beach area, certified by the Coastal Commission in 2001.

3.12.2.3 Local

3.12.2.3.1 City of Los Angeles General Plan

Framework Element

GOAL 5A: A liveable City for existing and future residents and one that is attractive to future investment. A City of interconnected, diverse neighborhoods that builds on the strengths of those neighborhoods and functions at both the neighborhood and citywide scales.

- Objective 5.6: Conserve and reinforce the community character of neighborhoods and commercial districts not designated as growth areas.
    - Policy 5.6.1: Revise community plan designations as necessary to conserve the existing urban form and community character of areas not designated as centers, districts, or mixed-use boulevards.

3.12.2.3.2 City of Los Angeles Municipal Code

Chapter 1, Article 2, Section 12 of the LAMC contains zoning provisions.

3.12.2.3.3 Community Plans

There are 35 Community Plans that make up the City's General Plan Land Use Element. These plans establish neighborhood-specific goals and implementation strategies to achieve the broad objectives laid out in the City's General Plan to promote housing and job opportunities, conserve open space and natural resources, and balance different neighborhoods' needs. Each Community Plan consists of a policy document that lays out the community's goals, policies, and programs, and a land use map that identifies where certain uses are permitted. Together, the policy document and land use map inform local zoning decisions. Proposed changes to the City's zoning are usually initiated through Community Plan Updates. Policies relevant to the Program in each Community Plan are presented in Table 3.12-3.

Table 3.12-3. City of Los Angeles Community Plans

Community Plans	Relevant Policies
Arleta-Pacoima	Protect single family character of neighborhoods. Preserve and enhance the positive characteristics of the existing residential neighborhoods while providing a variety of housing opportunities with compatible new housing. Plan the few remaining sites for major development, so that they are available for needed job producing uses which will improve the economic and physical condition of the Community. Preserve and enhance the positive characteristics of existing uses which provide the foundation for community identity, like scale, height, bulk, setbacks, and appearance. Industrial lands are located on a citywide basis without regard to the boundaries of individual communities or districts, under the general principle that such employment should be available within a reasonable commuting distance from residential locations.
Bel Air-Beverly Crest	Goal – Preservation and enhancement of the varied and distinctive residential character of the community. All areas within Bel Air-Beverly Crest should be subject to improved design standards to ensure compatibility of new development with the scenic character of the Community. The Plan does not designate any industrial land or propose any industrial uses.
Boyle Heights (currently being updated)	Industrial Policy 1. That industrial uses, wherever possible, be clearly defined and separated from other uses by freeways, flood control channels, arterials, and other physical barriers. 2. That a transition of industrial uses be developed, where feasible, from intensive uses to less intensive uses in those areas adjacent to residential uses. 3. That the City encourage the use of public and private resources designed to stimulate industrial rehabilitation, intensification, and new development. 4. That the industrial areas north of the San Bernardino Freeway and west of the Golden State Freeway, west of the Aliso-Pico neighborhood and Santa Ana Freeway, and south of Olympic Boulevard, all of which are located conveniently near transportation facilities, be maintained and improved as a means of providing revenue to the City and employment opportunities for its residents.
Brentwood-Pacific Palisades	Policy 1-1.46 The City should promote neighborhood conservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple-family residences. Policy 1-3.2 Preserve existing views in hillside areas. Policy 1-3.3 Consider factors such as neighborhood character and identity, compatibility of land uses, impacts on livability, impacts on services and public facilities, and impacts on traffic levels when changes in residential densities are proposed. The Plan area includes no industrial uses or zones. The Plan proposes that there be no industrial uses within the Brentwood/Pacific Palisades District.

Community Plans	Relevant Policies
Canoga Park-Winnetka-Woodland Hills-West Hills (currently being updated)	Policy 1-1.2 Protect existing single family residential neighborhoods from new, out-of scale development. Policy 1-1.5 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. Policy 1-3.3 Preserve existing views in hillside areas. Policy 3-1.2 Require that any proposed development be designed to enhance and be compatible with adjacent development. Policy 3-3.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
Central City (currently being updated)	Policy 1-1.1 Maintain zoning standards that clearly promote housing and limit ancillary commercial to that which meets the needs of neighborhood residents or is compatible with residential uses. Objective To strengthen, retain and expand the existing industrial base as well as attract new industries to the Central City Area.
Central City North (currently being updated)	1-1.2 Protect the quality of the residential environment through attention to the appearance of communities, including attention to building and site design. 1-1.3 The City should promote neighborhood preservation, particularly in existing low density multi-family neighborhoods. 3-1.1 Designate lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses which provide employment opportunities. 3-1.2 Adequate compatibility should be achieved through design treatments, compliance with environmental protection standards and health and safety requirements for industrial uses where they adjoin residential neighborhoods and commercial uses. 3-1.3 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-3.1 The numerous large rail yards and other industrially planned parcels located in predominantly industrial areas should be protected from development by other uses which do not support the industrial base of the City and the community.
Chatsworth-Porter Ranch	The [Q]M1 Zone classification is permitted on those properties fronting on the following corridors: (1) the north and south sides of Nordhoff Street between De Soto Avenue and Topanga Canyon Boulevard; (2) the east side of Topanga Canyon Boulevard, from Nordhoff Street to the south side of Lassen Street; and (3) the south side of Lassen Street between Topanga Canyon Boulevard and De Soto Avenue. Such conditions of approval shall prohibit smoke stacks, metal plating, toxic and noxious industrial uses, and any new retail commercial uses within these zone classifications. Industrial acreage shown on the Plan should be protected from intrusion by non-industrial uses, except those corridors described above on Nordhoff Street, Topanga Canyon Boulevard, and Lassen Street should allow uses similar to those permitted in the M1 and M2 Zones. In keeping with the low-density residential character of the Community, to the extent possible, the Plan proposes preservation of all existing MR zoned lands, and classification of all undeveloped industrial land in the MR1 and MR2 Zones.

Community Plans	Relevant Policies
Encino-Tarzana (currently being updated)	1-1.2 Protect existing single family residential neighborhoods from new, out-of-scale development. 1-1.3 Protect existing stable single-family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.5 Maintain at least 63% residential land designated for single family uses. 3-1.1 Designate lands for the continuation of existing industrial uses, research and development uses which provide employment opportunities. 3-1.2 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-1.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
Granada Hills-Knollwood	LU1.2 Existing Housing Stock. Minimize the loss of good quality, affordable housing and encourage the replacement of demolished housing stock with new affordable housing opportunities. Minimize displacement of residents when building new housing. LU6.1 Neighborhood Preservation. Preserve single-family zoned residential neighborhoods, while maintaining existing character and scale. LU21.1 High-Quality Development. Design projects to achieve a high level of quality, distinctive character, compatibility with existing uses, and in accordance with Citywide Design Guidelines.
Harbor Gateway (currently being updated)	Industrial lands are allocated on a citywide basis without regard to the boundaries of individual communities or districts in accordance with the general principle that jobs should be available within a reasonable commuting distance from employees' homes. Wherever possible, industrial uses should be concentrated in industrial parks.
Hollywood (currently being updated)	Industrial lands are located on a citywide basis without regard to the boundaries of individual communities or districts, under the general principle that such employment should be available within a reasonable commuting distance from residential locations. On-street parking should be discouraged in industrial areas. If industrial expansion is permitted into residential areas, it should be conducted according to a planned development program to avoid a mixture of uses. Industrial lands are intended to be limited and restricted to types of uses which will avoid nuisance to other uses on adjacent lands.
Mission Hills-Panorama City-North Hills	1-1.2 Protect existing single family residential neighborhoods from new, out of scale development. 1-1.3 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.5 Maintain at least 77% of designated residential lands for single family uses. 1-1.6 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple family residences. 3-1.1 Designate lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses which provide employment opportunities.

Community Plans	Relevant Policies
	3-1.2 Adequate compatibility should be achieved through design treatments, compliance with environmental protection standards and health and safety requirements for industrial uses where they adjoin residential neighborhoods and commercial uses. 3-1.3 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-3.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
North Hollywood-Valley Village (currently being updated)	Industrial lands are located on a citywide basis without regard to the boundaries in individual communities or districts, under the general principle that such employment should be available within a reasonable commuting distance from residential locations. Industrial lands should be accessible to railways, public utilities and transportation. Within limited and light industrial areas, the height of industrial buildings shall be restricted to 45 feet.
Northeast	1-1.1 Protect existing stable single-family and other lower density residential neighborhoods from encroachment by higher density residential and other uses that are incompatible as to scale and character or would otherwise diminish the quality of life. 1-1.2 Promote neighborhood preservation, particularly in existing single-family neighborhoods, as well as in areas with existing multiple-family residences. 3-1.1 Preserve existing industrial areas that have the greatest viability and compatibility and the least adverse impact on nearby uses. 3-2.1 Designate lands for the continuation of appropriate existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses that are compatible with nearby uses, provide employment opportunities, and have minimal impact on the environment. 3-2.2 Require compatibility through design treatments, compliance with environmental protection standards, and health and safety requirements for industrial uses that adjoin residential neighborhoods and commercial uses. 3-2.3 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-3.1 Protect large rail yards and other large industrially-planned parcels located in predominantly industrial areas from development by other uses that do not support the industrial and economic base of the city and the community.
Northridge	1-1.2 Protect existing single family residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.4 The City should promote neighborhood preservation, both in existing single family neighborhoods, as well as existing multiple-family areas. 3-1.1 The City should utilize land use, zoning, and financial incentives to preserve the economic viability of Northridge's existing industries. 3-1.2 Require that projects be designed and developed to achieve a high level of quality, distinctive character, and compatibility with existing uses in accordance with design standards. The Parthenia industrial corridor between Tampa and Lindley is particularly unsightly and in need of visual upgrading.

Community Plans	Relevant Policies
	3-1.3 Adequate mitigation should be achieved through design treatments and compliance with environmental protection standards, for industrial uses where they adjoin residential neighborhoods and commercial uses. Future industrial development should be limited to existing industrial areas, and replacement industry should be light manufacturing or high technology, research and development.
Palms-Mar Vista-Del Rey (currently being updated)	1-1.3 Protect existing single family residential neighborhoods from new out-of-scale development and other incompatible uses. 1-1.4 Promote neighborhood preservation, particularly in multi-family neighborhoods. 3-1.1 Designate and preserve lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing and similar uses which provide employment opportunities. 3-1.2 Ensure compatibility between industrial and other adjoining land uses through design treatments, compliance with environmental protection standards and health and safety requirements. 3-1.3 Require that any proposed development be designed with adequate buffering and landscaping and that the proposed use be compatible with adjacent residential development.
Reseda-West Van Nuys (currently being updated)	1-1.2 Protect existing single family residential neighborhoods from new, out-of-scale development. 1-1.5 Protect the quality of the residential environment west of the Van Nuys Airport through attention to noise and traffic. 1-1.7 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple family residences. 3-1.1 Designate lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing, and similar uses which provide employment opportunities. 3-1.2 Adequate compatibility should be achieved through design treatments, compliance with environmental protection standards and health and safety requirements for industrial uses where they adjoin residential neighborhoods and commercial uses. 3-1.3 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-3.1 Encourage new industrial uses adjacent to residential neighborhoods to the extent feasible.
San Pedro (currently being updated)	3-1.1 Neighborhood character. Maintain the distinguishing characteristics of San Pedro's residential neighborhoods with respect to lot size, topography, housing scale and landscaping, to protect the character of existing stable neighborhoods from new, out-of-scale development. 3-14.2 Retain industrial land. Large Industrial designated parcels located in predominantly industrial areas shall not be developed with other uses that do not support the industrial base of the City and community. 3- 14.5 Encourage sustainable industry. Incentivize development opportunities for businesses that are oriented towards green or clean technologies, and employ green building practices and processes. 3-15.2 Enhanced design. Require design techniques, such as appropriate building orientation and scale, landscaping, buffering, noise insulation and increased setbacks, in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment.

Community Plans	Relevant Policies
Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass (currently being updated)	1-1.3 Protect existing stable single-family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.5 Maintain at least 68% residential land designated for single family uses. 1-1.6 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multi-family residences. 1-5.1 Limit development according to the adequacy of the existing and assured street circulation system within the Plan Area and surrounding areas. 3-1.1 Designate lands for the continuation of existing entertainment industry uses and development of new production, post production, research and development uses which provide employment opportunities. 3-1.2 Require that any proposed development be designed to enhance and be compatible with adjacent development.
Silver Lake-Echo Park-Elysian Valley	1-1.3 Protect existing single family residential neighborhoods from new out-of-scale development. 1-1.5 Protect existing stable single family and low-density multiple family residential neighborhoods from encroachment by higher density residential and other incompatible uses. 3-3.1 Promote continuation of appropriate existing industry and attract development of compatible industrial development. 3-1.2 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-4.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods, to the extent feasible.
South Los Angeles	3-1.14 Industrial and Commercial Conflicts. Strive to eliminate the encroachment of adjacent industrial or commercial uses into residential neighborhoods, particularly through the demolition of dwelling units for the development of parking lots for industrial or commercial businesses. 3-2.2 Preserve Neighborhoods. Maintain existing single-family land use designations throughout the Community Plan Area. 3-7.1 Minimize Use Impacts. Allow for development of auto-related and recycling uses only in appropriate commercial designations along major arterials and minimize their impacts to the surrounding neighborhoods. 3-7.3 Screen and Buffer. Support the screening of open storage, recycling centers and auto uses, and limit visibility of automobile parts storage and other related products from public view. 3-7.4 Limit Overconcentrated and Incompatible Uses. Limit overconcentrated uses that are incompatible in a neighborhood context, such as stand-alone drive-thru fast food establishments, off-site alcohol sales, recycling facilities, smoke shops, and check cashing facilities to avoid impacts to the neighborhood. 3-14.1 Provide for Industrial Uses. Provide for existing and future industrial uses which contribute job opportunities for residents and which minimize negative environmental and visual impacts to the community.

Community Plans	Relevant Policies
	3-15.2 Promote Green Industries. Encourage "green" industries to locate in South Los Angeles that bolster the economic base and provide high-skill/ high-wage job opportunities. LU15.3 Revitalization of Brownfields. Support remediation and reuse of brownfields.
Southeast	3-1.13 Industrial Conflicts. Strive to eliminate the encroachment of adjacent industrial uses into residential neighborhoods, particularly through the demolition of dwelling units for the development of parking lots for industrial businesses. 3-2.1 Preserve Neighborhoods. Strive to maintain existing single-family land use designations throughout the Community Plan Area and protect them from encroachment by higher density residential and other incompatible uses. 3-15.2 "Green" Industries. Encourage "green" industries that bolster the economic base and provide high-skill/high-wage job opportunities to locate in Southeast Los Angeles.
Sun Valley-La Tuna Canyon	1-1.2 Protect existing single family residential neighborhoods from encroachment by higher density residential and other incompatible uses. 3-1.3 Adequate mitigation should be achieved through design treatments and compliance with environmental protection standards, for industrial uses where they adjoin residential neighborhoods and commercial uses. 3-3.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
Sunland-Tujunga-Shadow Hills-Lake View Terrace-East La Tuna Canyon	1-1.2 Protect existing single family residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.4 The City should promote neighborhood preservation in existing residential neighborhoods. 3-1.2 Require that projects be designed and developed to achieve a high level of quality, distinctive character, and compatibility with existing uses in accordance with design standards. 3-1.3 Adequate mitigation should be achieved through design treatments and compliance with environmental protection standards, for industrial uses where they adjoin residential neighborhoods and commercial uses.
Sylmar	LU8.1 Neighborhood Preservation. Preserve single-family zoned residential neighborhoods, while maintaining the existing character and scale. Enforce the City's Baseline Mansionization ordinance. LU22.1 High-Quality Development. Design projects to achieve a high level of quality, and developed in accordance to the Industrial Citywide Design Guidelines and other applicable design guidelines. Projects are required to incorporate to the maximum extent feasible applicable design guidelines. LU22.2 Neighborhood Compatibility. Require design techniques, such as appropriate building orientation and scale, landscaping, buffering, noise insulation and increased setbacks, in the development of new industrial properties adjacent to non-industrial uses to improve land use compatibility and to enhance the physical environment. LU22.3 Transitional Uses. Require transitions for industrial uses, including scale, massing, and setbacks, in those areas in close proximity to residential neighborhoods. LU22.4 Landscaped Buffers. Incorporate landscaped buffers between the buildings and abutting residential properties. Methods to buffer projects should include a combination of increased setbacks, landscaping, berms and/or screening, and fencing.

Community Plans	Relevant Policies
	LU22.7 Integration of Utilities. Integrate service elements and infrastructure such as mechanical equipment, trash enclosures and utilities with the design of projects. Locate service elements and infrastructure away from crosswalks or sidewalks and screen and/or enclose equipment in order to enhance the pedestrian experience and aesthetic appeal of the building and overall neighborhood. Underground utilities whenever possible. LU23.2 Sustainable Industry. Incentivize development opportunities for businesses that employ "green" or clean technologies, building practices, and processes.
Van Nuys-North Sherman Oaks (currently being updated)	1-1.2 Protect existing single family residential neighborhoods from new, out-of-scale development. 1-1.3 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.5 Preserve and maintain the existing ratio of 74% of designated residential lands for single family uses. 3-1.2 Adequate compatibility should be achieved through design treatments, compliance with environmental protection standards and health and safety requirements for industrial uses where they adjoin residential neighborhoods and commercial uses. 3-1.3 Require that any proposed development be designed to enhance and be compatible with adjacent development. 3-2.1 Large industrially planned parcels located in predominantly industrial areas should be protected from development by other uses which do not support the industrial base of the City and community. 3-3.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
Venice (currently being updated)	1-1.3 Protect existing single-family residential neighborhoods from new out-of-scale development and other incompatible uses. 1-1.4 Promote the preservation of existing single-family and multi-family neighborhoods. 1-3.2 Proposals to alter planned residential density should consider factors of neighborhood character and identity, compatibility of land uses, impact on livability, adequacy of public services and facilities, and impacts on traffic levels. 3-1.2 Ensure compatibility between industrial and other adjoining land uses through design treatments, and compliance with environmental protection standards and health and safety requirements. 3-1.3 Require that any proposed development be designed with adequate buffering and landscaping and that the proposed use be compatible with adjacent residential development. 3-2.1 Encourage new industrial uses adjacent to residential neighborhoods to mitigate their impact on the residential neighborhoods to the extent feasible.
West Adams-Baldwin Hills-Leimert Community	LU2-1 Protect Neighborhoods. Strive to protect existing single-family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. LU2-5 Preserve View Corridors. Encourage the preservation of existing prominent public vistas and view corridors throughout the Community Plan Area and especially those from hillside areas.

Community Plans	Relevant Policies
	LU4-2 Compatibility with Adjacent Development. Recommend that any proposed development be designed to enhance and be compatible with adjacent development and topography. LU65-4 Compatibility with Adjoining Uses. Achieve adequate compatibility through design treatments, compliance with environmental protection standards, and health and safety requirements for industrial uses where they adjoin residential neighborhoods and commercial uses. LU65-5 Transition Height to Residential. Mitigate the potential negative impact of the height of industrial uses located in close proximity to residential uses by requiring landscape and open space transitions along edges adjacent to residential uses. LU66-3 Facilitate Industrial Revitalization. Encourage the aggregation of smaller, older sites to facilitate revitalization or reuse where appropriate such as within the Industrial TOD areas along the Expo Line and within the Hyde Park Industrial Corridor. LU66-4 Revitalize the Hyde Park Industrial Areas. Foster the industrial revitalization of industrial properties located directly adjacent to the Harbor Subdivision Railroad right-of-way between Van Ness Avenue and West Boulevard.
West Los Angeles (currently being updated)	1-1.1 Protect existing single family residential neighborhoods from new out-of-scale development and other incompatible uses. 1-1.2 Promote neighborhood preservation in all residential neighborhoods. 3-1.1 Designate and preserve lands for the continuation of existing industry and development of new industrial parks, research and development uses, light manufacturing and similar uses. 3-1.2 Ensure compliance with environmental protection standards and health and safety requirements. 3-2.1 Require that new industrial development be designed to be compatible with adjacent residential neighborhoods. Require urban design techniques, such as appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment. 3-2.2 Require a transition of industrial uses, from intensive uses to less intensive uses, in those areas in proximity to residential neighborhoods. 3-3.1 Define and separate new and/or expanded industrial uses from other uses by freeways, highways and other physical barriers.
Westchester-Playa Del Rey (currently being updated)	1-1.1 Protect existing stable single family and low density residential neighborhoods, such as Kentwood, from encroachment by higher density residential uses and other uses that are incompatible as to scale and character, or would otherwise diminish quality of life. 1-1.2 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple family residences. 1-3.2 Monitor the impact of new development on residential streets. Locate access to major development projects so as not to encourage spillover traffic on local residential streets. 1-5.1 Where possible, do not locate incompatible land uses, including higher density multiple residential uses, within or in close proximity to lower density residential neighborhoods, except where there are adequate buffers, transitional land uses, etc.

Community Plans	Relevant Policies
	1-6.1 The preservation of existing scenic views from surrounding residential uses, public streets and facilities, or designated scenic view sites should be a significant consideration in the approval of zone changes, conditional use permits, variances, divisions of land and other discretionary permits. 3-1.2 Define and separate new and/or expanded industrial uses from other uses by freeways, flood control channels, arterials and other physical barriers. 3-1.3 Require a transition of industrial uses, from more intensive uses to less intensive uses, in those areas in proximity to residential neighborhoods. 3-1.4 Land use compatibility should be achieved by including environmental protection standards and health and safety requirements in the design and operation of industrial facilities. 3-2.1 Protect areas designated for Industry on the Plan map from unrelated commercial and other non-industrial uses, and upgrade such areas with high quality industrial development that is compatible with adjacent land use. 3-3.1 Require urban design techniques, such as appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use.
Westlake	1. That the existing Low and Low Medium density housing be preserved where such housing is in relatively good condition or can be made so with moderate improvements. 1. That the City encourage the use of public and private resources designed to stimulate industrial rehabilitation, intensification, and new development. 2. That the existing industrial areas be maintained and improved as a means of providing revenue to the City and employment opportunities for its residents.
Westwood	1-1.2 Protect the quality of residential environment and promote the maintenance and enhancement of the visual and aesthetic environment of the community. 1-1.4 Promote neighborhood preservation, particularly in multi-family neighborhoods.
Wilmington-Harbor City (currently being updated)	1-1.2 Protect existing single family residential neighborhoods from new, out-of-scale development. 1-1.3 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential and other incompatible uses. 1-1.5 Maintain at least 67% of designated residential lands for single family uses. 1-1.6 The City should promote neighborhood preservation, particularly in existing single family neighborhoods, as well as in areas with existing multiple family residences. 1-6.1 The enlargement of nonconforming, incompatible commercial and industrial uses within areas designated on the Plan map for residential land use shall be prohibited, and action shall be taken toward their removal on a scheduled basis in conformance with Section 12.23 of the Municipal Code.

Community Plans	Relevant Policies
	1-6.2 Compatible non-conforming uses, that are a recognized part of a neighborhood (e.g., "Mom and Pop" neighborhood stores), should be allowed to continue as legal nonconforming uses in accordance with applicable provisions of the Municipal Code. 3-1.2 Define and separate new and/or expanded industrial uses from other uses by freeways, flood control channels, arterials and other physical barriers. 3-1.3 Require a transition of industrial uses, from intensive uses to less intensive uses, in those areas in proximity to residential neighborhoods. 3-1.4 Land use compatibility should be achieved by including environmental protection standards and health and safety requirements in the design and operation of industrial facilities. 3-2.1 Protect areas designated for Industry and proposed for the MR restricted zoning classifications on the Plan map from unrelated commercial and other non-industrial uses, and upgrade such areas with high quality industrial development that is compatible with adjacent land use. 3-3.1 Require urban design techniques, such as appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties to improve land use compatibility with adjacent uses and to enhance the physical environment.
Wilshire	1-1.1 Protect existing stable single family and low density residential neighborhoods from encroachment by higher density residential uses and other uses that are incompatible as to scale and character, or would otherwise diminish quality of life. 1-1.2 Promote neighborhood preservation in all stable residential neighborhoods. 1-3.2 Support historic preservation goals in neighborhoods of architectural merit and/or historic significance. 3-1.1 Designate and preserve lands for the continuation of existing industry and for the development of new industrial parks, research and development uses, light manufacturing and similar uses. 3-1.2 Encourage compliance with environmental protection standards and health and safety requirements. 3-2.1 Encourage new industrial development designs to be compatible with adjacent land uses. Encourage appropriate building orientation and scale, landscaping, buffering and increased setbacks in the development of new industrial properties. 3-2.2 To buffer residential/industrial land uses, promote a transition of industrial uses, from intensive uses to less intensive uses, in those areas in close proximity to residential neighborhoods. 3-3.1 Minimize environmental impacts of industrial uses from other uses by highways and other physical barriers.

3.12.3 Impact Assessment

3.12.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to land use and planning. The Program would have a significant impact to land use and planning if the Program would:

a. Physically divide an established community.

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with land use and planning resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

Impact Criteria a and b)

- The extent of the area that would be impacted, the nature and degree of impacts, and the type of land uses within that area;
- The extent to which existing neighborhoods, communities, or land uses would be disrupted, divided or isolated, and the duration of the disruptions; and
- The number, degree, and type of secondary impacts to surrounding land uses that could result from implementation of the proposed project.
- Whether the proposal is inconsistent with the adopted land use/density designation in the Community Plan, redevelopment plan or specific plan for the site; and
- Whether the proposal is inconsistent with the General Plan or adopted environmental goals or policies contained in other applicable plans.

3.12.3.2 Program

3.12.3.2.1 Upstream Measures

Impact Criterion a) Would the Project physically divide an established community?

Impact Criterion b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

None of the Program's upstream measures would result in construction of any infrastructure or any changes in land use and zoning. The Program supports, among other land use goals, L.A.'s Green New Deal (City of Los Angeles 2019) which lays out the following targets for waste management:

- Increase landfill diversion rate to 90% by 2025; 95% by 2035; and 100% by 2050;
- Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028;

- Eliminate organic waste going to landfill by 2028; and
- Increase proportion of waste products and recyclables productively reused and/or repurposed within L.A. County to at least 25% by 2025; and 50% by 2035.

Therefore, adoption of the proposed upstream measures would not divide an established community and would not conflict with a land use plan or any other policy or regulation. Therefore, upstream measures would have ***no impact*** on land use and planning.

3.12.3.2.2 Downstream Measures

Impact Criterion a) Would the Project physically divide an established community?

Impact Criterion b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

While the specific locations of downstream facilities are not known at this time, they would be located within zones that permit the specific facility type, and on lands where the facility is a permitted use per the LAMC. As shown in Table 3.12-2 above, the City's Community Plans contain numerous goals, objectives, policies, and programs to maintain and protect single- and multi-family neighborhoods and communities. The City would not locate downstream facilities within residential neighborhoods and therefore would support maintenance and protection of these areas as identified in the Community Plans.

When a downstream facility is proposed, the City or another applicant would be required to obtain permits and approvals. If a proposed future downstream facility does not comply with the zoning requirements, then a conditional use permit would also be required prior to construction. The issuance of a conditional use permit means that the City Planning Commission has determined the following: 1) the project will enhance the built environment in the surrounding neighborhood or will perform a function or provide a service that is essential or beneficial to the community, city, or region; 2) the project's location, size, height, operations, and other significant features will be compatible with and will not adversely affect or further degrade adjacent properties, the surrounding neighborhood, or the public health, welfare, and safety; and 3) the project substantially conforms with the purpose, intent, and provisions of the General Plan, the applicable community plan, and any applicable specific plan. LAMC 12.24 U.9 and 12.24 U.28 lay out additional requirements for Green Waste and/or Wood Waste Recycling Uses and Solid Waste Alternative Technology Processing Facilities in the M2, M3 and PF Zones, respectively.

Therefore, construction of facilities proposed for the downstream measures would not physically divide, disturb, or isolate an established community or conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts of the downstream measures on land use and planning would be ***less than significant.***

3.13 Mineral Resources

This section describes the existing mineral resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on mineral resources in the City. Table 3.13-1 summarizes impacts on mineral resources that could result from implementation of the Program or alternatives.

Table 3.13-1. Summary of Mineral Resources Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Upstream: No Impact	None
	Downstream: Less than Significant	None
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Upstream: No Impact	None
	Downstream: Less than Significant	None

3.13.1 Existing Conditions

The primary mineral resources within the City are oil and gas, as well as rock, gravel, and sand deposits. There are currently 780 active oil and gas wells within the City of Los Angeles, located within established and permitted oil drilling districts (California Geologic Energy Management Division [CalGEM] 2023). California is the nation's fourth largest oil producing state, and the oil fields beneath Los Angeles are some of the most concentrated in the world. Other mineral resources, including sand and gravel deposits, follow the Los Angeles River flood plain, coastal plain, and water courses. Mineral resource zone (MRZ)-2 zones (Areas where adequate information indicates that significant mineral deposits are present or significant inferred resources are present and development should be controlled) are classified by the City as significant because of their potential for sand and gravel extraction. Much of the area identified has been developed with structures and is inaccessible for mining extraction. The only currently available deposit site in the City is the Tujunga alluvial fan, which is rich in accumulations of high quality sand and gravel washed from the adjacent mountains (City of Los Angeles 1996).

3.13.2 Regulatory Framework

3.13.2.1 Federal

No federal regulations related to mineral resources are applicable to the proposed Program.

3.13.2.2 State

3.13.2.2.1 Surface Mining and Reclamation Act of 1975

The Surface Mining and Reclamation Act of 1975 (SMARA) requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision-makers and considered before land-use decisions are made that could preclude mining. The California Mineral Land Classification System classifies lands according to four MRZs, Scientific Resource Zones, or Identified Resource Areas.

3.13.2.2.2 Geologic Energy Management Division

All California oil and gas wells on state and private lands are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by CalGEM. CalGEM's regulatory program promotes sound engineering practices, prevention of pollution, and implementation of public safety programs. CalGEM requires avoidance of building over or near plugged or abandoned oil and gas wells or requires the remediation of wells to current CalGEM standards.

3.13.2.3 Local

3.13.2.3.1 City of Los Angeles General Plan

Conservation Element

Section 18: Resource Management: Mineral Resources (Sand and Gravel). The primary mineral resources within the city are rock, gravel and sand deposits. Sand and gravel deposits follow the Los Angeles River flood plain, coastal plain and other water bodies and courses.

- Objective: conserve sand and gravel resources and enable appropriate, environmentally sensitive extraction of sand and gravel deposits.
    - Policy 1: continue to implement the provisions of the California Surface Mining and Reclamation Act (Public Resources Code Section 2710 et seq.) so as to establish extraction operations at appropriate sites; to minimize operation impacts on adjacent uses, ecologically important areas and ground water; to protect the public health and safety; and to require appropriate restoration, reclamation and reuse of closed sites.

3.13.2.3.2 Los Angeles Municipal Code Section 13.03

To regulate subsurface extraction activities, the City established Oil Drilling District procedures in 1948 and Rock and Gravel District procedures in 1951. The latter was superseded in 1976 by the Surface Mining District ordinance which brought the City into compliance with SMARA. The procedures have been amended several times to improve protective and procedural measures and, in 1971, to include offshore oil drilling. Both contain provisions for monitoring and imposing mitigation measures to prevent significant subsidence relative to oil and gas extraction and mining activities. The districts are established as overlay zones and are administered by the Department of City Planning with the assistance of other City agencies. The City Oil Administrator of the Office of the City Administrative Officer is responsible for monitoring oil extraction activities and has the authority to recommend additional mitigation measures to the Planning Commission after an Oil Drilling District is established. The Planning Department Office of Zoning Administration issues and administers oil drilling permits and may impose additional mitigation measures, as deemed necessary, after a permit has been granted, such as measures to address subsidence.

To comply with SMARA, the City of Los Angeles adopted (1975) the 'G' Surface Mining supplemental use provisions (LAMC Section 13.03). Subsequent amendments have brought the City's provisions into consistency with new state requirements. The 'G' provisions are land use, not mineral conservation regulations. They regulate the establishment of sand and gravel districts, extraction operations, mitigation of potential noise, dust, traffic, and other potential impacts, as well as post-extraction site restoration. Other conditions may be imposed by the City if deemed appropriate. The 'O' Oil Drilling supplemental use district provisions of the (LAMC Section 13.01) were initially enacted in 1953. They delineate the boundaries within which surface operations for drilling, deepening, or operation of an oil well or related facilities are permitted, subject to conditions and requirements set forth in the code and by a Department of City Planning Zoning Administrator, the City of Los Angeles Fire Department, and the City's petroleum administrator of the Office of Administrative and Research Services. The conditions protect surrounding neighborhoods and the environment from potential impacts, e.g., noise, hazard, spills, and visual blight. In addition, the Department of Water and Power monitors drilling operations to assure protection of water wells and aquifers.

3.13.3 Impact Assessment

3.13.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to mineral resources. The Program would have a significant impact to mineral resources if the Program would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with mineral resources resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

– Impact Criterion a)
    - Whether, or the degree to which, the project might result in the permanent loss of, or loss of access to, a mineral resource that is located in a MRZ-2 or other known or potential mineral resource area.

– Impact Criterion b)
    - Whether the mineral resource is of regional or statewide significance, or is noted in the Conservation Element as being of local importance.

3.13.3.2 Program

3.13.3.2.1 Upstream Measures

Impact Criterion a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Bans on single-use plastics items that are disposed of as trash would result in a shift toward more recyclable and compostable materials as well as reusable materials. This shift would decrease the use of virgin materials by keeping the materials available for recycling into new products and could decrease demand for extraction of new mineral resources. Similarly, EPR programs would result in less materials being landfilled, but instead staying in the manufacturing stream and being used to make new products rather than requiring virgin materials. However, the Program is not anticipated to affect mineral resources (i.e., oil, sand, and gravel) within the City. Therefore, implementation of the Program's upstream measures would have ***no impact*** on mineral resources.

Impact Criterion b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The Program's upstream measures would not result in any construction or ground-disturbing activities. Therefore, they would have ***no impact*** on the availability of a locally important mineral resource recovery site.

3.13.3.2.2 Downstream Measures

Impact Criterion a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Impact Criterion b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The specific locations of downstream facilities are not known. New downstream facilities would not be consistent with the MRZ zoning or with an oil drilling district. Certain elements of the oil drilling district are considered for modification, however it is speculative how those protections for mineral resources may evolve in the future. While the specific locations of downstream facilities are not known at this time, they would be located within zones that permit the specific facility type, and on lands where the facility is a permitted use per the LAMC. Therefore, impacts to mineral resources would be ***less than significant***.

3.14 Noise

This section describes the existing noise of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on noise in the City. Table 3.14-1 summarizes impacts on noise that could result from implementation of the Program or alternatives.

Table 3.14-1. Summary of Noise Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan MM NOI-2: Construction Noise Authorization MM NOI-3: Construction Hours MM NOI-4: Sensitive Receptor Buffers MM NOI-5: Property Line Noise Levels
b) Generation of excessive groundborne vibration or groundborne noise levels?	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM NOI-6: Airport Impact Analysis

3.14.1 Existing Conditions

3.14.1.1 Fundamentals of Acoustics

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. When sound becomes excessive or unwanted, it is referred to as noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day and the type of activity during which the noise occurs, and the sensitivity of the individual.

Sound (noise) levels are measured and quantified with several metrics that use the logarithmic decibel (dB) scale with 0 dB roughly equal to the threshold of human hearing. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a 50 dB sound is added to another 50 dB sound, the total is only a 3 dB increase (to 53 dB). Thus, every 3 dB change in sound levels represents a doubling or halving of sound energy. Related to this is the fact that a less-than-3 dB change in sound levels is imperceptible to the human ear.

The frequency of sound is a measure of the pressure fluctuations per second, measured in hertz (Hz). Most sounds do not consist of a single frequency but consist of a broad band of frequencies differing in level. The characterization of sound level magnitude with respect to frequency is the sound spectrum. Many rating methods exist to analyze sound of different spectra. The method used for this analysis is A-weighting (there are also B- and C-weighting filters). The A-weighted scale (dBA) most closely approximates how the human ear responds to sound at various frequencies by progressively deemphasizing frequency components below 1,000 Hz and above 6,300 Hz and reflects the relative decreased sensitivity of humans to both low and extremely high frequencies (Federal Highway Administration [FHWA] 2006). Table 3.14-2 lists typical sound levels from representative sources.

Table 3.14-2. Sound Level of Common Noise Sources

Typical Noise Source	Sound Level (dBA)
Grand Canyon at Night (no roads, birds, wind)	10
Computer	37-45
Refrigerator	40-43
Typical Living Room	40
Forced Hot Air Heating System	42-52
Microwave	55-59
Normal Conversation	55-65
Clothes Dryer	56-58
Dishwasher	63-66
Clothes Washer	65-70
Phone	66-75

Typical Noise Source	Sound Level (dBA)
Push Reel Mower	68-72
Hairdryer	80-95
Vacuum Cleaner	84-89
Leaf Blower	95-105
Circular Saw	100-104
Maximum Output of a Stereo	100-110
Jet Fly-over at 1,000 Feet	110

Source: Noise Pollution Clearinghouse 2023

The duration of noise and the time period at which it occurs are important factors in determining the impact of noise. Several methods are used for describing variable sounds including the equivalent level (L_{eq}), the maximum level (L_{max}), and the percent-exceeded levels. These metrics are derived from many moment-to-moment A-weighted sound level measurements. Some common metrics reported in community noise monitoring studies are described below:

- L_{eq}, the equivalent level, can describe any series of noise events of arbitrary duration, although the most common averaging period is hourly. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events, and L_{eq} is the common energy-equivalent sound/noise descriptor.
- L_{max} is the maximum sound level during a given time. L_{max} is typically due to discrete, identifiable events such as an airplane overflight, car or truck passing by, or a dog barking.
- L_{90} is the sound level in dBA that is exceeded 90% of the time during the measurement period. L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when no obvious nearby intermittent noise sources occur.
- L_{50} is the median sound level in dBA exceeded 50% of the time during the measurement period.
- L_{10} is the sound level in dBA exceeded only 10% of the time. It is close to the maximum level observed during the measurement period. L_{10} is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

In determining the daily measure of community noise, it is important to account for the difference in human response to daytime and nighttime noise. Noise is more disturbing at night than during the day, and noise indices have been developed to account for the varying duration of noise events over time as well as community response to them. The Day-Night Average Level (L_{dn}) is such an index. L_{dn} represents the 24-hour A-weighted equivalent sound level with a 10 dB penalty added to the “nighttime” hourly noise levels between 10:00 p.m. and 7:00 a.m. Because of the time-of-day penalties associated with the L_{dn} index, the L_{eq} for a continuously operating sound source during a 24-hour period will be numerically less. Noise is also more disturbing the closer a receptor is to the source; noise levels decrease by 6 dB as the distance from its source doubles (FHWA 2011).

3.14.1.2 Fundamentals of Vibration

Groundborne vibration consists of waves transmitted through solid material. Several types of wave motions exist in solids, unlike air, including compressional, shear, torsional, and bending. The solid medium can be excited by forces, moments, or pressure fields. Groundborne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hz. Most environmental vibrations consist of a composite, or "spectrum" of many frequencies, and are generally classified as broadband or random vibrations. The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

Vibration may be defined in terms of the displacement, velocity, or acceleration of the particles in the medium material. In environmental assessments, where human response is the primary concern, velocity is commonly used as the descriptor of vibration level, expressed in millimeters per second (mm/s). The amplitude of vibration can be expressed in terms of the wave peaks or as an average, called the root mean square. The root mean square level is generally used to assess the effect of vibration on humans. Vibration levels for typical sources of groundborne vibration are shown in Table 3.14-3 below.

Vibration can produce several types of wave motion in solids including compression, shear, and torsion, so the direction in which vibration is measured is significant and should generally be stated as vertical or horizontal. Human perception also depends to some extent on the direction of the vibration energy relative to the axes of the body. In whole-body vibration analysis, the direction parallel to the spine is usually denoted as the z-axis, while the axes perpendicular and parallel to the shoulders are denoted as the x- and y-axes, respectively.

The two primary concerns with project-induced vibration, the potential to damage a structure and the potential to annoy people, are evaluated against different vibration limits. Studies have shown that the threshold of perception for the average person is a peak particle velocity in the range of 0.2 to 0.3 mm/s (0.008 to 0.012 inches per second [in/sec]). Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level. Studies have shown that vibration levels from construction equipment such as dozers, graders, backhoes, etc. are typically less than 0.089 in/sec (peak particle velocity) at 25 feet from the source (Caltrans 2020).

Table 3.14-3. Typical Levels of Groundborne Vibration and Human or Building Response

Source	Typical Velocity at 50 Feet (inches/second, root mean square)	Human or Building Response
Blasting from Construction Projects	0.10	Threshold, Minor Cosmetic Damage to Fragile Buildings
Bulldozers and Other Heavy Tracked Construction Equipment	0.06	Workplace Annoyance; Difficulty with Vibration Sensitive Tasks
Commuter Rail, Upper Range	0.02	

Source	Typical Velocity at 50 Feet (inches/second, root mean square)	Human or Building Response
Rapid Transit Rail, Typical Range	0.010	Distinctly Perceptible. Residential Annoyance for Infrequent Events
Commuter Rail, Typical Range	0.008	
Bus or Truck Over Bump	0.004	Barely perceptible. Residential Annoyance for Frequent Events
Rapid Transit Rail, Typical Range	0.003	
Bus or Truck Typical	0.002	Threshold of Perception
Background Vibration	0.0004	None

Source: Adapted from Transit Noise and Vibration Assessment (Federal Transit Administration [FTA] 2006)

3.14.1.3 Existing Environment

The levels and types of noise issues vary significantly throughout the City of Los Angeles. The major sources of noise come from various transportation systems that operate throughout the greater Los Angeles area: commercial and private airports, the Los Angeles County Metropolitan Transportation Authority's (Metro) rail and bus networks, and the extensive freeway and highway system of the region. Other major sources of noise in the City have been identified with industrial uses, illegal fireworks, low-flying helicopters, leaf-blowers, and sirens. Typical ranges for community noise in various settings are shown in Table 3.14-4.

Table 3.14-4. Typical Range of Outdoor Day-Night Sound Levels in Populated Areas

Type of Populate Area	L_{dn} (dBA)
Downtown City	75-85
"Very Noisy" Urban Residential Areas	65-75
"Quiet" Urban Residential Areas	60-65
Suburban Residential Areas	55-60
Small Town Residential Areas	45-55

Source: Adapted from State of California 2017 General Plan Guidelines (California OPR 2017)

Site-specific noise measurements are not appropriate for a programmatic-level document, as it is uncertain where future facilities would be located. At the time a specific facility is proposed, additional environmental review, pursuant to the CEQA, would be required, including an analysis of noise. The future noise analysis would include a characterization of the existing ambient noise condition in and around the specific proposed site.

3.14.1.4 Sensitive Receptors

The extent and duration of Program activities may vary across a variety of land uses including urban, residential, industrial/commercial, agricultural, and open space. Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because of the potential for nighttime noise to result in sleep disruption. Additional land uses such as schools, transient lodging, historic sites, cemeteries, and places of worship are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building, including levels that may be well below those associated with human annoyance.

3.14.2 Regulatory Framework

3.14.2.1 Federal

3.14.2.1.1 Noise Control Act of 1972

USEPA, pursuant to the Noise Control Act of 1972, established guidelines for acceptable noise levels for sensitive receivers such as residential areas, schools, and hospitals. The levels set forth are 55 dBA L_{dn} for outdoor use areas and 45 dBA L_{dn} for indoor use areas, and a maximum level of 70 dBA L_{dn} is identified for all areas to prevent hearing loss (USEPA 1974). These levels provide guidance for local jurisdictions, but do not have regulatory enforceability. In the absence of applicable noise limits, the USEPA levels can be used to assess the acceptability of project-related noise.

3.14.2.1.2 U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development has also established guidelines for acceptable noise levels for sensitive receivers such as residential areas, schools, and hospitals (24 CFR 51). Housing and Urban Development's noise levels include a two-pronged guidance, one for the desirable noise level and the other for the maximum acceptable noise level. The desirable noise level established by Housing and Urban Development conforms to the USEPA guidance of 55 dBA L_{dn} for outdoor use areas of residential land uses and 45 dBA L_{dn} for indoor areas of residential land uses. The secondary Housing and Urban Development standard establishes a maximum acceptable noise level of 65 dBA L_{dn} for outdoor use areas of residential areas.

3.14.2.1.3 Federal Transit Authority

The FTA has published guidance relevant to assessing vibration impacts (FTA 2006). As an example from the guidance, engineered concrete and masonry (no plaster) buildings can be exposed to groundborne vibration levels of 0.3 in/sec without experiencing structural damage. Buildings extremely susceptible to vibration damage (e.g., historic buildings) can be exposed to groundborne vibration levels of 0.12 in/sec without experiencing structural damage. Typical structures in the City of Los Angeles consist of engineered concrete and masonry buildings, steel framed buildings, and stucco and wood frame residences.

3.14.2.2 State

The California Code of Regulations has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as shown in Table 3.14-5 below.

The extensive state regulations pertaining to worker noise exposure are applicable to the construction phase of projects implemented under the proposed Program (for example California Occupational Safety and Health Administration Occupational Noise Exposure Regulations [8 CCR General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.]), for workers in a "central plant" and/or maintenance facility, or for those involved in the use of maintenance equipment or heavy machinery.

Table 3.14-5. Land Use Compatibility for Community Noise Environments

Land Use Category	Noise Exposure Ranges (dBA CNEL) Normally Acceptable[1]	Noise Exposure Ranges (dBA CNEL) Conditionally Acceptable[2]	Noise Exposure Ranges (dBA CNEL) Normally Unacceptable[3]	Noise Exposure Ranges (dBA CNEL) Clearly Unacceptable[4]
Residential: Low-density Single Family, Duplex, Mobile Homes	<60	55-70	70-75	>75
Residential: Multiple Family	<65	60-70	70-75	>75
Transient Lodging: Motels, Hotels	<65	60-70	70-80	>80
Schools, Libraries, Churches, Hospitals, Nursing Homes	<70	60-70	70-80	>80
Auditoriums, Concert Halls, Amphitheaters	Undefined	<70	>65	Undefined
Sports Arena, Outdoor Spectator Sports	Undefined	<75	>70	Undefined
Playgrounds, Neighborhood Parks	<70	67-75	>73	Undefined
Golf Courses, Riding Stables, Water Recreation, Cemeteries	<75	Undefined	70-80	>80
Office Buildings, Business, Commercial, and Professional	<70	67-77	>75	Undefined
Industrial, Manufacturing, Utilities, Agriculture	<75	70-80	>75	Undefined

NA: Not Applicable; CNEL: Community Noise Equivalent Level
Source: OPR 2017
Notes: [1] Normally Acceptable: specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction without any special noise insulation requirements.
[2] Conditionally Acceptable: New construction or development should only be undertaken after a detailed analysis of the noise reduction requirements is made and the needed insulation features included in the design.
[3] Normally Unacceptable: New construction or development should generally be discouraged. If new development is to proceed, a detailed analysis of the noise reduction requirements is made, and the needed insulation features are included in the design.
[4] Clearly Unacceptable: New development or construction should not be undertaken.

3.14.2.3 Local

3.14.2.3.1 City of Los Angeles Municipal Code

Chapter XI of LAMC includes policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise sensitive land uses. LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of “offending” noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people’s increased tolerance for short-duration noise events, the LAMC provides a 5 dBA allowance for a noise source that causes noise lasting more than 5 but less than 15 minutes of any one-hour period, and an additional 5 dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any 1-hour period.

The LAMC provides that in cases where the actual ambient conditions are not known, the City’s presumed daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) minimum ambient noise, as defined in LAMC Section 111.03, should be used. The presumed ambient noise levels for these areas where the actual ambient conditions are not known as set forth in LAMC Section 111.03 are detailed in Table 3.14-6.

Table 3.14-6. City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime (7:00 a.m. to 10:00 p.m.) L_{eq} (dBA)	Nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} (dBA)
Residential (A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5)	50	40
Commercial (P, PB, CR, C1, C1.5, C2, C4, C5, and CM)	60	55
Manufacturing (M1, MR1, and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65

Source: LAMC Section 111.03

LAMC Section 112.02 limits increases in noise levels from air conditioning, refrigeration, heating, pumping, and filtering equipment. Such equipment may not be operated in such a manner as to create any noise which could cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit to exceed the ambient noise level by more than 5 dB.

LAMC Section 112.04 limits increases in noise levels from any machinery, equipment, tools, or other mechanical or electrical device, or the engagement in any other activity in such manner as to create any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than 5 dB. Section 112.04 further limits noise levels between the hours of

10:00 p.m. and. 7:00 a.m. of the following day: no person shall operate machinery, equipment, or other mechanical or electrical device, or any hand tool which creates a loud, raucous or impulsive sound, within any residential zone or within 500 feet of a residence between the hours of 10:00 p.m. and 7:00 a.m.

LAMC Section 112.05 specifies the maximum noise level of powered equipment or powered hand tools. Any powered equipment or hand tool that produces a maximum noise level exceeding 75 dBA at a distance of 50 feet is prohibited. However, this noise limitation does not apply where compliance is technically infeasible. Technically infeasible means the above noise limitation cannot be met despite the use of mufflers, shields, sound barriers, and/or any other noise-reduction device or techniques during the operation of equipment.

LAMC Section 113.01 prohibits collecting or disposing of rubbish or garbage to operate any refuse disposal truck, parking lot sweeper, or vacuum truck, or to collect, load, pick up, transfer, unload, dump, discard, sweep, vacuum, or dispose of any rubbish or garbage, as such terms are defined in LAMC Section 66.00, within 200 feet of any residential building between the hours of 9:00 p.m. and 6:00 a.m. of the following day, unless a permit has been obtained from the Board of Police Commissioners.

3.14.2.3.2 City of Los Angeles General Plan

The Noise Element of the City’s General Plan includes goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and preparing noise ordinances that would limit exposure of citizens to excessive noise levels. The following goals, objectives, and policies from the Noise Element may apply to the Program.

Goal: A city where noise does not reduce the quality of urban life.

- Objective 2 (Non-Airport): Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.
    - Policy 2.2 Enforce and/or implement applicable city, state and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance.
- Objective 3 (Land Use Development): Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.
    - Policy 3.1 Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

For the purposes of assessing land use compatibility, the Noise Element presents Guidelines for Noise Compatible Land Use as presented in Figure 3.14-1.

Land Use Category	Day-Night Average Exterior Sound Level (CNEL dB) 50	55	60	65	70	75	80
Residential Single Family, Duplex, Mobile Home	A	C	C	C	N	U	U
Residential Multi-Family	A	A	C	C	N	U	U
Transient Lodging, Motel, Hotel	A	A	C	C	N	U	U
School, Library, Church, Hospital, Nursing Home	A	A	C	C	N	N	U
Auditorium, Concert Hall, Ampitheater	C	C	C	C/N	U	U	U
Sports Arena, Outdoor Spectator Sports	C	C	C	C	C/U	U	U
Playground, Neighborhood Park	A	A	A	A/N	N	N/U	U
Golf Course, Riding Stable, Water Recreation, Cemetery	A	A	A	A	N	A/N	U
Office Building, Business, Commercial, Professional	A	A	A	A/C	C	C/N	N
Agriculture, Industrial, Manufacturing, Utilities	A	A	A	A	A/C	C/N	N

A = Normally acceptable. Specified land use is satisfactory, based upon assumption buildings involved are conventional construction, without any special noise insulation.

C = Conditionally acceptable. New construction or development only after a detailed analysis of noise mitigation is made and needed noise insulation features are included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally will suffice.

N = Normally unacceptable. New construction or development generally should be discouraged. A detailed analysis of noise reduction requirements must be made and noise insulation features included in the design of a project.

U = Clearly unacceptable. New construction or development generally should not be undertaken.

Figure 3.14-1. City of Los Angeles Noise Element Guidelines for Noise Compatible Land Use

3.14.3 Impacts Assessment

3.14.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to noise. The Program would have a significant impact to noise if the Program would:

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Generation of excessive groundborne vibration or groundborne noise levels.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

The City of Los Angeles has issued a CEQA Thresholds Guide (2006) to clarify when significant impacts may occur. According to the CEQA Thresholds Guide, a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive land use;
- Construction activities lasting more than 10 days in a 3-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or any time on Sunday.

For the assessment of operational noise impacts, the City of Los Angeles CEQA Threshold Guide specifies that a significant noise impact could occur if the project causes the ambient noise level measured at the property line of affected uses to:

- Increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (see Table 3.14-7); or
- Increase by 5 dBA or greater.

For the assessment of airport noise impacts, the City of Los Angeles uses the following screening question:

- If the proposed project includes the construction or expansion of an airport or heliport and has the potential to expose noise-sensitive land uses to high noise levels (through proximity of such land uses to the flight path, etc.), would the project result in an incompatible land use existing within the 65 dBA CNEL contour of an airport or heliport?
- A “no” response indicates that there would normally be no significant impact.

Table 3.14-7. City of Los Angeles Guidelines for Noise Compatibility Land Use

Land Use	Noise Exposure Ranges (dBA CNEL) Normally Acceptable[1]	Noise Exposure Ranges (dBA CNEL) Conditionally Acceptable[2]	Noise Exposure Ranges (dBA CNEL) Normally Unacceptable[3]	Noise Exposure Ranges (dBA CNEL) Clearly Unacceptable[4]
Residential Single Family, Duplex, Mobile Home	50-60	55-70	70-75	>70
Residential Multiple Family	50-65	60-70	70-75	>70
Transient Lodging, Motel, Hotel	50-70	60-70	70-80	>80
School, Library, Church, Hospital, Nursing Home	50-65	60-70	70-80	>80
Auditorium, Concert Hall, Amphitheater	Undefined	50-70	Undefined	>65
Sports Arena, Outdoor Spectator Sports	Undefined	50-75	Undefined	>70
Playground, Neighborhood Park	50-70	Undefined	67-75	>72
Golf Course, Riding Stable, Water Recreation, Cemetery	50-75	Undefined	70-80	>80
Office Building, Business, Commercial, and Professional	50-70	67-77	>75	Undefined
Agricultural, Industrial, Manufacturing, Utilities	50-75	70-80	>75	Undefined

NA: Not Applicable
Source: City of Los Angeles 2006
Notes: [1] Normally Acceptable: specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction without any special noise insulation requirements.
[2] Conditionally Acceptable: New construction or development should only be undertaken after a detailed analysis of the noise reduction requirements is made and the needed insulation features included in the design.
[3] Normally Unacceptable: New construction or development should generally be discouraged. If new development is to proceed, a detailed analysis of the noise reduction requirements is made, and the needed insulation features are included in the design.
[4] Clearly Unacceptable: New development or construction should not be undertaken.

The FTA has published guidance for assessing building damage impacts from vibration. Table 3.14-8 shows the FTA building damage criteria for vibration. The FTA has also established criteria related to vibration annoyance, which are shown in Table 3.14-9.

Table 3.14-8. Construction Vibration Damage Criteria

Building Category	Peak Particle Velocity (inches/second)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2006

Table 3.14-9. Construction Vibration Annoyance Criteria

Land Use Category	Vibration Impact Level (VdB re-micro-inch/second) Frequent Events[a]	Vibration Impact Level (VdB re-micro-inch/second) Occasional Events[b]	Vibration Impact Level (VdB re-micro-inch/second) Infrequent Events[c]
1. Buildings where vibration would interfere with interior operations	65d	65d	65d
2. Residences and buildings where people normally sleep	72	75	80
3. Institutional land uses with primarily daytime use	75	78	83

Source: FTA 2006
Notes:
[1] Frequent Events are defined as more than 70 vibration events of the same source per day.
[2] Occasional Events" are defined as between 30 and 70 vibration events of the same source per day.
[3] Infrequent Events" are defined as fewer than 30 vibration events of the same kind per day.
[4] This criterion limit is based on levels that are acceptable for most moderately-sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
Source: FTA 2006

3.14.3.2 Program

3.14.3.2.1 Upstream Measures

Impact Criterion a) Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Noise impacts associated with the implementation of the Program policies and programs are related to the change in truck trips and increase in traffic noise associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities. Table 3.14-10 provides an analysis of potential impacts that could result from implementation of the policies and programs associated with the Program relative to noise. Many of the policies and programs associated with the Program would not result in any additional truck trips (i.e., refillable plastic bottles, leashed lids, single-use plastic beverage holder rings, dine-in services, bioplastic ban, reusable foodware pilot projects, plastic tea bags, coffee/beverage pods, textile disposal policies, machine microfiber filtration, PFAS ban, plastic bag clips, silly string, sandbags, lighter-than-air balloons, and single-use e-cigarettes and vape cartridges), therefore, additional truck-related noise would not occur. Noise associated with solid waste collection is governed by LAMC Chapter 11, Section 113.01 (Rubbish and Garbage Collection) which addresses operational hours of solid waste collection activities. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). It typically takes a doubling of traffic to result in an audible noise increase. In general, for the types of products identified in the Program, truck capacity would be weight limited rather than volume limited. As such, replacement behavior is not expected to result in a doubling of trips from existing distribution patterns of products identified in the Program. Accordingly, there would not be the potential for replacement behavior to directly contribute to a significant traffic noise impact. Several policies would result in a shift in materials disposed of as municipal solid waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. Since additional trucks are not anticipated, there would not be any additional truck noise. Therefore, impacts are expected to be ***less than significant***.

Table 3.14-10. Analysis of Upstream Measures - Noise Impacts

Measure	Noise Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Implementation of a ban on single-use plastic water bottles would lead to replacement behavior including transition to alternate beverage container materials including aluminum, glass, and/or other materials. This policy would not result in a significant change in materials placed in blue bins since many replacement products would also be recyclable (i.e., aluminum or glass bottles) but may lead to an increase in materials placed in the black bin (e.g., non-recyclable cartons). Accordingly, a change in blue bin or black bin truck trips are not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Since additional trucks are not anticipated, there would not be any additional truck noise. In addition, for distribution of water bottles using replacement materials, truck capacity would be weight limited rather than volume limited for all identified replacement materials except for glass bottles. Replacement with glass bottles would generate roughly 1.5 times more trips as compared with PET plastic water bottles (see Section 3.18, Transportation, for further discussion on shipping requirements). As such, replacement materials used for bottling water are not expected to result in a doubling of trips from existing distribution patterns. As such, with compliance to the City's ordinance LAMC Chapter 11, Section 113.01 (Rubbish and Garbage Collection), implementation of a single-use plastic water bottle ban would not contribute to significant traffic noise impacts and impacts are expected to be less than significant.	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line super markets and certain jugs be refillable would encourage reuse and refilling of products in the provided refillable containers. The materials used for these refillable containers are assumed to not be significantly different than the containers that are currently used for these products but instead could be refilled at the retailer via bulk dispensing stations. Therefore, this policy is not likely to alter the shipping requirements from the manufacturer or distribution to the retailer except that 25% of the product would be shipped in bulk containers, rather than individually packaged products. This policy would lead to a decrease in the use and disposal of single-use packaging which would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. Since additional trucks are not anticipated, there would not be any additional LASAN service truck noise. Consumers are assumed to continue to either purchase products in the reusable containers or would participate in product refill programs which is not expected to result in a change in consumer vehicle trips or trips associated with distribution of products. As such, implementation of this refillable container requirement would not contribute to significant traffic noise impacts and impacts are expected to be less than significant.	Less than Significant
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other materials. This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. Since additional trucks are not anticipated, there would not be any additional LASAN service truck noise. However, this policy may lead to an increase in vehicle trips associated with transport of the reusable bottles to bottle return and refill infrastructure. At this time, the number of trucks and their ultimate destination for return and refilling is unknown. It typically takes a doubling of traffic to result in an audible noise increase. It is not expected that a transition of 10% of all beverage bottles to refillable containers would result in a doubling of traffic along any specific route as the refillable bottles would be transferred from locations throughout the City to the bottle return and refill infrastructure with deliveries to any specific bottle return and refilling centers distributed throughout the day. Further, for distribution of refilled beverages, truck capacity would be weight limited rather than volume limited. As such, transition to refillable bottles would not result in an increase in trips, rather a redistribution of trips that would otherwise depart from conventional beverage distribution centers to the various beverage vendor locations. Thus, a redistribution of trips as a result of this policy is not expected to result in a doubling of trips from existing distribution patterns. As such, implementation of a requirement that 10% of all beverage bottles be refillable would not contribute to significant traffic noise impacts and impacts are expected to be less than significant.	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Leashed Lids	As detailed in Section 3.18, Transportation, a shift to tethered cap systems would not result in a change in trips from the manufacturer to the point of sale or distribution. Further, tethered cap systems would not measurably increase the volume of municipal solid waste and would not result in a perceivable change in materials placed in municipal solid waste collection bins. Therefore, a requirement that all lids on plastic beverage bottles be leashed to the bottle would not result in a change in purchase or disposal for these materials and associated trips. No other sources of noise are identified for this policy. Therefore, there would be no noise impacts associated with implementation of this policy.	No Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of single-use beverage holder rings would not result in a change in trips associated with purchase or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in consumption and use of single-use foodware items which would lead to a decrease in materials placed in blue bins or black bins which may lead to an overall decrease in trips associated with solid waste disposal and management. Similarly, use of reusable foodware would decrease the consumption of single-use foodware at restaurants which would result in a corresponding decrease in trips associated with distribution of single-use foodware materials. In addition, it is assumed that most restaurants have the required washing equipment onsite in accordance with CHSC Section 114099. While this would require some restaurants to install commercial dishwashers or the three-sink system to wash reusable dishes, this type of modification would occur within enclosed buildings, construction/installation activities would not have the potential to exceed City noise standards. As such, noise impacts relative to implementation of this policy would be less than significant.	Less than Significant
Foodware Policies: Single-Use To-Go Foodware	Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, and/or all single-use to-go foodware is recyclable or compostable, and or contain a minimum of 30% post-consumer recycled content would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Since additional trucks for disposal are not anticipated, there would not be any additional truck noise. For a policy that would require that 30% of to-go foodware be returnable and reusable, there would be the potential for an increase in customer trips to the specified take-back location. Impacts relative to construction and operation of a centralized foodware washing station are analyzed in Section 3.14.3.2.2 below as a potential downstream measure. For take-back programs operated by individual food and beverage facilities, customers returning foodware to the location of origin is not expected to result in a doubling of traffic on any particular	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
	roadway and therefore would not result in an increase in noise along travel routes from existing conditions (refer also to Section 3.18, Transportation). In addition, it is assumed that most food service establishments have the required washing equipment onsite in accordance with California Health and Safety Code Section 114099. However, it is assumed that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. This type of modification would occur within enclosed buildings, construction/installation activities would not have the potential to exceed City noise standards. As such, noise impacts relative to implementation of this policy would be less than significant.	
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. This shift in materials may increase the materials that can be placed in green bins (i.e., compostable materials) or blue bins (i.e., recyclable materials) but would decrease the amount of materials placed black bins (i.e., general waste) since bioplastics are not currently compostable or recyclable at the City's existing facilities. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. As detailed in Section 3.18, Transportation, a shift to alternative materials (e.g., recycled content plastics or paper products) would not increase trips associated with transport to the point of sale or distribution. Since additional trucks are not anticipated, there would not be any additional truck noise. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Foodware Policies: Meal Kit reuse and Recycling	Prohibiting the sale of delivery meal kits in the City unless the meal kit manufacturers/providers establish and fund take-back and/or reuse programs for non-recyclable components of their meal kits would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Since additional trucks are not anticipated, there would not be any additional truck noise. As detailed in Section 3.18, Transportation, there would be the potential for an increase in trips to return items to the specified take-back location. Some meal kit providers, such as Imperfect Foods, take back reusable and recyclable packaging when the next delivery is dropped off, thus avoiding extra trips. Other schemes require a customer to schedule pickup of reusable meal kit items from their home. With respect to extra trips associated with return of reusable meal kit components, any associated extra trips is not expected to be distributed throughout the City and would not result in a doubling of traffic on any particular roadway and therefore would not result in an increase in noise along travel routes from existing conditions. Further, it is assumed that take-back programs would be facilitated from existing operation locations and would not require construction of new	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
	facilities. As such, noise impacts relative to implementation of this policy would be less than significant.	
Foodware Policies: City Reusable Foodware Pilot Projects	As detailed in Section 3.18, Transportation, establishing pilot programs with the goal of reducing plastic pollution and encouraging replacement of single-use foodware with reusable products would result in a decrease in consumption and distribution of single-use materials and an overall decrease in materials placed in blue bins or black bins and would not result in an increase in trips associated with distribution or disposal of alternative foodware materials. In addition, it is assumed that most food service establishments have the required washing equipment onsite in accordance with California Health and Safety Code Section 114099. However, it is assumed that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. As this type of modification would occur within enclosed buildings, construction/installation activities would not have the potential to exceed City noise standards. As such, noise impacts relative to implementation of this policy would be less than significant.	Less than Significant
Foodware Policies: Plastic Tea Bags	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of tea bags constructed of or containing plastic components would not result in a change in trips associated with purchase or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Foodware Policies: Beverage Pods	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of single-use beverage pods would not result in a change in trips associated with purchase or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Textile Policies: Textile Disposal Policies	Prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would result in less material placed in black bins. Accordingly, there would not be an increase in trips associated with solid waste collection as a result of this policy. For the implementation of take-back/resale/donation programs, textiles would be diverted from the landfill and instead transported to take-back/resale/donation program collection points. As detailed in Section 3.18, Transportation, this would not result in an increase in trips but rather the destination of the textiles would change. Further, it is assumed that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. Operations in existing facilities would not be expected to generate additional sources of noise as textile handling would be expected to be conducted indoors. As such, no additional trips would be generated as a result of diverting textile waste from landfills and no other sources of noise are identified. Accordingly, noise impacts relative to implementation of this policy would be less than significant.	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
Textile Policies: Washing Machine Microfiber Filtration	As detailed in Section 3.18, Transportation, a requirement that washing machines be outfitted with microfiber filtration systems would not result in a change in traffic associated with either the distribution, purchase, installation, or disposal of spent filters or captured materials associated with operation of these units. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
PFAS Ban	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, rental, and sale of items that contain PFAS would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic bag clips would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Aerosol String	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of aerosol string (Silly String™) would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Sandbags	As detailed in Section 3.18, Transportation, a ban on the manufacture, distribution, offer, provision, and sale of plastic sandbags (with only biodegradable sandbags to be allowed) would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Lighter-Than-Air Balloons	As detailed in Section 3.18, Transportation, a ban on the distribution, offer, provision, and sale of lighter-than-air balloons would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	As detailed in Section 3.18, Transportation, a ban on the sale of single-use e-cigarettes and vape cartridges within the City would not result in a change in trips associated with the distribution, purchase, or disposal of alternative materials/products. No other sources of noise are identified for this policy. Therefore, impact would be less than significant.	Less than Significant
Additional Product Bans: Single-Use Printer Cartridges	A ban on the distribution, offer, provision, and sale of single-use printer cartridges would result in less material placed in black bins. As detailed in Section 3.18, Transportation, this policy may increase the participation in printer cartridge take-back programs which would have the potential to increase trips required to transport empty printer cartridges to the specified take-back location. However, trips associated with increased participation in printer cartridge take-back programs would be expected	Less than Significant

Measure	Noise Impact Analysis	Significance Conclusion
	to be distributed throughout the City and are not expected to result in a doubling of traffic on any particular roadway and therefore would not result in an increase in noise along travel routes from existing conditions. Further, it is assumed that take-back programs would be facilitated from existing operation locations and would not require construction of new facilities or result in additional sources of noise at existing locations. As such, noise impacts relative to implementation of this policy would be less than significant.	

Impact Criterion b) Would the project generate excessive groundborne vibration or groundborne noise levels?

Implementation of upstream policies have the potential to result in additional heavy vehicle trips on uneven roadways. Rubber-tire heavy vehicles traveling on roadways typically would not produce a significant vibration impact, except in situations where a large number of heavy vehicles are traveling along uneven roadways within proximity to sensitive uses. However, perceptible groundborne vibration generated by heavy vehicles on uneven roadways is typically limited to distances of up to 75 feet and would not be sufficient to cause building damage. Therefore, impacts related to groundborne vibration or groundborne noise levels would be ***less than significant***.

Impact Criterion c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Upstream policies do not have the potential to directly result in exposure of people residing or working in the project area to excessive noise levels associated with private airstrips, airport land use plan area, or public airport. Therefore, there would be ***no impact***.

3.14.3.2.2 Downstream Measures

Impact Criterion a) Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Implementation of downstream measures could result in noise generation in several ways. Future facilities can have short-term noise generation associated with facility construction. Long-term noise generation would be associated with the operational activities of the facilities, which can include traffic-associated noise from vehicles, as well as equipment in the facility. Potential impacts due to construction and operation are discussed below.

CONSTRUCTION

Construction activities for future facilities would vary depending on the type of facility and extent of construction required. However, it is assumed that the construction of downstream facilities would generate noise as a result of demolition, grading, excavation, and truck trips hauling materials to/from the site and construction activities within the construction site. Noise-sensitive receptors could be exposed to increased noise levels during construction.

Typical expected equipment noise levels listed in the FHWA Roadway Construction Noise Model User's Guide (FHWA 2006) provides the most recent comprehensive assessment of noise levels from construction equipment. Table 3.14-11 summarizes typical usage factors and maximum noise levels for various representative typical types of construction equipment that may be used. As shown in Table 3.14-11, the loudest typical construction equipment generally emits noise in the range of 80 to 95 dBA at 50 feet, with usage factors of up to 40% and 50%. Noise at any specific receptor is dominated by the closest and loudest equipment. The types and numbers of construction equipment near any specific receptor location would vary over time.

Table 3.14-11. Typical Construction Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Specified L_{max} at 50 feet (dBA)
All Other Equipment > 5 horsepower	50	85
Bulldozers	40	85
Compactors	20	80
Excavators	40	85
Backhoes	40	80
Forklifts	40	80
Loaders	40	80
Cranes	16	85
Concrete Saw	20	90
Concrete Mixer Truck	40	85
Asphalt Roller	20	85
Jackhammer	20	85

Source: FHWA 2006

For the purposes of this PEIR, a typical construction scenario was developed to represent construction noise for commercial and industrial development of downstream facilities. This analysis assumes that a calculated noise level of 84 dBA CNEL at a reference distance of 50 feet would be representative of construction noise levels associated with the construction of proposed downstream facilities. This value takes into account the number of heavy equipment used during construction. It is anticipated that downstream facilities would be located in commercial and industrial zones where sensitive receptors (e.g., residential, schools) would not be located adjacent to the facilities. However, in the event a facility is located in an area that does have sensitive receptors, there is a potential for noise levels to exceed existing ambient exterior noise levels by more than 5 dBA or more at a noise-sensitive land use (assuming construction activities would last more than 10 days in a 3-month period). Implementation of **MM NOI-1** through **MM NOI-4** would reduce this impact. These measures require a project-specific noise study, limiting construction to the daytime hours, providing temporary barriers near sensitive receiving properties, and ensuring that construction equipment is adequately maintained and muffled, which would further reduce noise impacts from construction activities. However, despite those measures, construction noise impacts may still exceed the significance threshold depending on the construction equipment spread and distance to sensitive receptors. In some circumstances, noise attenuation measures (e.g., fencing, noise walls, or increasing the distance between noise generating equipment and off-site sensitive receptors) applied to reduce noise levels to below the applicable threshold may be infeasible or inapplicable. Therefore, construction noise impacts would remain ***significant and unavoidable*** where construction noise levels at sensitive receptors cannot be reduced to below the applicable noise threshold. Table 3.14-12 summarizes impacts relative to each downstream measure.

Table 3.14-12. Analysis of Downstream Measures – Construction-Related Noise Impacts

Measure	Construction Noise Impact Analysis	Significance Conclusion
Green Bin Facilities		
Anaerobic Digestion	Construction of Anaerobic Digestion Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Aerobic Composting and Mulching	Construction of Aerobic Composting/Mulching Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Blue Bin Facilities		
Clean Materials Recovery	Construction of Clean Materials Recovery Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Resource Recovery	Construction of Resource Recovery Centers/Parks would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable

Measure	Construction Noise Impact Analysis	Significance Conclusion
Construction and Demolition Materials Processing	Construction of Construction and Demolition Materials Processing Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Black Bin Facilities		
Mixed Material Processing	Construction of Mixed Material Processing Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Advanced Thermal Recycling	Construction of Advanced Thermal Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Non-Combustion Thermal Technologies	Construction of Non-Combustion Thermal Technologies Facilities would temporarily increase noise to levels that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable
Other Facilities		
Water Bottle Refilling/Hydration Stations	Construction of Water Bottle Refilling/Hydration Stations would temporarily increase noise that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable

Measure	Construction Noise Impact Analysis	Significance Conclusion
Foodware and Linen Washing	Construction of Foodware and Linen Washing Facilities would temporarily increase noise that would have the potential to exceed the thresholds outlined in the City of Los Angeles CEQA Thresholds Guide (2006). Noise levels would be reduced through implementation of MM NOI-1 through MM NOI-4. However, depending on construction equipment spread and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant.	Significant and Unavoidable

OPERATION

Long-term noise generation would be associated with the operational activities of the new downstream processing facilities, which can include traffic-associated noise from vehicles, as well as equipment in the facility. The specific location of any new facilities required to meet the need for additional diversion of waste from the landfill has not been identified. Transport of solid waste in the City would generate noise from truck traffic that would affect traffic noise levels along transport routes. In addition, new downstream processing facilities have the potential to generate noise resulting from the transport of solid waste to the facility and from stationary noise-generating equipment located at the facility. The increase in traffic resulting from implementation of downstream measures would increase the ambient noise levels at sensitive off-site locations in the vicinity of future facilities. Because traffic is considered to be a long-term noise source, a substantial permanent increase in ambient noise levels in the facility vicinity could potentially occur. The specific truck haul routes that would be utilized for transport is not currently known. As the locations of the facilities are determined, a site-specific noise study that considers the increase in traffic would be required to evaluate the incremental increase over existing noise levels. Further, the specific location of noise-generating equipment at the various processing facilities, including whether they are located within an enclosed building, and their distance to the nearest sensitive receptor would need to be identified. The proposed future facilities would be subject to additional environmental review pursuant to CEQA to determine noise impacts. Noise-sensitive receptors could be exposed to increased noise levels during operations.

For the purposes of a preliminary analysis of noise impacts related to traffic associated with operation of a new downstream processing facility, truck trips were estimated for each type of downstream processing facility type. As noted in Table 3.14-13, depending on the facility type, trip generation could vary from 108 to 400 trips per day. Table 3.14-13 also summarizes the anticipated noise generation due to facility traffic for each type. For this analysis, it is assumed that Water Bottle Refilling/Hydration Stations, Regional Market Development, and Waste Standards consistency would not generate additional trips. Noise model inputs and assumptions are provided in Appendix E.

Table 3.14-13. Anticipated Noise from Facility Traffic

Facility Type	Trips per Day	Anticipated Noise Generation at a Reference Distance of 50 feet (L_{eq})
Green Bin Facilities		
Anaerobic Digestion	138	72.3
Aerobic Composting and Mulching	234	75.0
Blue Bin Facilities		
Clean Materials Recovery	204	72.9
Resource Recovery	242	75.2
Construction and Demolition Materials Processing	212	72.9
Black Bin Facilities		
Mixed Material Processing	220	72.8
Advanced Thermal Recycling	400	77.4
Non-Combustion Thermal Technologies	122	70.9
Other Facilities		
Water Bottle Refilling/Hydration Stations	0	--
Foodware and Linen Washing	108	68.0

Refer to Appendix E of this PEIR for noise model inputs and assumptions.

As shown in Table 3.14-13, noise generation per facility type ranges from 68 L_{eq} to 77.4 L_{eq}. The increase in traffic resulting from new downstream could increase the ambient noise levels at sensitive off-site locations in the vicinity of the future facilities. Because traffic is considered to be a long-term noise source, a permanent increase in ambient noise levels in the vicinity of the facility could potentially occur. The determination of whether this increase would be deemed substantial and significant depends on the current level of traffic in the vicinity of the future facility as well as the ambient noise environment. It typically takes a doubling of traffic to result in an audible noise increase. Due to the uncertainty of future facility locations and the current traffic level in those vicinities, there is a potential for future facilities to contribute to a significant traffic impact. **MM NOI-1** requires the preparation of a project-specific noise analysis once a facility has been proposed at a specific location. The project-specific noise analysis would determine the existing noise environment. It would also use project-specific traffic data to characterize the increase of the ambient noise environment due to the addition of traffic coming to and from the facility. For potential operational-related impacts, implementation of **MM NOI-5** is also identified. This mitigation measure requires that operational activities at future facilities shall not produce noise levels at the property line that exceed the City’s noise standards. If proposed activities are forecast to exceed property line levels, noise attenuation measures shall be implemented to reduce the property line noise levels to the appropriate level. Such measures could include, but are not limited to, fencing, sound walls, and screening of mechanical equipment. However, depending on type of equipment and distance to sensitive receptors, there is the potential that noise levels cannot be reduced to below the applicable thresholds and impacts would remain significant. Therefore, impacts would be ***significant and unavoidable***.

Impact Criterion b) Would the project generate excessive groundborne vibration or groundborne noise levels?

The main concern associated with groundborne vibration is annoyance; however, in extreme cases, vibration can cause damage risk to buildings, particularly those that are old or otherwise fragile. Depending on the construction or operational equipment used, groundborne vibrations can be perceptible within 30 to 100 feet of a source. Structural damage from pile driving typically does not occur in buildings more than 50 feet from the location of the activity (Caltrans 2020). The closest distance between anticipated vibration-producing construction equipment (e.g., an impact pile driver) and off-site occupied structures would likely be at least 25 feet, which according to FTA (2006) prediction methodology would be adequate for attenuating groundborne vibration to levels (i.e., 0.644 inches /second) that, per FTA or Caltrans (2020) guidance with respect to building damage risk, would not exceed relevant criteria. However, the location of downstream facilities is currently unknown as are the construction methods to be implemented. Depending on the proximity to sensitive receptors and construction methods, vibration levels may exceed the FTA thresholds identified in Tables 3.14-8 and 3.14-9 with respect to building damage risk and annoyance. Therefore, impacts relative to vibration are considered potentially significant. Implementation of **MM NOI-1** would require a project-specific noise and vibration study and implementation of mitigation measures to reduce noise and vibration levels. However, despite those measures, construction vibration impacts may still exceed the significance threshold for construction vibration in certain circumstances where sensitive receptors are in close proximity to vibration-inducing construction activities. Therefore, where mitigation measures are either not feasible or would not reduce vibration to below the applicable threshold, construction vibration impacts would remain ***significant and unavoidable***.

Impact Criterion c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The specific locations of future facilities that may be required with implementation of the Program have not yet been identified. While CEQA thresholds do not specifically address airport-related noise, in the event that future downstream facilities are proposed adjacent to a private airport or airport land use plan area areas, noise impacts from material processing would not be expected, since airports are set in industrial areas that typically have a high ambient noise condition. However, if these facilities are located within an airport land use plan area or within 2 miles of a public airport or in the vicinity of a private airstrip, there is a potential for noise exposure from airport activities to people working in the facility. Depending on the proximity and level of activity at an airport, this could result in a significant impact. **MM NOI-6** requires the preparation of a project-specific noise study to include an analysis of the potential for the facility's adjacency to an airport to result in exposure of employees to excessive noise levels. Implementation of **MM NOI-6** would reduce this potential impact. However, depending on the location of future downstream facilities, and where mitigation measures are either not feasible or would not achieve the required noise reduction levels for interior noise, impacts would remain ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM NOI-1: Noise and Vibration Control Plan. A noise and vibration study and control plan shall be prepared for future facilities. The study shall be completed by a qualified professional and include measurements of the existing noise environment and quantify the facility's noise contribution to the ambient environment for both the construction and operation phase relative to the City of Los Angeles Noise Ordinance, L.A. CEQA Threshold Guide, and/or noise element. If noise impacts are identified, mitigation measures shall be implemented to reduce sound levels to a level that is consistent with the City of Los Angeles noise ordinance, L.A. CEQA Threshold Guide, and/or noise element and/or to the maximum extent practicable. Such noise reduction mitigation measures could include but are not limited to fencing; noise walls; or increasing the distance between noise generating equipment and off-site sensitive receptors.

With respect to groundborne vibration, the study shall establish baseline conditions at potentially affected buildings and quantify the project's contribution to vibration at adjoining sensitive receptors. If vibration impacts are identified, mitigation measures (including but not limited to avoiding impact pile drivers to eliminate excessive vibration levels, using rubber-tired equipment rather than metal-tracked equipment, managing construction phasing such that demolition, earthmoving, and ground-impacting operations do not occur in the same time period, using low-impact construction technologies, and avoiding the use of vibrating equipment when allowed by best engineering practices), shall be implemented to reduce vibration levels to below the FTA thresholds identified in Tables 3.14-8 and 3.14-9 and/or to the maximum extent practicable.

For extremely fragile buildings/historical resources, a survey letter shall be prepared to provide a shoring design to protect the extremely fragile buildings/historical resources from potential damage. The control plan shall require that a qualified structural engineer issue a follow-up letter describing damage, if any, to impacted buildings. The letter shall include recommendations for any repair, as may be necessary, in conformance with the Secretary of the Interior Standards. The control plan shall require that any necessary repairs are completed and monitored by a qualified structural engineer in conformance with all applicable codes including the California Historical Building Code (Part 8 of Title 24). A Statement of Compliance signed by the Applicant and Owner is required to be submitted to the Los Angeles Department of Building and Safety at plan check and prior to the issuance of any permit. The Vibration Control Plan, prepared as outlined above, shall be documented by a qualified structural engineer and shall be provided to the City upon request. The study shall be submitted to and approved by the City of Los Angeles Department of City Planning Director, or designee.

MM NOI-2: Construction Noise Authorization. Prior to construction, the construction contractor shall obtain approval to exceed the ambient base noise level by more than 5 dBA at the property boundary.

MM NOI-3: Construction Hours. Construction activities shall be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 8:00 a.m. to 6:00 p.m. Saturday. No construction shall be permitted on Sundays.

MM NOI-4: Sensitive Receptor Buffers. All stationary noise-generating construction equipment, such as pumps and generators, shall be located as far as possible from nearby noise-sensitive receptors. Noise-generating equipment shall be shielded from nearby noise sensitive receptors by noise-attenuating buffers, such as structures or haul truck trailers. Water tanks and equipment storage, staging, and warm-up areas shall be located as far from noise sensitive receptors as possible.

MM NOI-5: Property Line Noise Levels. Operational activities at future facilities shall not produce noise levels at the property line that exceed the levels identified in the City's noise ordinance, L.A. CEQA Threshold Guide, and/or noise element. If proposed activities are forecast to exceed property line levels, noise attenuation measures shall be implemented to reduce the property line noise levels to the appropriate level. Such measures could include, but are not limited to, fencing, sound walls, and screening of mechanical equipment.

MM NOI-6: Airport Impact Analysis. If future facilities are proposed within 2 miles of a public or private airport, the project-specific noise study shall include an analysis of the potential for the facility's adjacency to an airport to result in exposure of employees to excessive noise levels. If excessive noise levels are identified, mitigation measures shall be implemented to reduce the interior noise levels to acceptable levels (i.e., noise level reduction requirements in accordance with 14 CFR, Part 150, Appendix A, Table 1). Such mitigation could include, but is not limited to, enhanced insulation or dual-paned windows.

3.15 Population and Housing

This section describes the existing population and housing of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on population and housing in the City. Table 3.15-1 summarizes impacts on population and housing that could result from implementation of the Program or alternatives.

Table 3.15-1. Summary of Population and Housing Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Upstream: No Impact	None
	Downstream: No Impact	None
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Upstream: No Impact	None
	Downstream: No Impact	None

3.15.1 Existing Conditions

The City of Los Angeles is the second largest city by population in the U.S., with 3,898,747 people as of the most recent U.S. Census in 2020 (U.S. Census Bureau 2020). The Southern California Association of Governments expects the City's population to grow 8.15% during the 2020-2030 time period, reaching a population of 4,337,394 by 2030 (City of Los Angeles 2021).

There are 1,055,193 housing units in the City: just over 30% are single-family, detached homes, 40% are up to 19 units, and almost 30% are 20 or more units (U.S. Census Bureau 2021). Approximately 30% of housing units in the City are owner-occupied, while almost 70% are renter-occupied (U.S. Census Bureau 2021). The City has experienced a severe housing crisis since the 1980s. It has the second fewest number of homes per adult of major US cities. Most experts point to a lack of adequate, affordable housing for the population as the root of the local housing crisis. The regional Southern California Association of Governments issued a target of 456,643 housing units for the entire City of Los Angeles, of which 184,721 units (40%) are designated for very low-income, for the 2021-2029 Housing Element cycle (City of Los Angeles 2022).

3.15.2 Regulatory Framework

3.15.2.1 Federal

No federal regulations related to population and housing are applicable to the proposed Program.

3.15.2.2 State

No state regulations related to population, housing, and employment are applicable to the proposed Program.

3.15.2.3 Local

3.15.2.3.1 City of Los Angeles General Plan

Housing Element

The City's Housing Element for 2021-2029 was adopted in January 2021, with the following goals and objectives.

Goal 1: A City where housing production results in an ample supply of housing to create more equitable and affordable options that meet existing and projected needs.

- Objective 1.1: Forecast and plan for existing and projected housing needs over time with the intention of furthering Citywide Housing Priorities.
  - Policy 1.1.3: Account for existing housing needs when planning for future development by conducting analysis to develop and incorporate a buffer above household projections.
  - Policy 1.1.4: Plan for and provide sufficient services and amenities to support the existing and planned population.
  - Policy 1.19: Develop and integrate anti-displacement strategies that further Citywide Housing Priorities into land use and planning strategies.

Goal 2: A City that preserves and enhances the quality of housing and provides greater housing stability for households of all income levels.

Goal 3: A City in which housing creates healthy, livable, sustainable, and resilient communities that improve the lives of all Angelenos.

- Objective 3.1: Use design to create a sense of place, promote health, foster community belonging, and promote racially and socially inclusive neighborhoods.
  - Policy 3.1.4: Site buildings and orient building features to maximize benefit of nearby amenities and minimize exposure to features that may result in negative health or environmental impacts.
- Objective 3.2: Promote environmentally sustainable buildings and land use patterns that support a mix of uses, housing for various income levels and provide access to jobs, amenities, services and transportation options.
  - Policy 3.2.1: Promote the integration of housing with other compatible land uses at both the building and neighborhood level.

Goal 4: A City that fosters racially and socially inclusive neighborhoods and corrects the harms of historic racial, ethnic, and social discrimination of the past and present.

Goal 5: A City that is committed to preventing and ending homelessness.

- Objective 5.1: Provide an adequate supply of short-term and permanent housing in addition to supportive services throughout the City that are appropriate for and meet the specific needs of all persons who are homeless or at-risk of homelessness.

The City's 35 Community Plans also contain numerous goals, objectives, policies, and programs pertaining to housing and development.

3.15.3 Impact Assessment

3.15.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to population and housing. The Program would have a significant impact to population and housing if the Program would:

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with population and housing resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

- Impact Criterion a)
    - The degree to which the project would cause growth (i.e., new housing or employment generators) or accelerate development in an undeveloped area that exceeds projected/ planned levels for the year of project occupancy/buildout, and that would result in an adverse physical change in the environment;
    - Whether the project would introduce unplanned infrastructure that was not previously evaluated in the adopted Community Plan or General Plan; and
    - The extent to which growth would occur without implementation of the project.
- Impact Criterion b)
    - The total number of residential units to be demolished, converted to market rate, or removed through other means as a result of the proposed project, in terms of net loss of market-rate and affordable units;
    - The current and anticipated housing demand and supply of market rate and affordable housing units in the project area;
    - The land use and demographic characteristics of the project area and the appropriateness of housing in the area; and

- Whether the project is consistent with adopted City and regional housing policies such as the Framework and Housing Elements, HUD Consolidated Plan and CHAS policies, redevelopment plan, Rent Stabilization Ordinance, and the Regional Comprehensive Plan and Guide.

3.15.3.2 Program

3.15.3.2.1 Upstream Measures

The Program's upstream measures would not result in the construction of new homes or businesses, would not include any other growth-inducing measures, and would not displace existing housing or people. Therefore, the upstream measures would have ***no impact*** on population and housing.

3.15.3.2.2 Downstream Measures

The Program's downstream measures would not result in the construction of new homes or businesses, would not include any other growth-inducing measures, and would not displace existing housing or people. Therefore, the upstream measures would have ***no impact*** on population and housing.

3.16 Public Services

This section describes the existing public services of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on public services in the City. Table 3.16-1 summarizes impacts on public services that could result from implementation of the Program or alternatives.

Table 3.16-1. Summary of Public Services Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks? Other public facilities?	Upstream: No Impact	None
	Downstream: Less than Significant	None

3.16.1 Existing Conditions

LAFD provides fire prevention, fire protection, hazardous materials response, technical rescue, disaster response, and emergency medical services for the City from 106 neighborhood fire stations located throughout the City (LAFD 2023). Over 3,500 uniformed LAFD staff serve the City. All of the LAFD's firefighting personnel are trained in emergency medical skills. In 2022 approximately 81% of all calls were for medical services and 19% were for fire or other services (LAFD 2023). In 2022, the LAFD responded to 499,622 calls throughout the City with a response time of 5 minutes 25 seconds for structural fires and 7 minutes 16 seconds for emergency medical services (LAFD 2023).

LAPD serves the City across 20 divisions within four bureaus (Central, South, Valley, and West) with approximately 8,900 sworn officers and 2,600 civilian employees (LAPD 2023).

The Los Angeles Unified School District maintains 1,438 schools and enrolled over 560,000 students for the 2023-2024 school year. The District covers an area of 710 square miles, which includes most of the City of Los Angeles, along with all or portions of 25 cities and unincorporated areas of Los Angeles County. The District employs over 74,000 staff (Los Angeles Unified School District 2023).

The City's Recreation and Parks Department oversees over 16,000 acres of parklands spread over 559 parks within the City (Los Angeles Department of Recreation and Parks 2023). More information on parks within the City is provided in Section 3.17, Recreation, below.

3.16.2 Regulatory Framework

3.16.2.1 Federal

There are no federal regulations pertaining to public services that apply to the proposed Program.

3.16.2.2 State

3.16.2.2.1 California Health and Safety Code

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, which include regulations concerning building standards, fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, and fire suppression training.

3.16.2.2.2 California Building Code

CCR, Title 24, Part 9 refers to the California Fire Code, which contains fire safety-related building standards.

3.16.2.3 Local

3.16.2.3.1 City of Los Angeles General Plan

Safety Element

GOAL 2: Emergency Response. A city that responds with the maximum feasible speed and efficiency to disaster events so as to minimize injury, loss of life, property damage and disruption of the social and economic life of the City and its immediate environs.

- Objective 2.1: Develop and implement comprehensive emergency response plans and programs that are integrated with each other and with the City's comprehensive hazard mitigation and recovery plans and programs.
    - Policy 2.1.5: Response. Develop, implement and continue to improve the City's ability to respond to emergency events. Participate in regularly scheduled disaster exercises to better prepare Police, Fire, Public Works and other City employees with disaster responsibilities.
    - Policy 2.1.6: Standards/Fire. Continue to maintain, enforce and upgrade requirements, procedures and standards to facilitate more effective fire suppression and safety.

    A. Enforce peak water supply / fire flow requirements and ensure that new development is able to sufficiently source water, including in VHFHSZs.

    B. Enforce minimum roadway widths and clearances for evacuation and fire suppression.

    C. Maintain special fire-fighting units at the Port of Los Angeles, Los Angeles International Airport, and Van Nuys Municipal Airport capable of responding to special emergencies unique to the operations of those facilities.

    D. Coordinate with CALFIRE, local fire agencies, fire safe councils, private landowners, and other responsible agencies to identify the best method(s) of fuel modification to reduce the severity of future wildfires, including: Prescribed fire; Forest thinning; Grazing; Mechanical clearing; Hand clearing (piling, burning/chipping); Education; and Defensible space.

E. Maintain mutual aid or mutual assistance agreements with local fire departments to ensure an adequate response in the event of a major earthquake, wildfire, urban fire, fire in areas with substandard fire protection, or other fire emergencies.

3.16.3 Impacts Assessment

3.16.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to public services. The Program would have a significant impact to public services if the Program would:

a. Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

   i. Fire protection.

   ii. Police protection.

   iii. Schools?

   iv. Parks.

   v. Other public facilities.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with public services resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

– Impact Criterion a) i)

  - A project would normally have a significant impact on fire protection if it requires the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain service.

– Impact Criterion a) ii)

  - The population increase resulting from the proposed project, based on the net increase of residential units or square footage of non-residential floor area;

  - The demand for police services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to LAPD services (facilities, equipment, and officers) and the project's proportional contribution to the demand; and

  - Whether the project includes security and/or design features that would reduce the demand for police services.

- Impact Criterion a) iii)
  - The population increase resulting from the proposed project, based on the increase in residential units or square footage of non-residential floor area;
  - The demand for school services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to LAUSD services (facilities, equipment and personnel) and the project's proportional contribution to the demand;
  - Whether (and the degree to which) accommodation of the increased demand would require construction of new facilities, a major reorganization of students or classrooms, major revisions to the school calendar (such as year-round sessions), or other actions which would create a temporary or permanent impact on the school(s); and
  - Whether the project includes features that would reduce the demand for school services (e.g., on-site school facilities or direct support to LAUSD).
- Impact Criterion a) v)
  - The net population increase resulting from the proposed project;
  - The demand for library services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to library services (renovation, expansion, addition, or relocation) and the project's proportional contribution to the demand; and
  - Whether the project includes features that would reduce the demand for library services (e.g., on-site library facilities or direct support to the LAPL).

3.16.3.2 Program

3.16.3.2.1 Upstream Measures

None of the upstream measures would require or cause a need for the provision of new or physically altered government facilities. Therefore, upstream measures would have ***no impact*** on the service ratios, response times, or performance objectives for fire protection, police protection, school, or park services.

3.16.3.2.2 Downstream Measures

The construction and operation of downstream facilities would not cause an increase in population that would result in the need for additional or altered school facilities, police protection, park infrastructure, or libraries in the Program Area.

Downstream facilities would contain applicable fire protection measures in accordance with LAMC Article 7, Chapter 5. They would also include appropriate security measures. The specific location of downstream facilities is not currently known. The ability of the LAFD to respond to potential calls would be dependent on the location of the new facilities in relation to a station, as well as current staffing levels. Development projects within the City are required to pay development impact fees, a portion of which pays for the increased demand for fire protection and police services. Further, construction and operation of a new downstream facility would not require the addition of a new fire station or the expansion, consolidation, or relocation of an existing facility to maintain service due to the extensive existing network of LAFD stations within the City and limited demand on services that would be required by a downstream facility. Therefore, potential impacts to fire services would be ***less than significant***.

3.17 Recreation

This section describes the existing recreation of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on recreation in the City. Table 3.17-1 summarizes impacts on recreation that could result from implementation of the Program or alternatives.

Table 3.17-1. Summary of Recreation Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Upstream: No Impact	None
	Downstream: No Impact	None
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Upstream: No Impact	None
	Downstream: No Impact	None

3.17.1 Existing Conditions

The City's Department of Recreation and Parks manages 16,000 acres of parkland at 559 park sites in the City. Recreation facilities in the City include hundreds of athletic fields, 411 playgrounds, 319 tennis courts, 123 recreation centers, over 130 outdoor fitness areas, 59 swimming pools and aquatic centers, 29 senior centers, 27 skate parks, 13 golf courses, 12 museums, 13 dog parks, and 187 summer youth camps. These facilities help support the Summer Night Lights gang reduction and community intervention program (Los Angeles Department of Recreation and Parks 2023).

Other than neighborhood and community parks, major, publicly-owned open space in the City includes: 650 acres of public beach; the remaining 210 acres of the Ballona Wetlands; two natural lakes (6-acre Del Rey Lagoon and 40-acre Machado Lake); Rio Hondo, San Gabriel and Los Angeles rivers; Griffith Park; Sepulveda Dam Recreation Area; Hansen Dam Recreation Area; the Santa Monica Mountains National Recreation Area; and a small area of the Angeles National Forest (City of Los Angeles 1996).

3.17.2 Regulatory Framework

3.17.2.1 Federal

There are no federal recreation regulations applicable to the Program.

3.17.2.2 State

3.17.2.2.1 Public Park Preserve Act

The primary instrument for protecting and preserving parkland is the state Public Park Preservation Act. Under the California Public Resources Code, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, is provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

3.17.2.3 Local

3.17.2.3.1 City of Los Angeles General Plan

Open Space Element

Goal: To ensure the preservation and conservation of sufficient open space to serve the recreational, environmental, health and safety needs of the City.

Goal: To conserve unique natural features, scenic areas, cultural and appropriate historical monuments for the benefits and enjoyment of the public.

Goal: To conserve and/or preserve those open space areas containing the City's environmental resources including air and water.

Goal: To provide access, where appropriate, to open space lands.

- Objective: To emphasize the importance of, and to preserve open space and natural features in private and public development.

Framework Element

GOAL 3A: A physically balanced distribution of land uses that contributes towards and facilitates the City's long-term fiscal and economic viability, revitalization of economically depressed areas, conservation of existing residential neighborhoods, equitable distribution of public resources, conservation of natural resources, provision of adequate infrastructure and public services, reduction of traffic congestion and improvement of air quality, enhancement of recreation and open space opportunities, assurance of environmental justice and a healthful living environment, and achievement of the vision for a more liveable city.

- Objective 3.1: Accommodate a diversity of uses that support the needs of the City's existing and future residents, businesses, and visitors.
    - Policy 3.1.3: Identify areas for the establishment of new open space opportunities to serve the needs of existing and future residents. These opportunities may include a citywide linear network of parklands and trails, neighborhood parks, and urban open spaces.

3.17.3 Impact Assessment

3.17.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to recreation. The Program would have a significant impact to recreation if the Program would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with recreation resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

- Impact Criterion a)
    - The net population increase resulting from the proposed project; and
    - The demand for recreation and park services anticipated at the time of project buildout compared to the expected level of service available. Consider, as applicable, scheduled improvements to recreation and park services (renovation, expansion, or addition) and the project's proportional contribution to the demand.
- Impact Criterion b)
    - Whether the project includes features that would reduce the demand for recreation and park services (e.g., on-site recreation facilities, land dedication or direct financial support to the Department of Recreation and Parks).

3.17.3.2 Program

3.17.3.2.1 Upstream Measures

Impact Criterion a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Impact Criterion b) Would the project Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The Program’s upstream measures would not result in population growth and would not increase the use of existing parks. None of the upstream measures include the construction of a recreational facility nor would they restrict access to any existing facility such that a new recreational facility would be needed. Therefore, the Program’s upstream measures would have ***no impact*** on recreation.

3.17.3.2.2 Downstream Measures

Impact Criterion a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Impact Criterion b) Would the project Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The construction and operation of downstream facilities would not include any growth-inducing impacts (e.g., housing development or substantial employment increases) and therefore would not result in the increased use of park and recreational facilities. None of the downstream measures include the construction of a recreational facility nor would they restrict access to any existing facility such that a new recreational facility would be needed. Therefore, construction and operation of downstream facilities would have ***no impact*** on increased use of recreational facilities.

3.18 Transportation

This section describes the existing transportation of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on transportation in the City. Table 3.18-1 summarizes impacts on transportation that could result from implementation of the Program or alternatives.

Table 3.18-1. Summary of Transportation Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
d) Result in inadequate emergency access?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report

3.18.1 Existing Conditions

The Program Area is defined by the boundaries of the City of Los Angeles, which encompasses 467 square miles. The City is highly urbanized and is served by a circulation system that facilitates travel by multiple modes, including walking, bicycling, public transit, and motor vehicles, and includes an extensive network of freeways, highways, local streets, and bicycle facilities. The City of Los Angeles General Plan Transportation Element, also called Mobility Plan 2035, discussed in greater depth below in Section 3.18.2, Regulatory Framework, contains definitions, goals and objectives, and regulatory requirements for a variety of roadway classifications that make up the City's roadway system.

3.18.1.1 Regional Access

The roadway network in the City includes seven freeways that traverse the 181 miles of the City and connect the City to its outer regions. They include Interstate 5, 10, 105, 110, 210, and 405, and US

Highway 101. The City also includes 11 state highways (SR) including SR 1, 2, 47, 60, 90, 103, 110, 118, 134, 170, and 187.

Bicycles and pedestrians are not allowed on freeways but are allowed on some state highways that function as arterial roads. Portions of state highways, including Pacific Coast Highway (SR-1), Santa Monica Boulevard (SR-2), Slauson Avenue (SR-90), and Venice Boulevard (SR-187), are currently designated as part of the citywide bikeway network. Freeways and state highways also accommodate transit vehicles. Existing freeways, state highways, and arterial streets are presented in Figure 3.18-1 through 3.18-3.

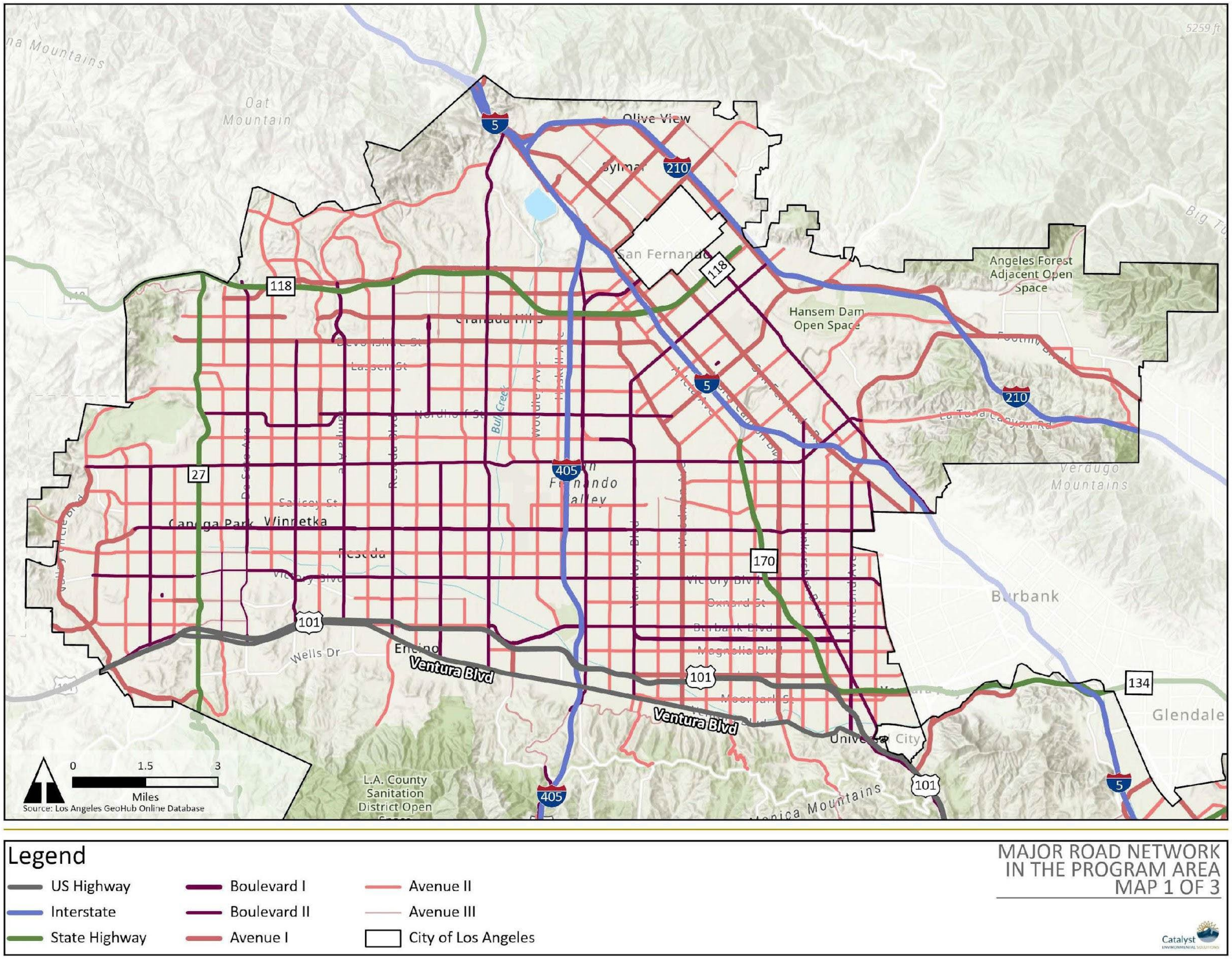


Figure 3.18-1. Major Road Network in the Program Area (Map 1 of 3)

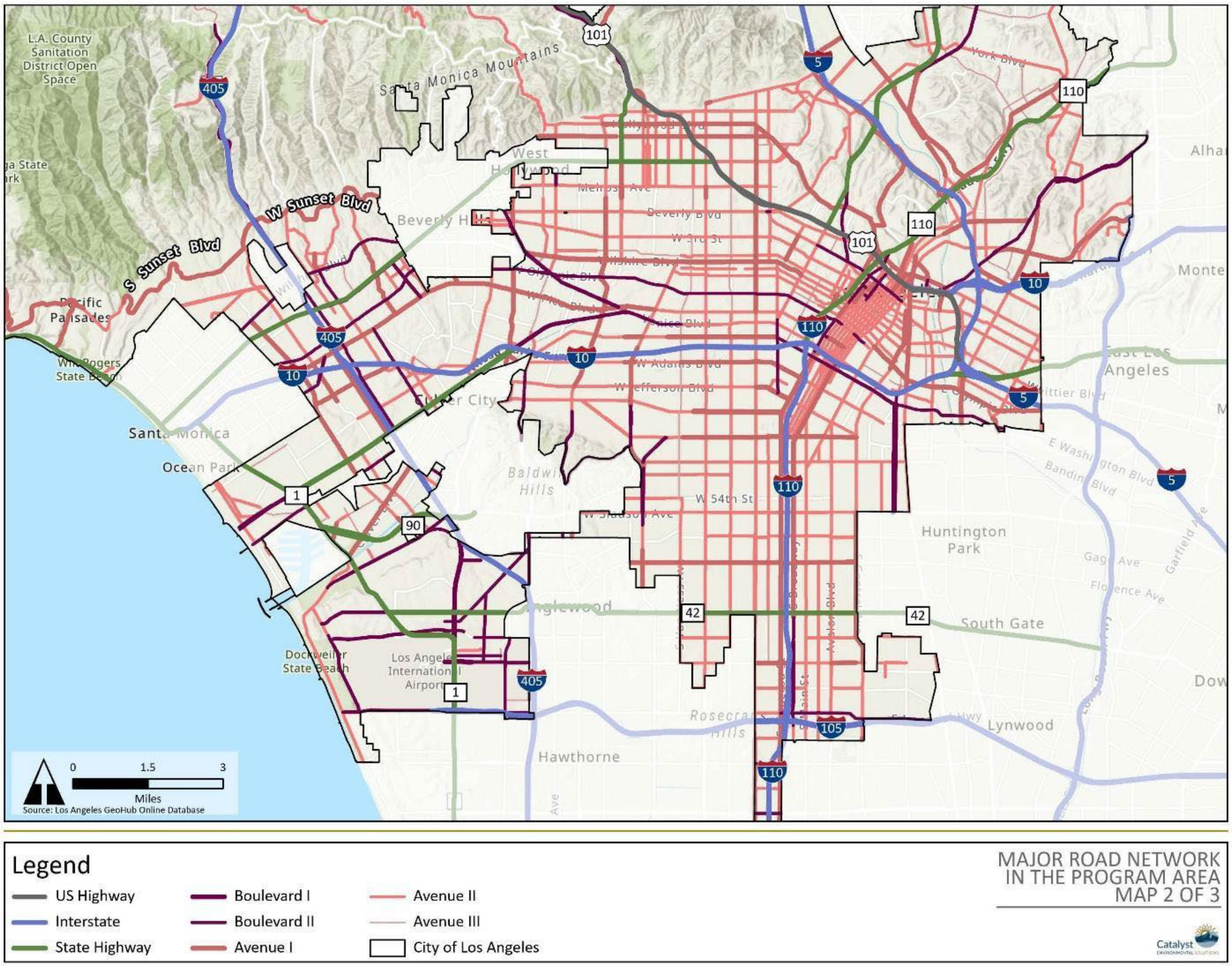


Figure 3.18-2. Major Road Network in the Program Area (Map 2 of 3)

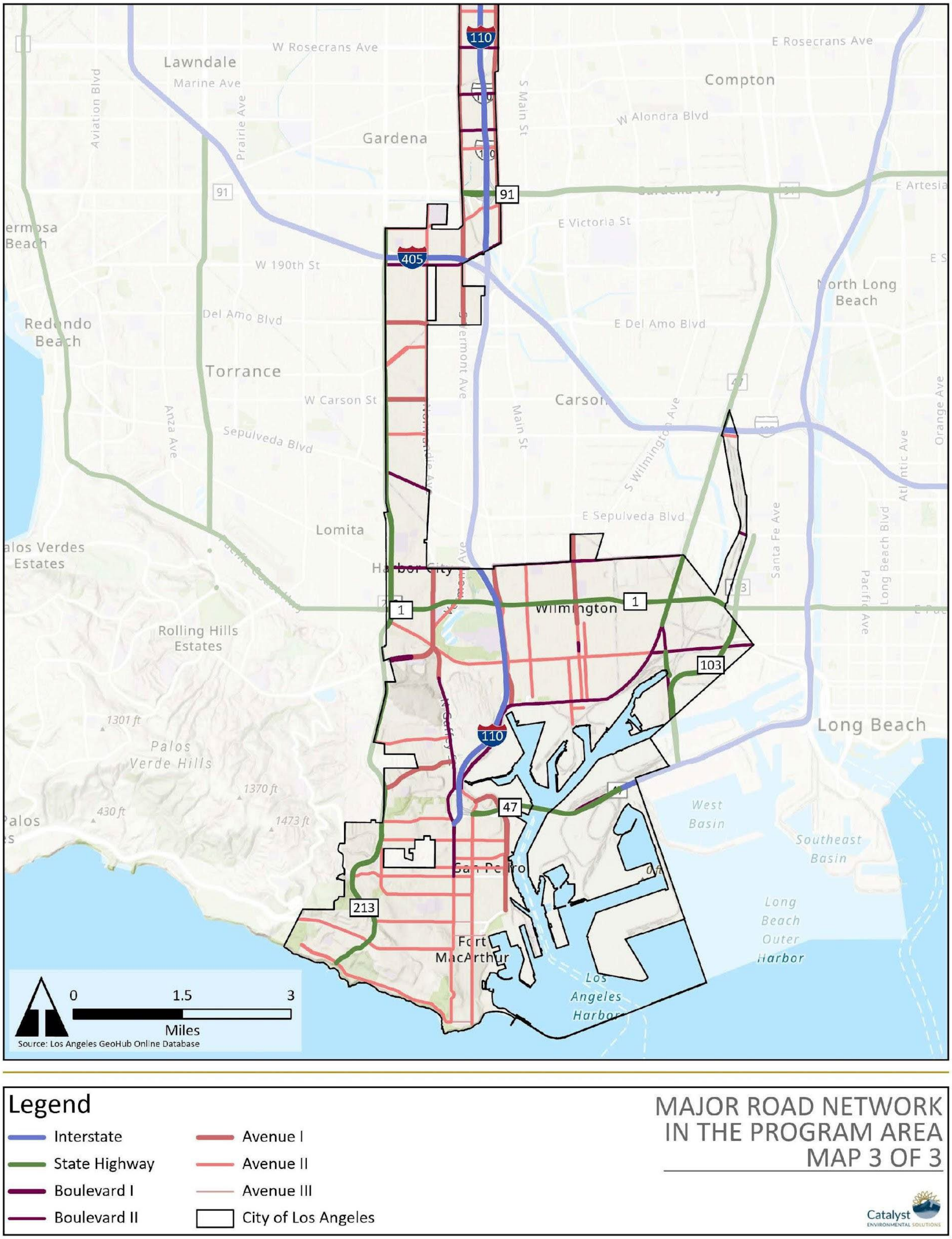


Figure 3.18-3. Major Road Network in the Program Area (Map 3 of 3)

3.18.1.2 Local Roadway Network

The City contains over 7,500 miles of public streets that accommodate motorized vehicles, including private motorized vehicles, taxis, freight vehicles, and transit vehicles. Pedestrian and bicyclist travel are also important components of the local roadway network. A majority of roadways in the City are aligned on a grid system. The City of Los Angeles Mobility Plan 2035 re-designated streets from the 1999 Transportation Element to reflect new arterial types (five compared to three) to more accurately reflect the range of street dimensions that exist today and acknowledge that there are many arterial streets that are, and should remain, narrower than their current designation would permit (City of Los Angeles 2016). Below is a brief description of the types of facilities in the City based on the City's Mobility Plan 2035 and Complete Streets Design Guide (City of Los Angeles 2015).

- Boulevard I (Major Highway Class I). Class I Boulevards are generally defined as having three to four lanes in each direction along with a median turn lane. The width of a Class I Boulevard is usually 100 feet, with a typical sidewalk width of 18 feet and a target operating speed of 35 miles per hour (mph).
- Boulevard II (Major Highway Class II). Class II Boulevards are generally defined as having two to three lanes in each direction along with a median turn lane. The width of a Class II Boulevard is usually 80 feet, with a typical sidewalk width of 15 feet and a target operating speed of 35 mph.
- Avenue I (Secondary Highway). Class I Avenues typically have one to two lanes in each direction, a roadway width of 70 feet, a sidewalk width of 15 feet and a target operating speed of 35 mph. An Avenue I typically includes streets with a high amount of retail uses and local destinations.
- Avenue II (Secondary Highway). Avenue II streets usually have one to two lanes in each direction, with a typical roadway width of 56 feet, a typical sidewalk width of 15 feet and a target operating speed of 30 mph. Such streets are typically located in parts of the City with dense active uses, and a lively pedestrian environment.
- Avenue III (Secondary Highway). Avenue III streets are defined to have one to two lanes in each direction, with a roadway width of 46 feet, a sidewalk width of 15 feet, and a target operating speed of 25 mph. This classification was developed to maintain roadway width in older, more historic parts of the City.
- Collector Street. Collector Streets generally have one travel lane in each direction, with a roadway width of 40 feet and a sidewalk width of 13 feet. The target operating speed for Collector Streets is 25 mph. Such streets are typically intended for vehicle trips that start or end in the immediate vicinity of the street.
- Industrial Collector Street. Industrial Collector Streets vary from normal collector streets in that larger curb returns are incorporated to allow for the wider turning radii of trucks.
- Local Street Standard. Local Street Standard roadways typically have one lane in each direction, and are designed to have a 36-foot width, 12-foot sidewalks, and a target operating speed of 20 mph. Such streets are not designed for through traffic; rather, their focus is to allow access to and from destination points. Unrestricted parking is typically available on both sides of the street.

- Local Street Limited. Local Street Limited roadways typically have one lane in each direction, and are designed to have a 30-foot width, 10-foot sidewalks, and a target operating speed of 15 mph.
- Industrial Local Street. Although similar to the normal local streets, Industrial Local Streets differ primarily in width for the purpose of providing adequate space for trucks to maneuver. The typical roadway width for an Industrial Local Street is 44 feet, with 10-foot sidewalks and a target operating speed of 20 mph.
- Pedestrian Walkway. Pedestrian Walkways are designed for pedestrian use but are also appropriate for slow-moving bicyclists. Pedestrian Walkways have a width of 10 to 25 feet.
- Shared Street. Shared Streets provide a slow-speed environment where cars, bikes, pedestrians, and scooters can comfortably utilize the street. Shared Streets have a minimum width of 20 feet with 5-foot buffer zones and a target operating speed of 5 mph.
- Access Roadway. Access Roadways are designed to have a width of 20 feet and are limited to private streets that access no more than four dwelling units and are a maximum of 300 feet in length.
- One-Way Service Road – Adjoining Arterial Street. One-Way Service Roads typically have a width of 12 to 18 feet with a 3-foot curb separation from arterial streets.
- Bi-Directional Service Road – Adjoining Arterial Streets. Bi-Directional Service Roads typically have a width of 20 to 28 feet with a 3-foot curb separation from arterial streets.
- Hillside Collector Street. Hillside Collector Streets vary from normal collector streets in that sidewalks have a width of 5 feet and the target operating speed is 15mph. On-street parking is provided on both sides of the street.
- Hillside Local Street. Hillside Local Streets vary from normal local streets in that sidewalks have a width of 4 feet and the target operating speed is 15 mph. On-street parking is provided on both sides of the street.
- Hillside Street Standard. Hillside Street Standard roadways typically have one lane in each direction and are designed to have a 28-foot width, 4-foot sidewalks, and a target operating speed of 10 mph. On-street parking is provided on one side of the street.
- Hillside Street Limited. Hillside Street Limited roadways typically have one lane in each direction and are designed to have a 20-foot width, 3-foot sidewalks, and a target operating speed of 10 mph. On-street parking is provided on one side of the street.
- Modified Streets. Many streets are identified under a specific roadway classification, but with a modification generally due to available width on smaller, historic streets. In these cases, the typical number of lanes and traffic volumes are similar to the non-modified versions, but lane widths or available parking may be diminished.
- Signalized Intersections and Traffic Control Devices. The City of Los Angeles' Automated Traffic Surveillance and Control system is a computer-based traffic signal control system that monitors traffic conditions and system performance to allow Automated Traffic Surveillance and Control operations to manage signal timing to improve traffic flow conditions. This system allows monitoring and control of the signal from a central Traffic Operations Center at City Hall. The importance of linking to the Automated Traffic Surveillance and Control system is the ability to coordinate the

signals in relationship with other signals along a travel corridor. Signal coordination minimizes delay due to stops and enhances vehicle flow. Studies by LADOT and independent third parties have shown that the Automated Traffic Surveillance and Control system reduces congestion and increases average travel speeds (LADOT 2016). The Adaptive Traffic Control System is an enhancement to Automated Traffic Surveillance and Control and provides fully traffic-adaptive signal control based on real-time traffic conditions. In addition, LADOT staff can manually adjust traffic signals remotely from the department's command center to respond to accidents, weather, special events, and other emergencies. All signalized intersections in the HE Update project area are currently operating under the City's Automated Traffic Surveillance and Control system and Adaptive Traffic Control System control.

Additionally, Mobility Plan 2035 identifies a layered network of corridors prioritizing bicycle, pedestrian, transit, and vehicle infrastructure improvements. These networks are defined as follows:

- The Transit-Enhanced Network is the network of arterial streets prioritized to improve existing and future bus service for transit riders.
- The Neighborhood-Enhanced Network is a selection of streets that provide comfortable and safe routes for localized travel of slower-moving modes such as walking, bicycling, or other slow speed motorized means of travel.
- The Bicycle-Enhanced Network is a network of streets to receive treatments that prioritize bicyclists. Tier 1 Protected Bicycle Lanes are bicycle facilities that are separated from vehicular traffic. Tier 2 and Tier 3 Bicycle Lanes are facilities on roadways with striped separation. Tier 2 Bicycle Lanes are those more likely to be built by 2035.
- The Vehicle-Enhanced Network identifies streets that prioritize vehicular movement and offer safe, consistent travel speeds and reliable travel times.
- The Pedestrian-Enhanced Districts identify where pedestrian improvements on arterial streets could be prioritized to provide better walking connections to and from the major destinations within communities.
- The Goods Movement Network is built upon Metro's Countywide Strategic Truck Arterial Network and identifies roadways where goods movement improvements can alleviate congestion, improve mobility, remove traffic safety hazards, and promote economic health.
- Existing arterial streets (Boulevards and Avenues) are illustrated in Figures 3.18-1 through 3.18-3 along with freeways and state highways.

3.18.1.3 Emergency Access

The LAFD, in collaboration with LADOT, has developed a Fire Preemption System, which automatically turns traffic lights to green for emergency vehicles traveling on designated streets in the City. The City of Los Angeles has over 205 miles of routes equipped with the Fire Preemption System (LAFD 2008). Within the City of Los Angeles, fire prevention and suppression and emergency medical services are provided by the LAFD. Public protection service and law enforcement are provided by the Los Angeles Police Department. New development projects in the City may increase the demand for fire protection and emergency medical services, and the LAFD evaluates new project impacts on a project-by-project basis.

Consideration is given to project size and components, required fire-flow, response time and distance for engine and truck companies, fire hydrant sizing and placement standards, access, and potential to use or store hazardous materials. The adequacy of emergency service may be influenced by factors such as staffing levels, emergency response times, and technology improvements, management strategies, and mutual aid agreements. Every year, the LAFD assesses its resources and reallocates them based on demand and need citywide. The provision of new fire stations varies as a function of not only the geographic distribution of physical stations but also due to the availability of fire trucks, ambulances, and other equipment as well as access to reciprocal agreements with neighboring jurisdictions. The City requires that development plans be submitted to the City for review and approval to ensure that new development has adequate access, including driveway access and turning radius in compliance with existing City regulations (LAMC Section 12.21.A.5, Design of Parking Facilities).

3.18.1.4 Public Transit

The primary origin/destination for transit in the City is Los Angeles Union Station. Located in the Central City North Community Plan, Union Station serves as a major transportation hub for the region, with Metro, Metrolink, and Amtrak train service, as well as bus service from multiple operators.

Transit service is provided by multiple transit operators, including Metro Rail, Rapid buses, Express buses, Local buses, LADOT Commuter Express buses, Downtown Area Short Hop (DASH) buses, and other local operators, with networks connecting communities within and outside the City of Los Angeles. Figures 3.18-4 through 3.18-6 illustrate existing transit routes for Metro Rail, Metro Bus, LADOT, Culver City Bus, and Big Blue Bus. Below are brief descriptions of the transit operators that provide service within the City.

3.18.1.4.1 Metro

Metro is the primary transit operator in Los Angeles County providing bus, light rail, and subway services as described below.

- Rail & Bus Rapid Transit: There are two Metro heavy rail lines (B Line and D Line), four Metro light rail lines (A Line, C Line, E Line, and K Line) and two bus rapid transit lines (G Line and J Line) operating in exclusive rights-of-way. Headways for Metro rail and bus rapid transit lines are typically as frequent as 15 minutes or less. Bicycles are allowed in designated areas on Metro trains at no extra charge.
- Rapid, Express & Local Bus Lines: Metro also operates approximately 180 bus routes in mixed traffic, with services varying considerably in speed, frequency, and capacity. Headways for Metro Rapid buses are typically 10 minutes during peak hours, and 20 minutes during off-peak times. Metro Express buses operate during peak hours only. All buses are equipped with two bicycle racks at the front of the bus, and bicyclists may load their bicycles on the rack when there is space available at no extra charge. If the rack is full, bicyclists are asked to wait for the next bus.

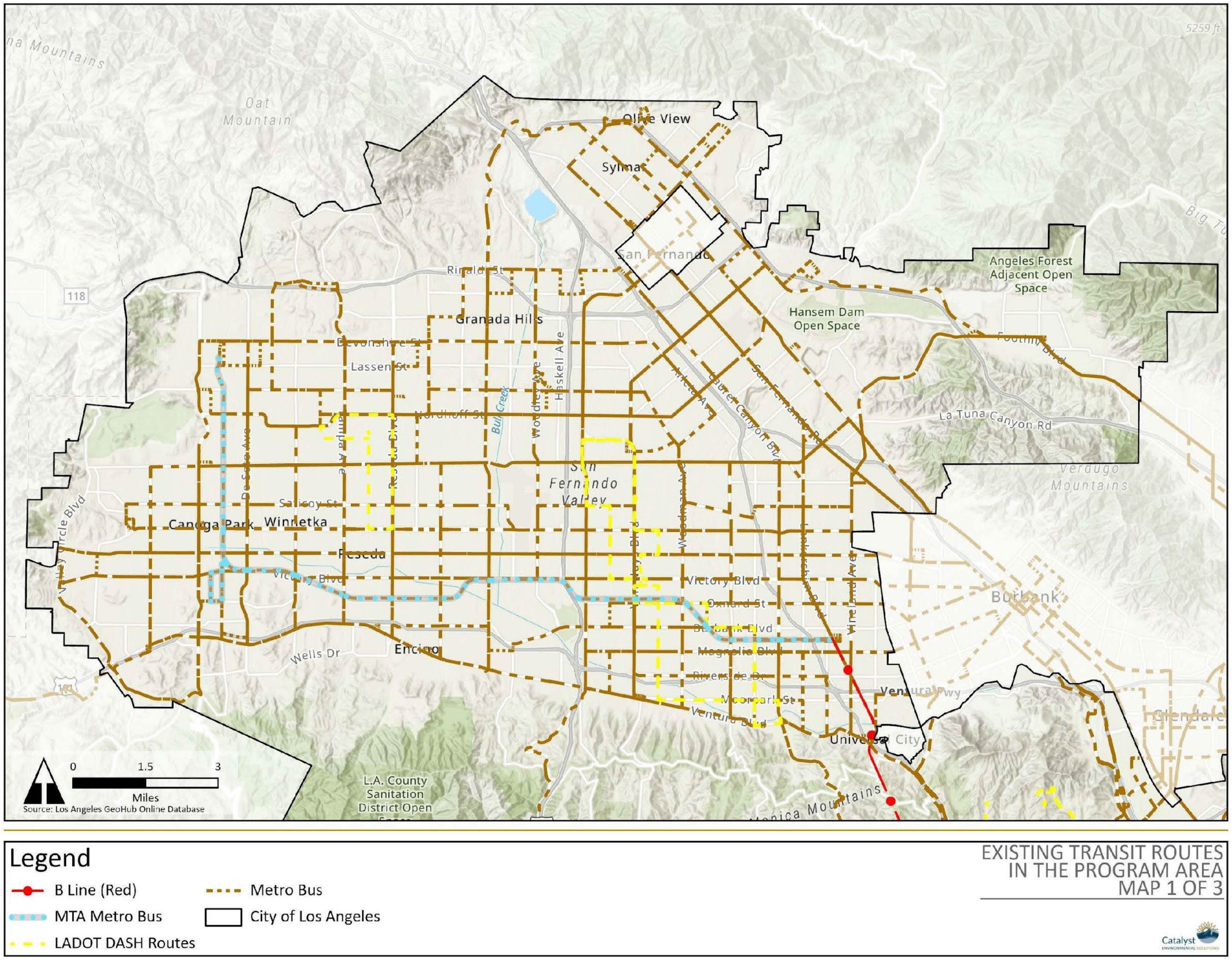


Figure 3.18-4. Existing Transit Routes in the Program Area (Map 1 of 3)

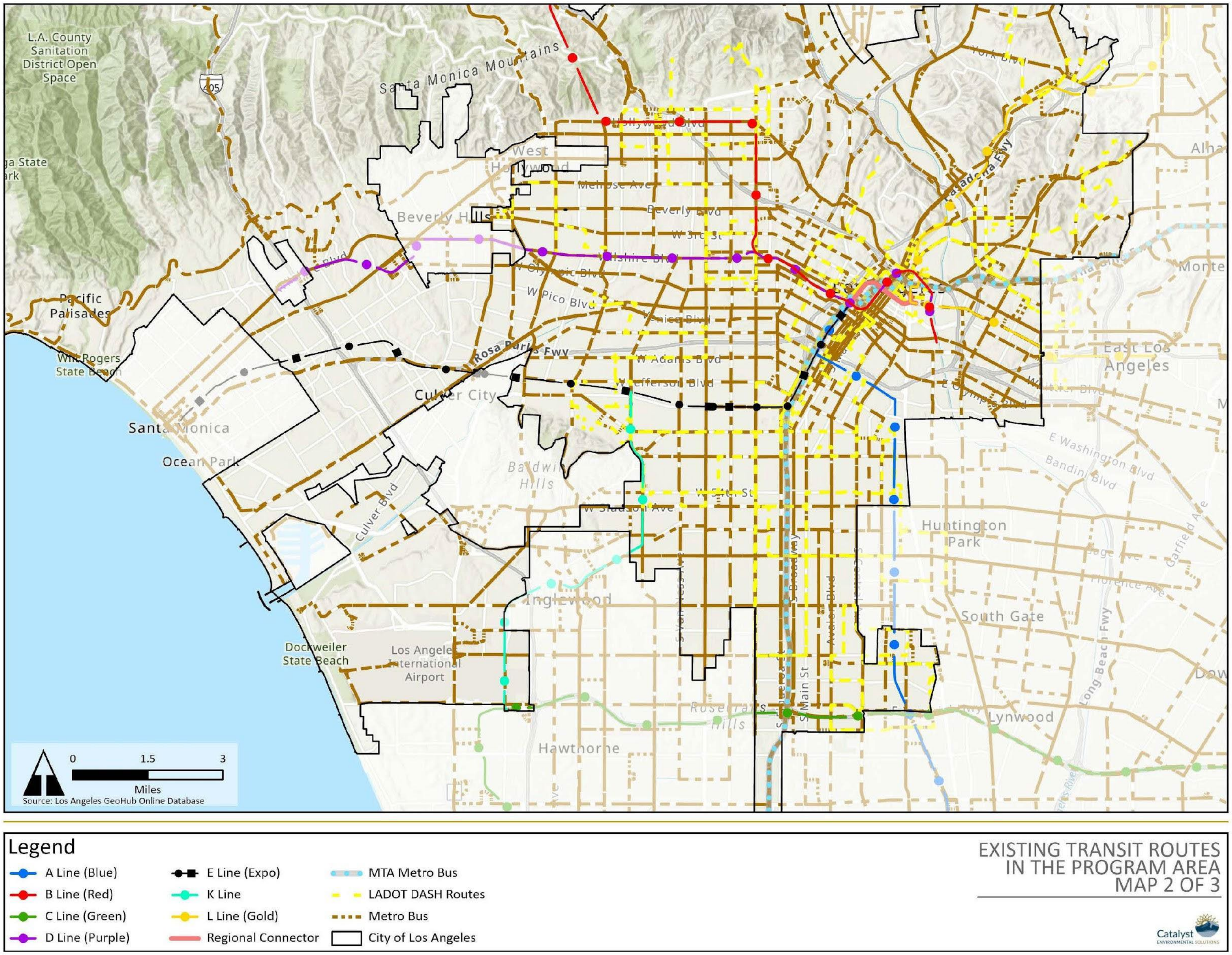


Figure 3.18-5. Existing Transit Routes in the Program Area (Map 2 of 3)

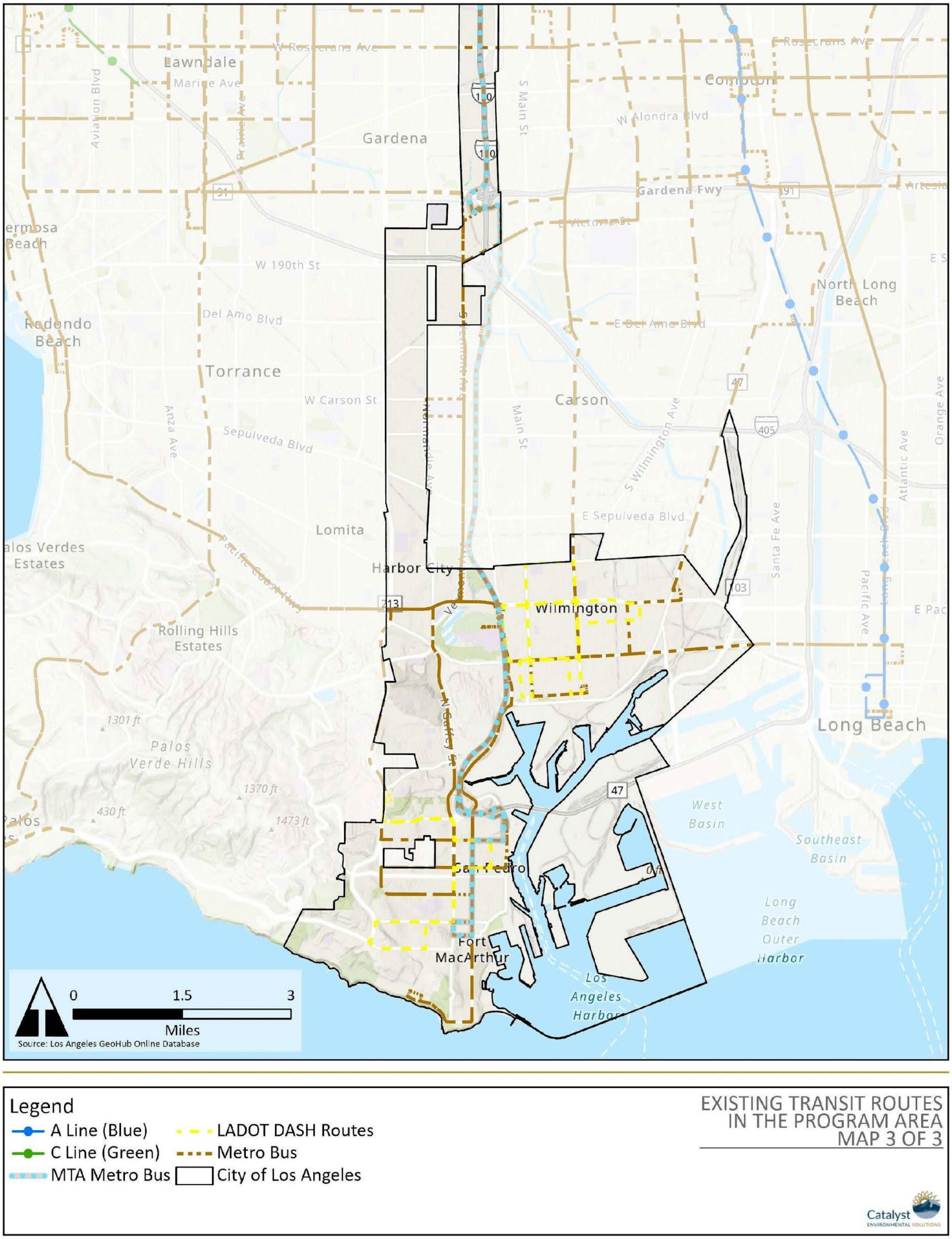


Figure 3.18-6. Existing Transit Routes in the Program Area (Map 3 of 3)

3.18.1.4.2 LADOT

LADOT provides DASH buses and Commuter Express bus services in the City of Los Angeles. DASH operates 32 community circulator routes covering Downtown Los Angeles and many outlying communities within the City. DASH buses provide local access in addition to first/last-mile connections to and from Metro Rail stations. Headways for DASH buses vary between 5-20 minutes depending on the selected route. The Commuter Express operates 14 routes, making a limited number of stops and transporting passengers between Downtown Los Angeles and other major centers within the City. Most Commuter Express routes operate during the peak hours only in the peak direction. All LADOT buses are equipped with three bicycle racks at the front of the bus, and bicyclists may load their bicycles on the rack when there is space available at no extra charge. If the rack is full, bicyclists are asked to wait for the next bus.

3.18.1.4.3 Metrolink

Metrolink operates on seven routes across six counties, including Los Angeles, Orange, Riverside, San Bernardino, Ventura, and a portion of northern San Diego County. All Metrolink lines operate during the peak hours only in the peak direction. The following Metrolink services operate within and through the City:

- Antelope Valley Line
- Inland Empire – Orange County Line
- Orange County Line
- Riverside Line
- San Bernardino Line
- Ventura County Line
- 91/Perris Valley Line.

3.18.1.4.4 Amtrak – Pacific Surfliner

Amtrak is a nationwide rail network, serving more than 500 destinations in 46 states, the District of Columbia, and three Canadian provinces. The Pacific Surfliner, which operates within and through the Program Area, connects San Luis Obispo and San Diego through Los Angeles and Santa Barbara. This line offers 11 daily round-trip services between San Diego and Los Angeles, and five between Santa Barbara and San Diego.

3.18.1.4.5 LAX FlyAway – Union Station

The LAX FlyAway buses offer daily, regularly scheduled roundtrips between each terminal at LAX and two locations (Union Station and Van Nuys). FlyAway buses provide services every 30 - 60 minutes. In downtown Los Angeles, Flyaway buses depart from Union Station at the Patsaouras Transit Plaza on the east side of the facility.

3.18.1.4.6 Other Transit Operators

There are several other transit operators with routes throughout the City: Antelope Valley Transit Authority, Culver City Bus, Foothill Transit, Gardena GTrans, Greyhound Buses, Montebello Bus Lines, Orange County Transit Authority Express, Santa Clarita Transit Commuter Express, Santa Monica Big Blue Bus, and Torrance Transit.

3.18.1.5 Bicycle Network and Pedestrian Facilities

The City's existing bicycle network consists of approximately 650 lane miles of on- and off-street facilities including approximately 65 miles of Class I bikeways (bicycle paths), 15 miles of Class IV separated bikeways (bicycle tracks), 450 miles of Class II bikeways (bicycle lanes), and more than 125 miles of Class III bikeways (bicycle routes and bicycle friendly streets). Bicycle facilities are defined as off-street bicycle paths (Class I), on-street signed and striped bicycle lanes (Class II), on-street signed bicycle routes (Class III), and protected bicycle lanes or cycle tracks (Class IV). Existing bicycle facilities are presented in Figures 3.18-7 through 3.18-9.

The design features of the various types of bicycle facilities are summarized below.

- Bicycle Path: A paved pathway separated from motorized vehicular traffic by an open space or barrier and either within the highway rights-of-way or within an independent alignment. Bicycle paths may be used by bicyclists, skaters, wheelchairs users, joggers, and other non-motorized users. Caltrans refers to this facility as Class I Bikeway, which "provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flow of motorists minimized."
- Buffered Bike Lanes: Buffered bicycle lanes provide on-street right-of-way in the form of a painted buffer that directs motorists to travel away from the bike lane and provides room for bicyclists to pass another bicyclist without entering the adjacent motor vehicle travel lane. A buffered bicycle lane is considered a Class II Bikeway.
- Bicycle Lane: A striped lane for 1-way bicycle travel on a street or highway. Caltrans refers to this facility as a Class II Bikeway.
- Bicycle Route: A shared roadway specifically identified for use by bicyclists, providing a superior route based on traffic volumes and speeds, street width, directness, and/or cross-street priority, denoted by signs only. Caltrans refers to this facility as a Class III Bikeway.
- Bicycle Boulevard: A roadway that motorists may use, but that prioritizes bicycle traffic through the use of various treatments to slow motorists and enhance the bicycle level of service.
- Protected Bicycle Lane (Cycle Track): A bicycle lane that provides further protection from other travel lanes with a physical roadway intervention. This is considered a Class IV Bikeway.

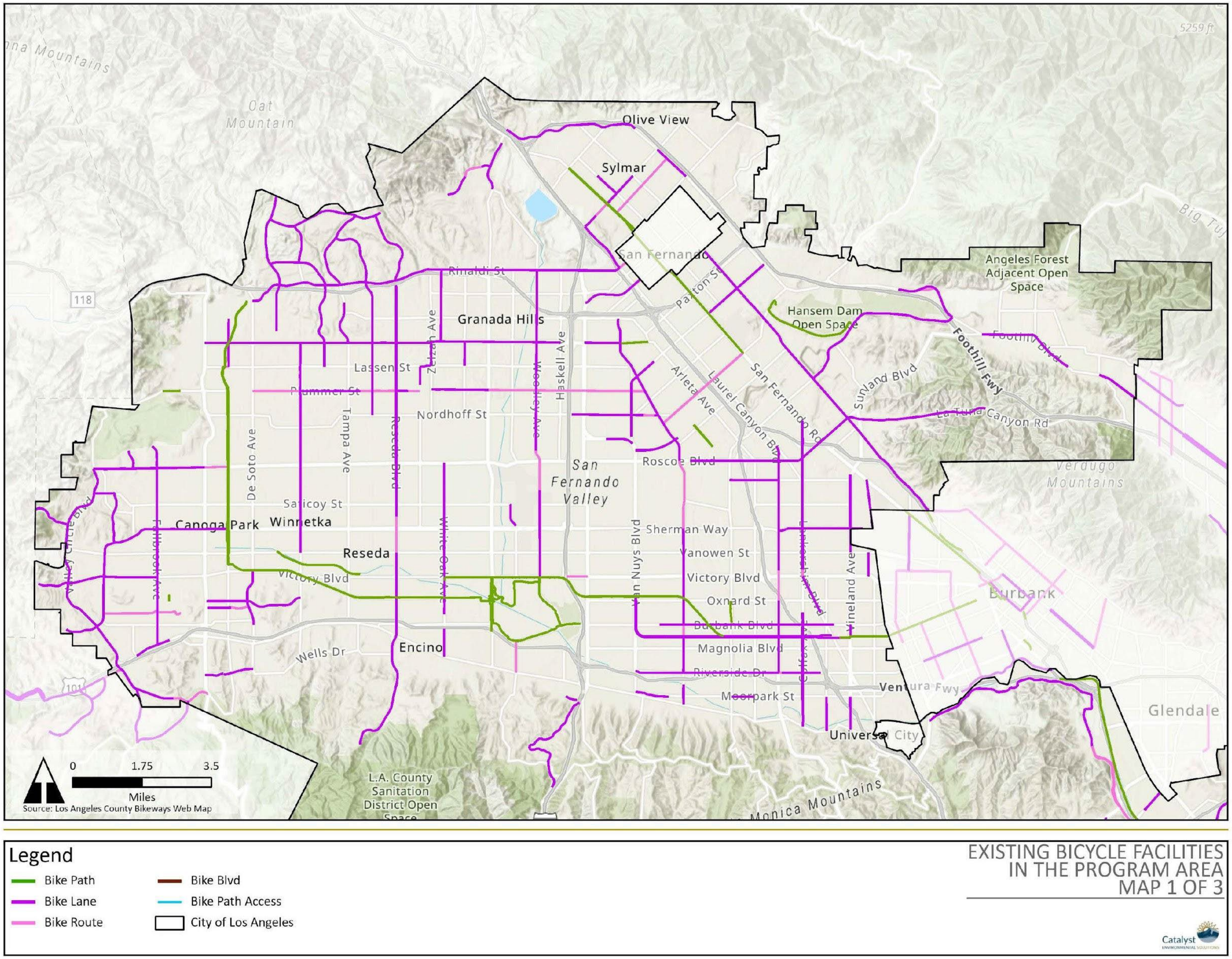


Figure 3.18-7. Existing Bicycle Facilities in the Program Area (Map 1 of 3)

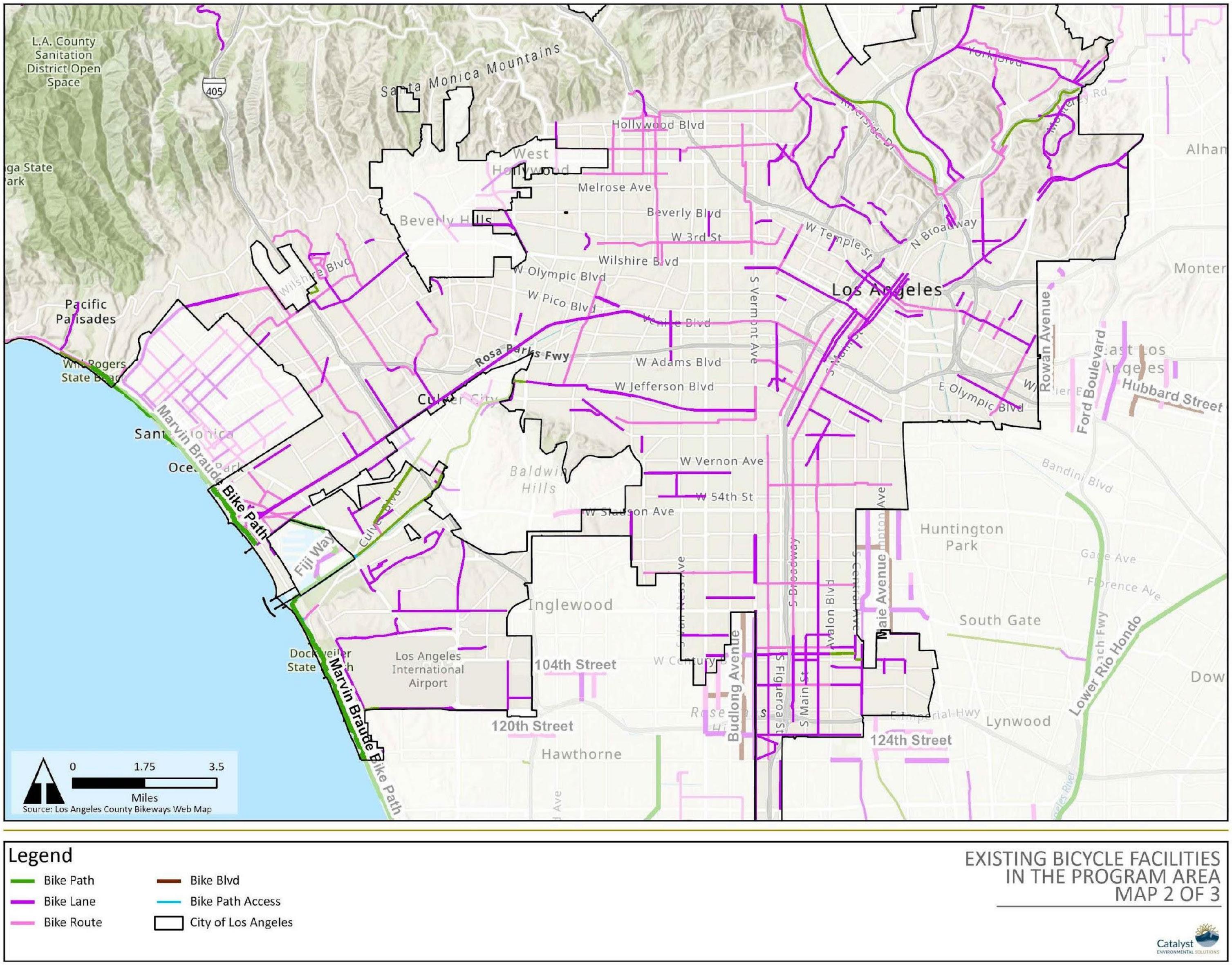


Figure 3.18-8. Existing Bicycle Facilities in the Program Area (Map 2 of 3)

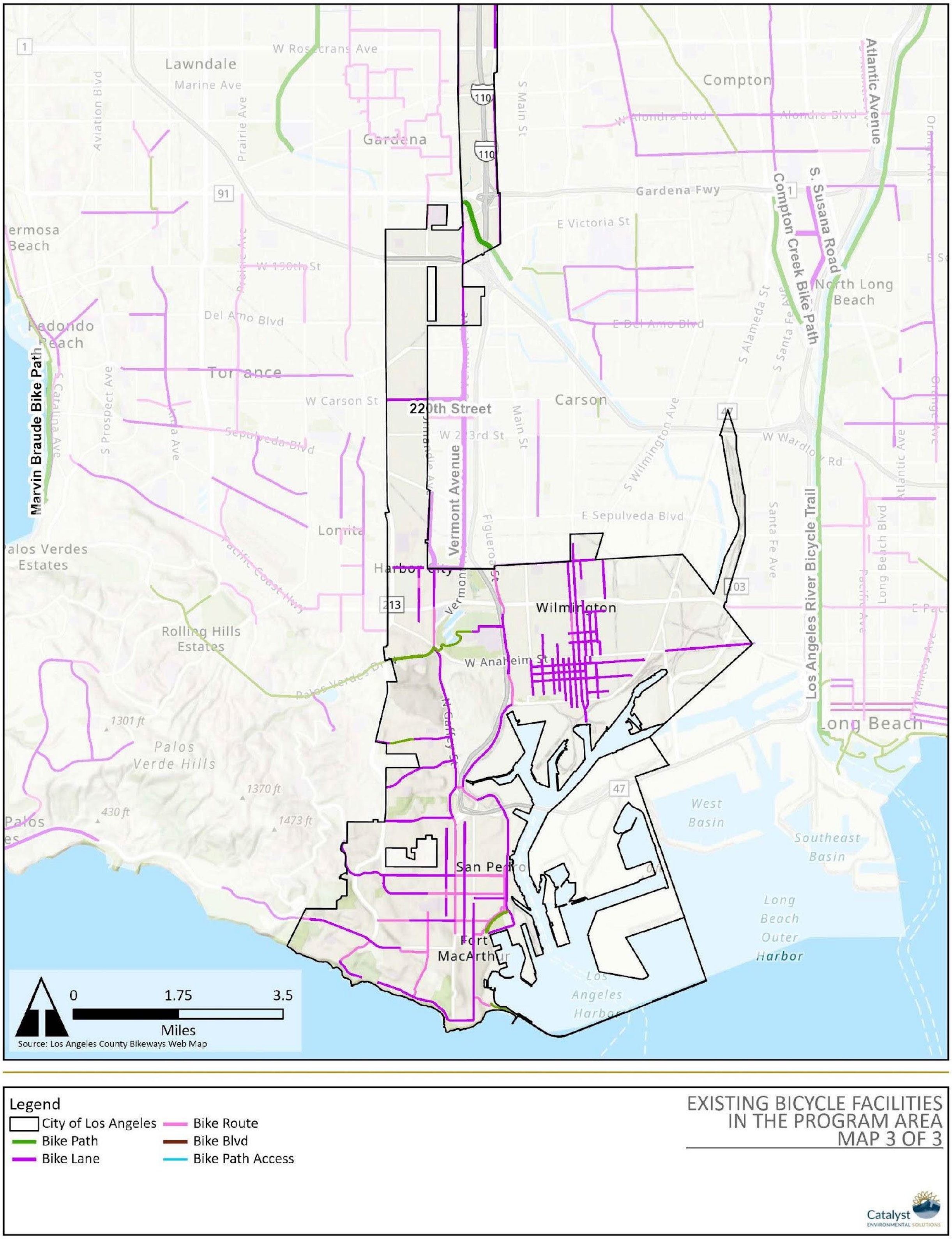


Figure 3.18-9. Existing Bicycle Facilities in the Program Area (Map 3 of 3)

Pursuant to the California Vehicle Code, bicycles are allowed on any street within the local street system. Bicyclists can bring their bikes on board transit in designated areas on Metro trains and on most Metro and LADOT buses on bicycle racks at the front of the bus at no extra cost. Metrolink and Amtrak also allow bicycles on board.

There are approximately 40,000 intersections in the City, of which 4,300 are signalized and approximately 22,000 contain marked crosswalks. Pedestrian travel in the City varies based on the circulation network in any given area. Areas that have pedestrian-oriented uses fronting the sidewalk offer a pedestrian-friendly atmosphere whereas other areas characterized by long blocks fronting surface parking lots and industrial land uses offer little pedestrian amenities. In general, sidewalks range from 10 to 12 feet wide. The City of Los Angeles General Plan designates commercial and neighborhood activity centers that are characterized by ground floor retail and service uses oriented to pedestrians along the sidewalk as Pedestrian Priority Street segments. Pedestrian Priority Street segments are recommended to have wider sidewalks of 15 to 17 feet in width and other pedestrian friendly features such as curb side parking, wide crosswalks with a minimum width of 15 feet, and traffic signal modifications.

3.18.1.6 Existing Vehicle Miles Traveled

This section presents existing traffic conditions in terms of vehicle trips and VMT, as required by CEQA. VMT is a measure of how many miles are being driven within a defined area. Estimated daily VMT data is provided by Caltrans in the annually reported California Public Road Data that uses statistical information derived from the Highway Performance Monitoring System. Table 3.18-2 summarizes data from the years 2018 through 2021. VMT per capita is calculated using the City of Los Angeles population data obtained from the United States Census Bureau (2023).

Table 3.18-2. Average Daily Vehicle Miles Traveled in City of Los Angeles 2018-2021

Year	Daily VMT [1,000]	Daily VMT Per Capita
2018	42,397.66	10.6
2019	40,332.01	10.12
2020	28,569.19	7.19
2021	30,154.31	7.8

Source: Caltrans 2018, 2019, 2020, 2021

3.18.2 Regulatory Framework

3.18.2.1 Federal

There are no applicable federal requirements related to transportation that would apply to the Program.

3.18.2.2 State

3.18.2.2.1 California Department of Transportation (Caltrans)

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways as may be applicable to construction-related truck trips during construction of downstream facilities. Caltrans also coordinates several statewide transportation programs that directly impact the circulation system in the region. These include: the State Transportation Improvement Program, the Congestion and Mitigation and Air Quality Program, and the Traffic Congestion Relief Program.

3.18.2.2.2 Complete Streets Act

AB 1358, the Complete Streets Act (California Government Code Sections 65040.2 and 65302), was signed into law by Governor Arnold Schwarzenegger in September 2008. As of January 1, 2011, the law requires cities and counties, when updating the part of a local general plan that addresses roadways and traffic flows, to ensure that those plans account for the needs of all roadway users. Specifically, the legislation requires cities and counties to ensure that local roads and streets adequately accommodate the needs of bicyclists, pedestrians and transit riders, as well as motorists.

3.18.2.2.3 Assembly Bill 32 (AB 32) and Senate Bill 375 (SB 375)

With the passage of AB 32, the Global Warming Solutions Act of 2006, the State of California committed itself to reducing statewide GHG emissions to 1990 levels by 2020. CARB is coordinating the response to comply with AB 32.

On December 11, 2008, CARB adopted its Scoping Plan for AB 32. This scoping plan included the approval of SB 375 as the means for achieving regional transportation-related GHG targets, including reduction in per capita VMT. SB 375 provides guidance on how curbing emissions from cars and light trucks can help the state comply with AB 32.

3.18.2.2.4 California Vehicle Code

The California Vehicle Code provides requirements for ensuring emergency vehicle access regardless of traffic conditions. Sections 21806(a)(1), 21806(a)(2), and 21806(c) define how motorists and pedestrians are required to yield the right-of-way to emergency vehicles.

3.18.2.2.5 CEQA Guidelines Section 15064.3

Recent changes to CEQA include the adoption of Section 15064.3, Determining the Significance of Transportation Impacts. CEQA Guidelines Section 15064.3 establishes VMT as the most appropriate measure of transportation impacts. Generally, land use projects within 0.5 miles of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact. A lead agency has discretion to choose the most appropriate methodology to evaluate VMT, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may also use models to estimate VMT and may revise those estimates to reflect professional judgment based on substantial evidence. As discussed further below, LADOT developed City of Los Angeles VMT Calculator Version 1.3 (May 2020) (VMT Calculator) to estimate project-specific daily household VMT per capita and daily work VMT per employee for developments within City limits. The methodology for determining VMT based on the VMT Calculator is consistent with CEQA Guidelines Section 15064.3 and the Transportation Assessment Guidelines.

3.18.2.3 Local

3.18.2.3.1 Southern California Association of Governments 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy

In compliance with SB 375, on September 3, 2020, the SCAG Regional Council adopted the 2020-2045 RTP/SCS, a long-range visioning plan that incorporates land use and transportation strategies to increase mobility options and achieve a more sustainable growth pattern while meeting GHG reduction targets set by CARB. The 2020-2045 RTP/SCS contains baseline socioeconomic projections that are used as the basis for SCAG's transportation planning, as well as the provision of services by the six-county region of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. SCAG policies are directed towards the development of regional land use patterns that contribute to reductions in vehicle miles and improvements to the transportation system.

The 2020-2045 RTP/SCS' "Core Vision" prioritizes the maintenance and management of the region's transportation network, expanding mobility choices by co-locating housing, jobs, and transit, and increasing investment in transit and complete streets. Strategies to achieve the "Core Vision" include but are not limited to: Smart Cities and Job Centers, Housing Supportive Infrastructure, Go Zones, and Shared Mobility. Connect SoCal intends to create benefits for the SCAG region by achieving regional goals for sustainability, transportation equity, improved public health and safety, and enhancement of the regions' overall quality of life. These benefits include but are not limited to a 5% reduction in VMT per capita, 9% reduction in vehicle hours traveled, and a 2% increase in work-related transit trips.

3.18.2.3.2 City of Los Angeles Mobility Plan 2035

In August 2015, the Los Angeles City Council adopted Mobility Plan 2035, which serves as the City's General Plan circulation element. The City Council has adopted several amendments to Mobility Plan 2035 since its initial adoption, including the most recent amendment on September 7, 2016. Mobility Plan 2035 incorporates "complete streets" principles and lays the policy foundation for how the City's residents interact with their streets. Mobility Plan 2035 also identifies enhanced networks of major and neighborhood streets that facilitate multi-modal mobility within the citywide transportation system. This layered approach to complete streets selects a subset of the City's streets to prioritize travel for specific transportation modes. In all, there are four enhanced networks: Bicycle Enhanced Network, Transit Enhanced Network, Vehicle Enhanced Network, and Neighborhood Enhanced Network. In addition to these networks, many areas that could benefit from additional pedestrian features are identified as Pedestrian Enhanced Districts. The following objectives identified in Mobility Plan 2035 apply to City of Los Angeles public service fleet:

- Convert 100% of City General Services Division vehicle fleet to alternative fuels and/or zero emission vehicles by 2035.
- Convert 100% of City refuse collection trucks and street sweepers to alternative fuels by 2020.
- Reduce transportation-related energy use by 95% and reduce maintenance requirements of the City vehicle fleet.

3.18.2.3.3 Los Angeles Municipal Code

With regard to construction traffic, LAMC Section 41.40 limits construction activities to the hours from 7:00 a.m. to 9:00 p.m. on weekdays and from 8:00 a.m. to 6:00 p.m. on Saturdays and national holidays. No construction is permitted on Sundays.

LAMC Section 12.37 sets forth requirements for street dedications and improvements for new development projects. Specifically, LAMC Section 12.37 states that no building or structure shall be erected or enlarged on any property, and no building permit shall be issued therefore, on any R3 or less restrictive zone, or in any lot in the RD1.5, RD2, or R3 Zones, if the lot abuts a major or secondary highway or collector street unless one-half of the street adjacent to the subject property has been dedicated and improved to the full width to meet the standards for a highway or collector street as provided in the LAMC.

With regard to on-site bicycle parking, LAMC Section 12.21 A.16 sets forth requirements for long-term and short-term bicycle parking for residential and commercial buildings. Where there is a combination of uses on a lot, the number of bicycle parking spaces required shall be the sum of the requirements of the various uses. LAMC Section 12.21 A.16 also includes facility requirements, design standards, and siting requirements for bicycle parking.

LAMC Section 12.26 J provides for Transportation Demand Management and Trip Reduction Measures that are applicable to the construction of new non-residential gross floor area. Different Transportation Demand Management requirements are provided for developments in excess of 25,000 square feet of gross floor area, 50,000 square feet of gross floor area, and 100,000 square feet of gross floor area. The Transportation Demand Management requirements set forth therein vary depending upon the maximum non-residential gross floor area described above and include measures such as the provision of a bulletin board, display case, or kiosk with transit information and carpool/vanpool parking spaces.

3.18.2.3.4 LADOT Transportation Assessment Guidelines

On July 30, 2019, the City of Los Angeles City Council adopted the CEQA Transportation Analysis Update, which sets forth the revised thresholds of significance for evaluating transportation impacts, as well as screening and evaluation criteria for determining impacts. The CEQA Transportation Analysis Update establishes VMT as the City’s formal method of evaluating a project’s transportation impacts. In conjunction with this update, LADOT adopted its Transportation Assessment Guidelines (adopted in July 2019 and updated July 2020), which defines the methodology for analyzing a project’s transportation impacts in accordance with SB 743.

The City established the Transportation Assessment Guidelines that includes both CEQA thresholds (and screening criteria) and non-CEQA thresholds (and screening criteria). LADOT most recently updated the Transportation Assessment Guidelines in July 2022 to further refine and clarify the analysis methodologies that were presented in the 2020 guidelines. The CEQA thresholds provide the methodology for analyzing the CEQA Guidelines Appendix G transportation thresholds, including providing the City's adopted VMT thresholds. The non-CEQA thresholds provide a method to analyze projects for purposes of entitlement review and making necessary findings to ensure the project is consistent with adopted plans and policies including Mobility Plan 2035. Specifically, the Transportation Assessment Guidelines is intended to effectuate a review process that advances the City's vision of developing a safe, accessible, well-maintained, and well-connected multimodal transportation network. The Transportation Assessment Guidelines have been developed to identify land use development and transportation projects that may impact the transportation system; to ensure proposed land use development projects achieve site access design requirements and on-site circulation best practices; to define whether off-site improvements are needed; and to provide step-by-step guidance for assessing impacts and preparing Transportation Assessment Studies.

3.18.2.3.5 LADOT Manual of Policies and Procedures Section 321

LADOT Manual of Policies and Procedures Section 321 provides the basic criteria for the review of driveway design and states that the basic principle of driveway location planning is to minimize potential conflicts between users of the parking facility and users of the abutting street system, including the safety of pedestrians.

3.18.3 Impact Assessment

3.18.3.1 Significance Criteria

LASAN reviewed Appendix G of the CEQA guidelines to determine if the Program would result in significant impacts related to transportation. The Program would have a significant impact to transportation if the Program would:

a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

d. Result in inadequate emergency access.

The City's 2006 L.A. CEQA Thresholds Guide provides guidance for determining significance of impacts associated with transportation/traffic resulting from the Project. On July 30, 2019, the City Council per CEQA Guidelines Section 15064.7 approved the LADOT Transportation Assessment Guidelines (LADOT Guidelines), which establishes guidelines for transportation assessment based on legislative and regulatory changes consistent with the VMT impact methodology, SB 743, and the revised 2018 CEQA Guidelines. In accordance with the LADOT Guidelines, a development project will have a potential impact if the project meets the following thresholds:

- For residential projects, the project would generate household VMT per capita exceeding 15% below the existing average household VMT per capita for the Area Planning Commission (APC) area in which the project is located (see Table 3.18-3).

- For office projects, the project would generate work VMT per employee exceeding 15% below the existing average work VMT per employee for the APC in which the project is located.
- For regional serving projects including retail projects, entertainment projects, and/or event centers, the project would result in a net increase in VMT.
- For other land use types, measure VMT impacts for the work trip element using the criteria for office projects above.

Table 3.18-3. VMT Impact Criteria (15% Below APC Average)

APC Planning Commission	Daily Household VMT per Capita	Daily Work VMT Per Employee
Central	6.0	7.6
East Los Angeles	7.2	12.7
Harbor	9.2	12.3
North Valley	9.2	15.0
South Los Angeles	6.0	11.6
South Valley	9.4	11.6
West Los Angeles	7.4	11.1

In accordance with the LADOT Guidelines, a land use project will have a potential impact if:

- The anticipated land use growth under the proposed plan would result in an average total VMT per service population in the horizon year that exceeds 15% below the regional average total VMT per service population for the baseline year from the most recent SCAG RTP/SCS.
- The land use growth anticipated under the plan would result in an average total VMT per service population in the plan horizon year that exceeds the average total VMT per service population in the plan area for the baseline year from the most recent locally validated travel demand forecasting model.

3.18.3.2 Program

3.18.3.2.1 Upstream Measures

Impact Criterion a) Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Table 3.18-4 provides an analysis of potential impacts that could result from implementation of the upstream policies and programs associated with the Program relative to transportation and traffic. Additional discussion for the single-use plastic water bottle ban and refillable plastic bottles measures follows the table.

Traffic and transportation impacts associated with the implementation of the upstream measures are primarily related to the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. As shown in Table 3.18-4, many of the policies and programs associated with the

Program would not result in any additional truck trips while others may result in a shift in materials disposed as municipal solid waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific traffic analysis cannot be conducted. However, as discussed in detail below, the nature of these policies is such that they would not conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

Table 3.18-4. Analysis of Upstream Measures - Transportation Impacts

Measure	Transportation Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	Implementation of a ban on single-use plastic water bottles would increase the use of alternative materials (e.g., single-use glass bottles, single-use aluminum cans/bottles, single-use cartons, single-use pouches, reusable bottles of various materials, as well as non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. Use of alternative materials could result in an increase in the weight and volume of products which could result in additional shipment trips to the point of sale or distribution. The relative increase in truck trips associated with transport of water packaged in alternative materials as compared to water packaged in single-use bottles would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant. *This impact is discussed in further detail below*.	Less than Significant
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line super markets and certain jugs be refillable would encourage reuse and refilling of products in the provided refillable containers. The materials used for these refillable containers are assumed to not be significantly different than the containers that are currently used for these products but instead could be refilled at the retailer via bulk dispensing stations. Therefore, this policy is not likely to alter the shipping requirements from the manufacturer or distribution to the retailer except that 25% of the product would be shipped in bulk containers, rather than individually packaged products. Similarly, consumers are assumed to continue to either purchase products in the reusable containers or would participate in product refill programs. Under the refill scenario, consumer trips to the retailer would not change as a result of this policy under the assumption that consumers would return with the empty containers to be refilled at the same retailer that they would have otherwise purchased single-use packaged items. With respect to end-of-life transportation requirements, this policy would lead to a decrease in the use and disposal of single-use packaging, which would likely lead to a	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	reduction in materials placed in green, blue, or black bins and would not result in an increase in LASAN service truck trips. As such, implementation of a requirement that 25% of all plastic bottles and jugs sold in full-line super markets would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Therefore, impacts would be less than significant.	
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers are assumed to be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers store the bottles until they are picked up by the local bottlers or outside transport companies working with them. These bottles are delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). This policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. The assessment of transportation requirements for shipping filled beverage containers from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Overall, transition to refillable bottles is not expected to result in an increase in VMT and implementation of a requirement that 10% of all beverage bottles be refillable would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant. *This impact is discussed in further detail below*.	Less than Significant
Plastic Bottle Policies: Leashed Lids	A range of lid tethering systems have been developed that do not require modification to existing bottle design and filling systems and would not result in a change in trips from the manufacturer to the point of sale or distribution. Further, tethered cap systems would not measurably increase the volume of municipal solid waste and would not result in a perceivable change in materials placed in municipal solid waste collection bins. Therefore, a requirement that all lids on plastic beverage bottles be leashed to the bottle would not result in a change in transportation requirements for these materials. Therefore, this policy would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. There would be no impact with regard to this impact criterion.	No Impact

Measure	Transportation Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	A ban on the manufacture, distribution, offer, provision, and sale of single-use plastic beverage holder rings would not result in a change in consumer behavior and trips associated with purchase or disposal of alternative materials/products. Replacement materials such as plastic circular handles/carriers that snap on the top of cans are often made of HDPE (resin identification #2), which is recyclable within the City and may also be reusable. Other alternative products are made with unbleached plant fibers that are compostable and paperboard/cardboard that are recyclable in the City. These types of replacement materials are light-weight, resulting in transport loads from the manufacturer to the bottling facility that would be volume limited rather than weight limited. However, beverage carriers are typically delivered to bottling facilities as part of larger mixed loads of packaging materials. Therefore, no measurable net increase in truck traffic from the manufacturer to the bottling facility is expected as a result in the change in materials used for beverage holder systems, particularly since alternative beverage holder systems could be included more frequently in regular mixed load deliveries to the bottling facility. Therefore, this policy would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant.	Less than Significant
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in consumption and use of single-use foodware items, which would lead to a decrease in materials placed in blue bins or black bins, which may result in an overall decrease in trips associated with solid waste disposal and management. Similarly, a shift toward use of reusable foodware would decrease the consumption of single-use foodware at restaurants, which would result in a corresponding decrease in trips associated with distribution of single-use foodware materials. Therefore, this policy would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant.	Less than Significant
Foodware Policies: Single-Use To-Go Foodware	Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, and/or all single-use to-go foodware is recyclable or compostable, and/or all single-use to-go foodware contain a minimum of 30% post-consumer recycled content would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Currently, reusable foodware programs are operated either by individual restaurants, where customers return the used containers back to same restaurant, or as a collective with collection points located at restaurants and cafés as well as at or close to various common destinations for takeaway food, such as hotels and offices, enabling consumers to drop off their reusables while carrying out other errands. Under the collective scenario, system service providers collect items, clean them, and redistribute them back to restaurants and cafés. Cleaning the packaging at the café or restaurant rather than a centralized cleaning model generates fewer trips as compared with a centralized cleaning model delivered by system service providers. It	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	should be noted that this policy may also encourage customers to bring in their own containers for to-go orders, which would also reduce trips as compared with reusable foodware provided by the restaurant. With respect to customer behavior associated with return of the foodware, there may be no additional trips generated if customers return the foodware the next time they return to the restaurant or while carrying out other errands. Alternatively, customers may make a trip solely to return the containers, resulting in additional VMT as compared with single-use to-go foodware. The relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of customers that make a dedicated trip to return the containers. As an example, assuming 5% of customers make a special trip to return foodware, the additional VMT would be 250 miles for every 1,000 to-go meals for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of customers make a special trip, representing 0.00007 Household VMT per capita and 0.0003 Household VMT per capita, respectively. Regardless, any additional trips generated by customers returning the reusable foodware would not have the potential to exceed the daily Household VMT per capita threshold of 6.0 to 9.4 (depending on APC Area; refer to Table 3.18-3) and would be distributed throughout the City and is not expected to conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant relative to this impact criterion.	
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. This shift in materials may increase the materials that can be placed in green bins (i.e., compostable materials) or blue bins (i.e., recyclable materials) but would decrease the amount of materials placed black bins (i.e., general waste) since bioplastics are not currently compostable or recyclable at City-contracted facilities. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. The transport of alternative single-use materials to the point of sale or distribution is expected to be comparable to bioplastics as the density and volume of alternative single-use products (e.g., recycled content plastics or paper products) are comparable to bioplastic products. Therefore, this policy would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant.	Less than Significant
Foodware Policies: Meal Kit Reuse and Recycling	Prohibiting the sale of delivery meal kits in the City unless the meal kit manufacturers/providers establish and fund take-back and/or reuse programs for non-recyclable components of their meal kits would result in less material placed in black bins and potentially an increase in materials placed in green or blue bins. However, a change in green or blue bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin.	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	This analysis assumes that take-back programs would be facilitated from existing operation locations and would not require construction of new facilities. For the implementation of take-back and reuse programs, there would be the potential for an increase in trips to return items to the specified take-back location. Some meal kit providers, such as Imperfect Foods, take back reusable and recyclable packaging when the next delivery is dropped off, thus avoiding extra trips. Other schemes require a customer to schedule pickup of reusable meal kit items from their home. With respect to extra trips associated with return of reusable meal kit components, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance, percentage of extra trips, and whether pick-ups are coordinated and optimized to reduce VMT. As an example, assuming 5% of meal kits require an extra trip to pick up the reusable components, the additional VMT would be 250 miles for every 1,000 pickups for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of reusable meal kit components require an extra trip, representing 0.00007 Household VMT per capita and 0.0003 Household VMT per capita, respectively. Any additional trips generated as a result of returning the reusable meal kit components would not have the potential to exceed the daily Household VMT per capita threshold of 6.0 to 9.4 (depending on APC Area; refer to Table 3.18-3) and would be distributed throughout the City and is not expected to conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant relative to this impact criterion.	
Foodware Policies: City Reusable Foodware Pilot Projects	Establishing pilot programs with the goal of reducing plastic pollution and encouraging replacement of single-use foodware with reusable products would result in a decrease in materials placed in blue bins or black bins. However, a change in blue or black bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. This policy would not result in an increase in trips associated with distribution of alternative foodware materials. In addition, it is assumed that most food service establishments have the required washing equipment onsite in accordance with California Health and Safety Code Section 114099. However, this analysis assumes that some of these food service establishments may need to install commercial dishwashers or the three-sink system to wash reusable products. As this type of modification would be minor, few vehicle trips are expected to be generated as a result. Therefore, this policy is not expected to conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant relative to this impact criterion.	Less than Significant
Foodware Policies: Plastic Tea Bags	A ban on the distribution, offer, provision, and sale of tea bags constructed of or containing plastic components would not result in a change in trips associated with distribution or purchase of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to tea bags with plastic components (e.g., alternate adhesives or wrappers would not measurably alter the size or weight of products transported to the point of sale or distribution). In addition, alternative products would not measurably increase the volume of municipal solid waste and would not result in a perceivable change in	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	materials placed in municipal solid waste collection bins. Therefore, impacts would be less than significant.	
Foodware Policies: Beverage Pods	A ban on the distribution, offer, provision, and sale of single-use beverage pods would not result in a change in trips associated with distribution or purchase of alternative materials/products under the assumption that the transportation requirements of alternative products would be comparable to that associated with coffee/beverage pods (e.g., alternate products such as ground or whole-bean coffee and disposable or reusable coffee filters would not measurably alter the size or weight of consumer products transported to the point of sale or distribution). Disposal of spent alternative products such as used coffee grounds may increase the volume of material placed in green bins but would not be expected to increase the amount of material placed in blue or black bins. Any related minor change in disposal behavior is not expected to result in a change in green bin, blue bin, or black bin truck trips under this scenario since trucks are assumed to already be coming to pick up the bins and the change would be the quantity of material in each bin. Therefore, impacts would be less than significant.	Less than Significant
Textile Policies: Textile Disposal Policies	Prohibiting manufacturers and retailers from disposing of apparel and textiles as trash would result in less material placed in black bins. For the implementation of take-back/resale/donation programs, textiles would be diverted from the landfill and instead transported to take-back/resale/donation collection points. The transport of processed items to the resale location is assumed to be comparable to transport of new materials to retailers (i.e., resale items are assumed to have comparable weight and volume as new textile items and would not be expected to increase trips or VMT as compared to new items transported from local distributors, or more likely, originating from outside of the City). Similarly, customer behavior is assumed to not be affected by this policy. Accordingly, this policy would result in an overall reduction in VMT relative to the avoided production and transport of similar new products materials from outside of the City. This analysis assumes that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. Operation of these types of programs is not expected to result in an increase in net trips as compared to products made with virgin materials (i.e., reuse schemes would reduce overall VMT associated with production of the avoided virgin product and trips to landfills located outside of the City for textiles that are disposed of) and would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant relative to this impact criterion.	Less than Significant
Textile Policies: Washing Machine Microfiber Filtration	A requirement that washing machines be outfitted with microfiber filtration systems would not result in a change in traffic associated with either the purchase or disposal of these units. Specifically, new washers sold in the City would be required to be equipped with microfiber filtration systems, which is not expected to result in any change to trips associated with transport of new washers from the manufacturer to the point of sale or distribution. Similarly, retrofit of washers with the necessary filtration would not be expected to increase trips associated with installing the units under the assumption that these units would be purchased and installed in conjunction with other household upgrades and maintenance purchases and	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	activities. Proper care and maintenance of microfiber filtration systems requires that the filter is emptied or replaced periodically. The disposal of spent filters and/or captured materials would increase the amount of material placed in black bins. However, a change in black bin truck trips is not expected under this scenario since trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. Therefore, there would be a less than significant impact associated with this policy as it would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation and it would not alter the surrounding transportation system.	
PFAS Ban	A ban on the manufacture, distribution, offer, provision, rental, and sale of items that contain PFAS would not result in a change in trips associated with purchase or disposal of alternative materials/products since it is assumed that alternative materials would have comparable transportation requirements to those that currently contain PFAS (e.g., alternate products used in the manufacturing process would not change the end-product size and weight of products transported to the point of sale or distribution). Similarly, since the overall size, weight, and use of products manufactured with materials/additives other than PFAS is not expected to change, the disposal of these alternative products would also not be expected to measurably increase the volume of municipal solid waste and would not result in a change in materials placed in municipal solid waste collection bins. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Bag Clips	A ban on the manufacture, distribution, offer, provision, and sale of plastic bag clips would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic bag clips (e.g., alternate products such as twist ties and cardboard bag clips not measurably change the size and weight of products transported to the point of use). Similarly, since the overall size, weight, and use of alternative products would be similar to plastic bag clips, the disposal of these alternative products would also not be expected to measurably increase the volume of municipal solid waste and would not result in a change in materials placed in municipal solid waste collection bins. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Aerosol String	A ban on the manufacture, distribution, offer, provision, and sale of aerosol string (Silly String™) would not result in a change in trips associated with purchase or disposal of alternative materials/products (e.g., alternate products such as biodegradable confetti poppers, paper decorations, or bubbles would not measurably change the size and weight of products transported to the point of sale or distribution). Similarly, disposal of alternative products such as paper biodegradable confetti would not be expected to measurably increase the volume of municipal solid waste and would not result in a change in materials placed in municipal solid waste collection bins. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Plastic Sandbags	A ban on the manufacture, distribution, offer, provision, and sale of plastic sandbags (with only biodegradable sandbags to be allowed) would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to plastic sandbags (e.g., alternate products such as burlap or cotton/canvas sandbags would not measurably change the size and weight of products transported to the point of sale or distribution). Similarly, disposal of	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	sandbags made with alternative materials would not be expected to measurably increase the volume of municipal solid waste and would not result in a change in materials placed in municipal solid waste collection bins. Therefore, impacts would be less than significant.	
Additional Product Bans: Lighter-Than-Air Balloons	A ban on the distribution, offer, provision, and sale of lighter-than-air balloons would not result in a change in trips associated with purchase or disposal of alternative materials/products as it is assumed that alternative materials would have comparable transportation requirements to lighter-than-air balloons. Specifically, banning lighter-than-air balloons may lead to an increase in the use of alternative materials such as standard balloons, tissue pompoms, and flags. Replacement with standard balloons that are blown up at home would not result in any change in volume or weight of materials transported to the point of sale or distribution and would not result in a change in trips. Similarly, standard balloons would have the same disposal requirements as lighter-than-air balloons and would not change the volume of material placed in solid waste collection bins. More durable alternative decorations such as tissue pompoms and flags are more costly and therefore are often saved and stored for multiple celebrations rather than disposed of after one use. These types of more durable alternative materials may have greater volume and weight for transport to the point of sale or distribution, however, consumer behavior is not expected to result in a one-to-one replacement of alternative products to lighter-than-air balloons (i.e., consumers may reuse decorations multiple times) and is not expected to result in an overall increase in trips from the manufacturers to the point of sale. Similarly, although more durable decorations may be bulkier than balloons, these types of decorations are less likely to be single-use. Regardless, an increase in materials placed in green bins, blue bins, or black bins as a result of a shift to alternative decoration materials under this scenario is not expected to increase the truck trips associated with solid waste collection since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. In addition, a ban on lighter- than-air balloons would incrementally reduce the extraction, production, and transport of helium and thus eliminate the associated VMT related to the transport and distribution of helium from primary sources such as those located in Texas, Oklahoma, and Kansas. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	A ban on the sale of single-use e-cigarettes and vape cartridges within the City would not result in a change in trips associated with purchase or disposal of alternative materials/products. Specifically, alternate products such as refillable cartridges would not measurably alter the size or weight of products transported to the point of sale or distribution. A shift to the use of refillable cartridges may lead to a decrease in materials placed in black bins, although this change would not be expected to result in a change in truck trips associated with solid waste collection since trucks are assumed to already be coming to pick up black bins and the change would be the quantity of material in the bin. Therefore, impacts would be less than significant.	Less than Significant
Additional Product Bans: Single-Use Printer Cartridges	A ban on the distribution, offer, provision, and sale of single-use printer cartridges would result in less material placed in black bins. This policy may increase the participation in printer cartridge take-back programs which would have the potential to increase trips required to transport empty printer cartridges to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the	Less than Significant

Measure	Transportation Impact Analysis	Significance Conclusion
	collection point or shipment of the empty cartridge by mail to the recycling facility. Where empty cartridges may be returned to the point of sale, it is assumed that customers would return empty cartridges the next time they purchase a new cartridge. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the round-trip distance and percentage of extra trips. As an example, assuming 5% of printer cartridges require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of empty printer cartridges require an extra trip for return, representing 0.00007 Household VMT per capita and 0.0003 Household VMT per capita, respectively. Any additional trips generated as a result of returning the printer cartridges would not have the potential to exceed the daily Household VMT per capita threshold of 6.0 to 9.4 (depending on APC Area; refer to Table 3.18-3) and would be distributed throughout the City and is not expected to conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Impacts would be less than significant relative to this impact criterion.	

Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban

Implementation of a ban on single-use plastic water bottles would increase the use of alternative materials (e.g., single-use glass bottles, aluminum cans/bottles, cartons, and pouches and reusable bottles of various materials, as well as non-container means for providing drinking water) proportional with the reduction in use of single-use plastic water bottles. Use of alternative materials could result in an increase in the weight and volume of products, which could result in additional shipment trips. The actual shifts or split in composition between alternative products as a result of a ban on single-use plastic water bottles may vary from year to year and change over time due to influencing factors such as changes in price, product availability, and as new products enter the market. For the purposes of a comparative analysis of relative transportation requirements for alternative materials, the study boundary includes transport of empty containers to the filler, filled products from filler to retailer, transport of filled products from retailer to consumer, and transport of empty/consumed products to drop-off locations, MRFs, or landfills.

For single-serving bottles that are manufactured off-site (which is the case for glass bottles or for bottlers who purchase fabricated plastic bottles or alternative container materials), the number of trips required to transport alternative containers to the filler for all options other than glass bottles are assumed to be less than or comparable to trips required for plastic water bottles. This is attributable to the relative low density of empty containers which would result in shipments of cargo that are volume limited (i.e., the volume capacity of a vehicle is filled before the maximum weight limit of the vehicle is reached). As an example, many more units of collapsible containers (e.g., cartons or pouches) can be shipped in a single truck load than empty plastic water bottles that take up much more cargo space.

Glass water bottles are the heaviest of the single-use water bottle options and are analyzed herein for a bounding-level analysis. The average weight of glass bottles is 242 grams for a 12.1-ounce capacity glass bottle compared to 13.3 grams for a 19.9-ounce capacity plastic bottle (Oregon Department of

Environmental Quality 2009). According to one supplier of beverage containers, a pallet of 2,200 standard 12-ounce glass bottles including pallet and transit packing materials measures out at approximately 56 inches x 44 inches x 51 inches with a pallet weight of 845 pounds (Berlin Packaging 2023a). A standard 53-foot trailer truck has the capacity for 22 pallets of this size (assuming no stacking) and a maximum cargo weight limit of approximately 48,000 pounds. The total shipment weight of 22 pallets of empty 12-ounce glass bottles would be approximately 18,590 pounds, thus a load of glass bottles would be limited by the volume capacity of the truck instead of weight. To compare the relative shipping requirements of glass bottles versus plastic water bottles, the shipping volume per bottle is compared herein (assuming 12-ounce capacity bottles). Based on information provided by one bottle supplier, shipment of a 12-ounce glass bottle requires roughly 0.03 cubic feet (ft^3) per bottle compared with 0.02 ft^3 for a 12-ounce plastic water bottle (with the difference due primarily to the longer neck and associated relative inefficient shipping volume of glass bottles compared to standard plastic water bottles) (Berlin Packaging 2023a, 2023b). Given these relative shipment volumes, approximately 1.5 times more truck trips would be required to ship empty glass bottles to the filler compared with plastic bottles.

The assessment of transportation requirements for shipping filled water bottles from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Bottled water is a dense product, and thus the shipment of bottled water by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled water in glass bottles versus plastic bottles, this analysis assumes a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divides by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle; Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass water bottles compared with plastic water bottles. As compared with the 12-ounce glass bottle scenario, the ratio of packaging weight to the weight of water within the package is generally less for larger format containers (e.g., 0.6 [lbs bottle/lbs water] for the 12-ounce glass bottle as compared to 0.16 [lbs bottle/lbs water] for a 1-gallon glass jug or 0.36 [lbs bottle/lbs water] for a 3-gallon glass container). Accordingly, the relative increase in truck trips is assumed to be the same for the range of water bottle sizes typically sold.

The type of materials used for single-use bottles would likely have no effect on consumer purchase or transport behavior from the retailer to the consumer. Thus, transport of filled single-use products to the consumer would likely not change transport behavior at this stage. Similarly, alternative single-use beverage containers that are covered under the California's Beverage Container Recycling Program are assumed to be redeemed for the CRV by the consumer. As such, alternative single-use materials that are redeemed for the CRV is not expected to result in a change in trips under the assumption that movement of recyclable bottles from consumer to secondary processors to manufacturers are comparable to those associated with plastic bottles redeemed for the CRV. For bottles that are not or cannot be redeemed for the CRV, this policy would not result in a significant change in materials placed in blue bins since many replacement products would also be recyclable (i.e., aluminum or glass bottles), but may lead to an increase in materials placed in the black bin (e.g., non-recyclable cartons and pouches). A change in blue bin or black bin truck trips are not expected under this scenario because trucks are assumed to already be coming to pick up the two bins and the change would be the quantity of material in each bin. The relative increase in truck trips associated with transport of water packaged in alternative materials as compared to water packaged in single-use plastic bottles would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Therefore, impacts would be ***less than significant.***

Refillable Beverage Bottles

Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Under this policy, customers would be incentivized to return the reusable bottles through deposit return schemes. Once the bottles are returned, the retailers would store the bottles until they are picked up by the local bottlers or third-party transport companies working with bottlers. These bottles would then be delivered back to the plant where they are sorted, washed, refilled, and transported to distribution centers or retailers. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020).

A shift to reusable beverage containers would result in a relative reduction in single-use containers that are disposed within the City. As such, this policy would likely lead to a reduction in materials placed in green, blue, or black bins and would not result in a change in LASAN service truck trips. This policy is also not expected to change the travel behavior of consumers under the assumption that consumers would return the refillable beverage bottles to the retailer or collection facility similar to existing consumer behavior associated with redeeming single-use bottles for the CRV. With a typical CRV program, beverage containers are transported to the CRV redemption location where they are sorted, crushed, and baled for shipment to the respective recycling facilities for processing and subsequent shipment of processed recycled materials to the manufacturer. New single-use bottles would then need to be transported from the manufacturer to the bottling plant and from the bottling plant to the retailer. In contrast, empty refillable bottles would be returned to the retailer where they would be picked up and transported to the washing and refilling plant and then transported back into the market, thus avoiding trips associated with transport of virgin and/or recycled materials to the bottle manufacturer and then from the manufacturer to the bottling plant. Reuse systems are generally not economical with very long transport distances, requiring enterprises engaged in the filling of refillable beverage containers to operate on a largely local or regional basis (PricewaterhouseCoopers AG 2011). The relative VMT of single-use beverage bottles/containers may be significantly influenced by the percentage of recycled post-consumer content used in the bottles/containers. In general, the higher the percentage of recycled content used, the lower the VMT of that particular bottle/container type. This is due to the avoidance of a number of upstream processes involved in the production of new bottles/containers, like the extraction and transportation of virgin materials. The weighted average transportation distances of empty PET bottles to fillers reported by three PET bottle producers were between 150 and 200 miles. Empty container transport distances for aluminum cans and glass bottles were estimated as 150 miles and 600 miles, respectively (Franklin Associates 2023). Refillable bottles are typically washed and refilled at the same location. In addition, refill programs typically maximize on transport efficiencies by dropping off filled bottles and backhauling empty containers to be washed and refilled. Accordingly, empty bottles used multiple times as part of a local refilling program would require less VMT per bottle than single-use beverage containers that are manufactured in a centralized bottle manufacturing facility and subsequently transported to the beverage filling location.

The assessment of transportation requirements for shipping filled beverage containers from fillers to retailers considers the relative weight and volume of replacement bottling materials and density of water. Due to the density of liquids, shipment of bottled beverages by truck is weight limited, rather than volume limited. To compare the shipping requirements for 12-ounce bottled beverage in glass bottles versus plastic bottles, this analysis assumes a maximum weight capacity of 48,000 pounds for a standard 53-foot truck and divide by the weight of water (0.78 pounds per 12-ounces) plus the weight of the bottle (i.e., 17 grams for a 12-ounce PET plastic bottle versus 212 grams for a 12-ounce glass bottle; Berlin Packaging 2023a, 2023b). Disregarding any limitations on individual pallet dimensions, approximately 1.5 more truck trips would be required to ship 12-ounce filled glass beverage bottles compared with plastic beverage bottles. However, local refillable systems may promote competition among companies with regional production and distribution structures, resulting in overall shorter trips from bottler to retailer. Although distribution of beverages in heavier refillable containers may require more truck trips, these trips may be shorter than trips associated with transport of beverages in single-use containers that originate from centralized manufacturing and distribution centers.

As such, transition to refillable bottles is not expected to result in an overall increase in VMT and implementation of a requirement that 10% of all beverage bottles be refillable would not conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Therefore, impacts would be ***less than significant***.

Impact Criterion b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b) requires that significance of transport impacts are analyzed using the VMT for a project. For example, if the project reduces or has no impact on vehicle miles traveled, the project would be assumed to have a less than significant transportation impact. Additionally, projects within one-half mile of a major transit stop can be assumed to have a less than significant transportation impact.

For land use projects, the LADOT Guidelines provide a screening threshold of 250 daily trips. Land use projects that generate fewer than 250 daily trips are considered to have no impact. Upstream policies are not directly land use projects but may result in construction of additional downstream facilities. Impacts related to downstream facilities are discussed in Section 3.18.3.2.2 below.

Upstream policies may result in an increase in VMT as a result of changes in LASAN operations, distribution of alternative materials, and return logistics associated with reusable products. The Los Angeles Mobility Plan 2035 sets forth the objective of decreasing VMT per capita by 5% every 5 years (from 2015 baseline conditions), to 20% by 2035 (City of Los Angeles 2016). The total daily VMT for the City of Los Angeles was roughly 30 million miles with a daily VMT per capita of 7.8. This represents a 26% decrease from the daily VMT per capita for the City of Los Angeles since 2018. Implementation of the upstream policies would not increase housing or employee VMT as a whole. In addition, the relative increase in VMT as discussed under Impact Criterion (a) above would not result in a measurable increase in daily per capita VMT. Thus, upstream policies do not have the potential to conflict with the Los Angeles Mobility Plan 2035 objective of decreasing VMT per capita to 20% by 2035. As such, impacts related to VMT would be ***less than significant***.

Impact Criterion c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Upstream measures do not involve any transportation-related design features or incompatible uses that would increase transportation-related hazards. Further, the proposed Program would not exceed the screening criteria of Threshold T-3 of the LADOT Transportation Guidelines related to hazards as the upstream measures do not propose new driveways, introduce new vehicle access to the property from the public right-of-way, or propose to make any modifications to the public right-of-way. As such, there would be ***no impact*** on hazards or incompatible uses.

Impact Criterion d) Would the project result in inadequate emergency access?

Upstream measures would not result in any road changes or traffic obstructions that reduce or otherwise affect emergency access. Therefore, the implementation of upstream measures would have ***no impact*** on emergency access.

3.18.3.2.2 Downstream Measures

The potential traffic impacts associated with the implementation of the Program are primarily associated with the construction and operation of the future downstream facilities that would be required to process the additional materials that would be diverted from the landfill. Future downstream facilities can have short-term traffic impacts associated with facility construction. Long-term transportation and traffic impacts would primarily be associated with truck trips associated with incoming and outgoing material and employee commutes. Potential impacts due to construction and operation are discussed below.

Impact Criterion a) Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

CONSTRUCTION

The implementation of upstream Program policies may result in the need for construction of downstream facilities in order to accommodate the resulting diversion of materials from landfills. Construction of downstream facilities would generate short-term additional trips associated with workers, vendors, and hauling of materials. Although the location, size, and access to downstream facilities is currently unknown, for the purposes of this PEIR, a typical construction scenario was developed to represent estimated trips associated with construction of downstream facilities. Table 3.18-5 provides a trip generation summary for construction of each of the proposed facility types. Construction trip generation assumptions consider the size of the sites, construction phase, and number of workers. Worker, vendor, and haul trip lengths are based on CalEEMod default assumptions for the County of Los Angeles-South Coast in an urban setting. Daily VMT is calculated by summing the total daily miles for workers, vendors, and haul trips under the assumption that construction phases would not overlap.

As summarized in Table 3.18-5, construction trip generation per facility would range from 0.13 to 152 daily trips, depending on the type of facility and construction phase. These additional vehicle trips are below the LADOT screening threshold of 250 trips and once construction is complete, would not contribute to additional ongoing daily vehicle trips associated with operations. Given the estimated number of employes for each phase of construction for each of the facilities, the maximum calculated VMT per capita (i.e., per employee) would be 37 VMTs per employee per day (e.g., 370 VMT/10 employees), which is greater than the LADOT threshold of 7.6 to 15.0 VMTs per employee per day depending on the location of the downstream site (refer to Table 3.18-3). Further, because the location and nature of construction of downstream facilities is currently unknown, there is the potential that the project would require construction activities to take place within the right-of-way of a Boulevard, Avenue, Collector, or Local street and may result in the loss of regular vehicle, bicycle, pedestrian, or American Disabilities Act access. Construction activities may also require access for hauling construction materials and equipment from streets less than 24-feet wide. Per LADOT Transportation Impact Guidelines, projects that result in such effects could negatively affect existing pedestrian, bicycle, transit, or vehicle circulation. Therefore, impacts during construction are considered potentially significant.

Table 3.18-5. Construction-Related Vehicle Trips and Daily VMT

Facility Type	Construction Phase	Worker Trips per Day	Worker Trip Length (miles)	Vendor Trips per Day	Vendor/Haul Trip Length (miles)	Daily VMT
Green Bin Facilities						
Anaerobic Digestion	Grading	15	18.5	0	10.2	277.5
	Building Construction	75.6	18.5	29.5	10.2	1699.5
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	15.12	18.5	0	10.2	279.7
	Trenching	10	18.5	0	10.2	185
Aerobic Composting and Mulching	Grading	20	18.5	0	10.2	370
	Building Construction	0.67	18.5	0.26	10.2	15.1
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	0.13	18.5	0	10.2	2.5
	Trenching	10	18.5	0	10.2	185
Blue Bin Facilities						
Clean Materials Recovery	Grading	15	18.5	0	10.2	277.5
	Building Construction	75.6	18.5	29.5	10.2	1699.5
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	15.12	18.5	0	10.2	279.7
	Trenching	10	18.5	0	10.2	185
Resource Recovery	Grading	10	18.5	0	10.2	185
	Building Construction	21.8	18.5	8.5	10.2	490.9
	Paving	12.5	18.5	0	10.2	231.3
	Architectural Coating	4.4	18.5	0	10.2	80.8

Facility Type	Construction Phase	Worker Trips per Day	Worker Trip Length (miles)	Vendor Trips per Day	Vendor/Haul Trip Length (miles)	Daily VMT
	Trenching	10	18.5	0	10.2	185
Construction and Demolition Materials Processing	Grading	15	18.5	0	10.2	277.5
	Building Construction	75.6	18.5	29.5	10.2	1699.5
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	15.1	18.5	0	10.2	279.7
	Trenching	10	18.5	0	10.2	185
Black Bin Facilities						
Mixed Material Processing	Grading	15	18.5	0	10.2	277.5
	Building Construction	65.1	18.5	25.4	10.2	1463.5
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	13.02	18.5	0	10.2	240.9
	Trenching	10	18.5	0	10.2	185
Advanced Thermal Recycling	Grading	15	18.5	0	10.2	277.5
	Building Construction	109.2	18.5	42.6	10.2	2454.9
	Paving	15	18.5	0	10.2	277.5
	Architectural Coating	21.8	18.5	0	10.2	404
	Trenching	10	18.5	0	10.2	185
Non-Combustion Thermal Technologies	Grading	15	18.5	0	10.2	277.5
	Building Construction	54.6	18.5	21.3	10.2	1227.4
	Paving	20	18.5	0	10.2	270
	Architectural Coating	10.9	18.5	0	10.2	202
	Trenching	10	18.5	0	10.2	185

While construction activities would generate some additional vehicle activity on Los Angeles roadways, these effects would be temporary. The number of trips relative to existing volumes would be highly dependent on the site location and surrounding circulation system. Temporary increases in vehicle trips generated during construction could have a potentially significant impact if the timing of those trips occurred during peak hours and contributed to congestion within City-designated congested roadway segments. **MM TR-1** requires the preparation of a project-specific traffic report once a facility has been proposed at a specific location. The project-specific traffic analysis would determine the existing traffic conditions and would use project-specific traffic data to characterize construction-related impacts to the existing circulation system. If proposed activities are forecast to exceed the established thresholds, project-specific mitigation measures shall be implemented to reduce impacts to less than significant. Such measures could include, but are not limited to, restricting traffic during peak hours, providing preparation and implementation of a traffic management plan, and requiring carpooling or shuttle service to the project site. Incorporation of **MM TR-1** would ensure that the construction activities would not exacerbate existing congestion problems within the City. With implementation of this measure, the temporary increase in vehicle trips generated by a project construction would be fully analyzed with required mitigation measures to determine if the mitigation measures reduce impacts to less-than-significant levels. However, depending on the project location and number of vehicle trips generated as a result of construction activities, in some circumstances, mitigation measures (e.g., timing of truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation, etc.) applied to reduce transportation impacts may not reduce impacts below the applicable threshold or may be infeasible. Therefore, even with implementation of mitigation measures, impacts would remain significant because construction activities would conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Therefore, construction of downstream facilities would have a potentially ***significant and unavoidable impact*** on the circulation system.

OPERATION

Table 3.18-6 provides a trip generation summary for operation of each of the proposed facility types. Trip generation per facility ranges from 78 to 356 average daily trips (ADT), depending on the type of facility. The additional vehicle trips may exceed the LADOT screening threshold of 250 daily vehicle trips associated with ongoing operations. Trip generation assumptions consider the amount of material each facility would process per day and the size of the trucks bringing the material. The trip generation assumes both the trips associated with incoming material, as well as the trips associated with outgoing material, once it has been processed. If all of the proposed facilities were constructed, the Program could generate approximately 16,586 total daily VMT. It is important to note that not all of the project operation trips would be considered “new” trips as some of these trips may carry materials that would have otherwise been destined for landfills. The associated net change in VMT would be relative to the change in distance of the trips diverted from the landfill to the new downstream facility.

Under the assumption that all of the proposed facilities are constructed and given the estimated number of employes for operation of each of the facilities, the maximum calculated VMT per capita (i.e., per employee) would be 75 VMTs per employee per day (e.g., 16,586 VMT/222 employees), which is greater than the LADOT threshold of 7.6 to 15.0 VMTs per employee per day depending on the location of the downstream site (refer to Table 3.18-3). Further, because the location and scale of downstream facilities is currently unknown, there is the potential that the project would require modifications to the public right-of-way (i.e., dedications and/or improvements in the right-of-way, reconfigurations of curb line, etc.) that could negatively affect existing pedestrian, bicycle, transit, or vehicle circulation resulting in a potentially significant impact.

Operation of the downstream facilities would generate ongoing additional vehicle activity on Los Angeles roadways. The number of trips relative to existing volumes would be highly dependent on the site location, surrounding circulation system, and scale of the project. **MM TR-1** requires the preparation of a project-specific traffic report once a facility has been proposed at a specific location. The project-specific traffic analysis would determine the existing traffic conditions and would use project-specific traffic data to characterize operation-related impacts to the existing circulation system. If proposed activities are forecast to exceed the established thresholds, project-specific mitigation measures shall be implemented to reduce impacts. Such measures could include but are not limited to: restricting traffic during peak hours, providing preparation and implementation of a traffic management plan, and requiring carpooling or shuttle service to the project site. Incorporation of **MM TR-1** would determine if trips generated during operations would exacerbate existing congestion problems within the City. With implementation of this measure, the increase in vehicle trips generated by a project would be fully analyzed with required mitigation measures to determine if the mitigation measures reduce impacts to less-than-significant levels. However, depending on the project location and number of vehicle trips generated as a result of operations, in some circumstances, mitigation measures (e.g., timing of truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation, etc.) applied to reduce transportation impacts may not reduce impacts below the applicable threshold or may be infeasible. Therefore, operation of downstream facilities would have a potentially ***significant and unavoidable impact*** on the circulation system.

Table 3.18-6. Operations-Related Vehicle Trips and Daily VMT

Facility Type	Process Assumptions for the PEIR – Incoming Material (tons per day)	Process Assumptions for the PEIR – Outgoing Material (tons per day)	Truck Trips per Day[1]	Truck Trip Length (miles)	Employee Trips Per Day	Employee Trip Length (miles)	Total Daily VMT[3]
Green Bin Facilities							
Anaerobic Digestion	350	105	110	9.36	28	9.36	1291.7
Aerobic Composting and Mulching	600	300	206	9.36	28	9.36	2190.2
Blue Bin Facilities							
Clean Materials Recovery	300	300	124	9.36	80	9.36	1909.4
Resource Recovery	100	100	212	9.36	30	9.36	2265.1
Construction and Demolition Materials Processing	300	300	122	9.36	90	9.36	1984.3
Black Bin Facilities							
Mixed Material Processing	300	300	120	9.36	100	9.36	2059.2
Advanced Thermal Recycling	1,200	120	356	9.36	44	9.36	3744
Non-Combustion Thermal Technologies	250	50	78	9.36	44	9.36	1141.9
						TOTAL	**16,586**

Notes:
[1] An industry average of 7 tons per collection truck is used for incoming materials in this analysis.
[2] A 16-ton per transfer vehicle is assumed for Clean Materials Recovery Facilities, Resource Recovery Centers/Parks, and Construction and Demolition Materials Processing Facilities as those materials are bulkier and therefore, less dense (e.g., cans, bottles, paper, reusables). An 18-ton transfer vehicle assumption is used for Mixed Material Processing as outgoing loads would include some recyclables and some compostables and residuals, which have a higher density. A 20-ton transfer vehicle is assumed for Advanced Thermal Recycling and Non-Combustion Thermal Technologies as those materials include ash, vitrified ash, digestate, and residuals, which have a higher density.
[3] Not all Daily VMT would be considered an increase over existing conditions as some of the “new” trips may carry materials that would have otherwise been destined for landfills.

Impact Criterion b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CONSTRUCTION

State CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts, with the applicable methodology based on project type, and specifying other criteria for conducting VMT analysis. As detailed for Impact Criterion (a), conservatively accounting for all new project construction-related vehicle activity, construction of downstream facilities would temporarily increase trips per day by a maximum of 152 additional daily vehicle trips during construction. The estimated maximum daily vehicle trip count is below the LADOT threshold of 250 trips per day. However, under the assumption that all of the proposed facilities were constructed and given the estimated number of employes for operation of each of the facilities, the maximum calculated VMT per capita (i.e., per employee) would be 37 VMTs per employee per day (e.g., 370 VMT/10 employees), which is greater than the LADOT threshold of 7.6 to 15.0 VMTs per employee per day depending on the location of the downstream site (refer to Table 3.18-3). Therefore, the construction of new downstream facilities has the potential to result in significant impacts as described in the LADOT Transportation Assessment Guidelines (LADOT 2022). Accordingly, operation of new downstream activities could be inconsistent with CEQA Guidelines detailed in Section 15064.3(b) and, therefore, impacts would be potentially significant. Incorporation of **MM TR-1** ensures that the increase in vehicle trips generated by a project would be fully analyzed to determine if mitigation measures reduce impacts to less-than-significant levels. However, depending on the project location and number of vehicle trips generated as a result of construction activities, in some circumstances, mitigation measures (e.g., timing of truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation, etc.) applied to reduce transportation impacts may not reduce impacts below the applicable threshold or may be infeasible. Therefore, construction of downstream facilities would have a potentially ***significant and unavoidable impact*** relative to CEQA Guidelines 15064.3(b).

OPERATION

State CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts, with the applicable methodology based on project type, and specifying other criteria for conducting VMT analysis. As detailed for Impact Criterion (a), using assumptions for new project vehicle activity, including incoming and outgoing material movements, operation of all downstream facilities would increase trips per day by approximately 1,772 additional daily vehicle trips. This maximum is based on a conservative assumption that all facilities are constructed concurrently, and all vehicle trips occur simultaneously on the same day.

The maximum daily vehicle trip count associated with downstream facilities is greater than the LADOT screening threshold of 250 trips per day, as well as their VMT threshold of 15% below the existing baseline VMT per capita levels. Therefore, the new trips generated by a downstream facility would result in potentially significant transportation impacts as described in the LADOT Transportation Assessment Guidelines (LADOT 2022). Accordingly, operation of new downstream activities could be inconsistent with CEQA Guidelines detailed in Section 15064.3(b) and, therefore, impacts would be potentially significant. Incorporation of **MM TR-1** ensures that the increase in vehicle trips generated by a project would be fully analyzed to determine if mitigation measures reduce impacts to less-than-significant levels. However, depending on the project location and number of vehicle trips generated as a result of operations, in some circumstances, mitigation measures (e.g., timing of truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation, etc.) applied to reduce transportation impacts may not reduce impacts below the applicable threshold or may be infeasible. Therefore, operation of downstream facilities would have a potentially ***significant and unavoidable impact*** relative to CEQA Guidelines 15064.3(b).

Impact Criterion c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

CONSTRUCTION AND OPERATION

The future facility locations are currently undetermined. Design principles used to integrate solid waste facilities within the community and neighborhood regarding traffic are anticipated to be given consideration. The site location, off-site routes, and ingress and egress plans would be chosen to work with the existing traffic patterns and limit the potential traffic burdens. Due to zoning restrictions, it is unlikely facilities would be located in an area that causes hazards due to incompatible uses associated with operation activities. Additionally, with incorporation of **MM TR-1**, proper site design to avoid hazards due to sharp curves or dangerous intersections would be incorporated into the project design. Temporary increases in vehicle trips during construction activities may increase hazards and/or require road or driveway improvements. Incorporation of **MM TR-1** requires that a project-specific traffic impact report is prepared to identify any impacts and mitigation measures to reduce project- and cumulative-level impacts to the maximum extent practicable. However, depending on the project location and number of vehicle trips generated as a result of operations, in some circumstances, mitigation measures (e.g., timing of truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation, etc.) applied to reduce transportation impacts may not reduce impacts below the applicable threshold or may be infeasible. Therefore, impacts associated with construction and operations are considered potentially ***significant and unavoidable***.

Impact Criterion d) Would the project result in inadequate emergency access?

CONSTRUCTION AND OPERATION

As future designs are proposed for the facilities, emergency access would be considered for both construction and operation of each facility. LADOT would review the site plan and improvements to ensure that there is adequate emergency access. In addition, incorporation of **MM TR-1** would ensure adequate access and travel for emergency access for the facility. Should construction of any of these facilities result in any kind of temporary road closure, per **MM TR-1**, a traffic control plan would be developed to identify appropriate lane closures/routing and detours. This information would also be provided to local emergency providers to ensure adequate access and travel for emergency vehicles is maintained. However, depending on the project location and construction and operation activities and/or feasibility of mitigation measures, in some circumstances, emergency access may be impeded. Therefore, emergency access impacts during the construction phase and operations of future facilities are considered ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM TR-1: Traffic Impact Report. Prior to the approval of any future facility, a project-level traffic impact report shall be prepared by a qualified traffic consultant. The report shall be prepared to the standard of the LADOT that would be providing approvals for the project. The report shall include existing traffic information, thresholds of significance, construction and operation-related trip generation and a project and cumulative-level analysis. The traffic report shall identify mitigation measures to reduce project- and cumulative-level impacts to the maximum extent practicable. Such mitigation measures could include roadway and intersection improvements, payment of traffic impact fees, timing of collection truck schedules to avoid peak hours, encouraging carpool, vanpool, or alternative transportation for employees through the use of incentives.

3.19 Tribal Cultural Resources

This section describes the existing tribal cultural resources of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on tribal cultural resources in the City. Table 3.19-1 summarizes impacts on tribal cultural resources that could result from implementation of the Program or alternatives.

Table 3.19-1. Summary of Tribal Cultural Resources Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Upstream: No Impact	None
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Survey and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discoveries Procedures MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects

3.19.1 Environmental Setting

On February 9, 2023, the City submitted a request to the NAHC to provide contact information for Native American tribal organizations and individuals with traditional lands or cultural places located within the Program Area (i.e., the City). The NAHC responded on February 17, 2023, providing a list of 20 Native American contacts. The City sent letters to each of the tribal representatives provided by the NAHC on March 30, 2023, inquiring if they wished to consult on the Program, if they had any knowledge of cultural resources or values in the area, if they had any concerns with the proposed Program, and asking for a response within 30 days, per PRC Section 21080.3.1(d) requirements.

The Gabrieleño Band of Mission Indians - Kizh Nation responded on April 5, 2023, requesting formal consultation. The City met with the tribe on June 27, 2023 to discuss the proposed Program. The Tribe expressed the need to consult on future construction, and the importance of an Unanticipated Discoveries Plan. The Tribe provided additional information and proposed mitigation measures to the City on October 5, 2023. Two tribes (Santa Ynez Band of Chumash Indians and Fernandeño Tataviam Band of Mission Indians) formally declined consultation, and no response was received from any of the other tribes contacted.

3.19.2 Regulatory Framework

3.19.2.1 Federal

No federal regulations related to tribal cultural resources apply to the Program.

3.19.2.2 State

3.19.2.2.1 Assembly Bill 52

AB 52 went into effect July 1, 2015, and requires lead agencies to consult with California Native American tribes that have requested formal consultation on a project. Accordingly, PRC Sections 21080.3.1 and 21080.3.2 require the following: “Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide for formal notification to the designated contact of, or a tribal representative of, traditionally affiliated California Native Tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.”

AB 52 was ratified to provide Tribes with an ancestral connection to a project area the opportunity to provide information on the presence of potential tribal cultural resources. The purpose of the AB 52 consultations between the Tribes and the City is to: 1) collect information; 2) build a working relationship between the City and the Tribes; and 3) avoid inadvertent discoveries. Any information shared during these consultations is considered privileged and confidential but is considered when conducting the resource analyses.

3.19.2.3 Local

There are no General Plan goals or policies or other City regulations related to tribal cultural resources that would apply to the Program.

3.19.3 Impacts Assessment

3.19.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to tribal cultural resources[33]. The Program would have a significant impact to tribal cultural resources if the Program would:

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

[33]The L.A. CEQA Thresholds Guide does not address tribal cultural impacts.

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.19.3.2 Program

3.19.3.2.1 Upstream Measures

None of the upstream measures would result in ground-disturbing activities and therefore, they would not have the potential to cause a substantial adverse change in the significance of a tribal cultural resource. Therefore, the Program's upstream measures would have ***no impact*** on tribal cultural resources.

3.19.3.2.2 Downstream Measures

Construction of downstream facilities would result in ground-disturbing activities that have the potential to cause a substantial adverse change in the significance of a tribal cultural resource if they are present at or near the future site. The City would implement **MM CUL-1, MM CUL-2, and MM CUL-3** to identify any known tribal cultural resources at the site and ensure that they are avoided, and no damage is caused by construction. However, there may be rare instances in which even with adherence to MM CUL-1 and MM CUL-2 construction activities or the relocation of a tribal cultural resource may alter the significance of the resource. Therefore, the impacts are considered ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM CUL-1: Pre-construction Cultural Survey and Tribal Cultural Monitoring. See Section 3.6, Cultural Resources.

MM CUL-2: Unanticipated Discoveries Procedures. See Section 3.6, Cultural Resources.

MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects. See Section 3.6, Cultural Resources.

3.20 Utilities and Service Systems

This section describes the existing utilities and service systems of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on utilities and service systems in the City. Table 3.20-1 summarizes impacts on utilities and service systems that could result from implementation of the Program or alternatives.

Table 3.20-1. Summary of Utilities and Service Systems Impacts

Would the Program:	Program	Mitigation Measure(s)
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Upstream: No impact	None
	Downstream: Less than Significant with Mitigation	MM UTIL-1: Underground Utilities Search MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment MM UTIL-5: Wastewater Services Information (WWSI) request MM UTIL-6: Energy Efficient Design
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM UTIL-5: Wastewater Services Information (WWSI) request

Would the Program:	Program	Mitigation Measure(s)
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	MM UTIL-2: Construction Waste Reduction MM UTIL-3: Water Conserving Designs
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Upstream: Less than Significant	None
	Downstream: Less than Significant	None

3.20.1 Existing Conditions

Electricity service in the City is provided by LADWP, maintaining a power generation mix that includes coal, natural gas, large hydroelectric, nuclear, and 35% renewable energy (LADWP 2022). The LADWP supplied 20,936 GW hours of electricity in the 2021-2022 fiscal year to the approximately 1.5 million customers within the service area. While commercial and industrial users account for 63% of the electricity consumed in the City, residences constitute the largest number of customers (LADWP 2022). The LADWP powers the lights on public streets and highways, the City's water system, and sells electricity to other utilities (LADWP 2022).

Natural gas service within the City is provided by the Southern California Gas Company (SoCalGas), the nation's largest natural gas distribution utility, providing natural gas to 5 million customers throughout the region in 2021 (SoCalGas et al. 2022). The California Public Utilities Commission regulates the operations of SoCalGas; natural gas is purchased on the open market and distributed over 5.9 million gas meters in more than 500 communities, spanning 20,000 square miles (SoCalGas et al. 2022).

LASAN provides solid waste management services to approximately 750,000 residential customers consisting of single-family residences and small (<5) multi-family units in the City. Approximately 65,000 multi-family units of 5 or more and commercial customer accounts are serviced through the recycLA program and recycLA Service Providers. In 2022, LASAN collected approximately 1.43 million tons of solid waste from residential customers. This total was comprised of approximately 803,000 tons of refuse (i.e., trash), 392,000 tons of compostable materials (i.e., yard trimmings, organic waste), 224,000 tons of recyclable materials, and 3,200 tons of manure (LASAN 2023). Solid waste facilities utilized by the City include refuse collection yards; mulching/composting facilities; S.A.F.E. centers for household hazardous waste; regional transfer stations and landfills; MRFs; and waste-to-energy facilities. The five landfills owned by the City, Bishop Canyon, Gaffey Street, Lopez Canyon, Sheldon-Arleta, and Toyon Canyon, are closed and no longer accept solid waste. Solid waste is transported to private landfills throughout the region; the largest of these is Sunshine Canyon City/County Landfill which landfills over 1.4 million tons of City waste annually. Other disposal sites used by the City include Chiquita Canyon Sanitary Landfill, Simi Valley Landfill, and Azusa Land Reclamation Co. Landfill; these three disposal sites combined account for an additional 1.4 million tons of solid waste generated by the City (LASAN 2013). The City also disposes of trash at the Antelope Valley, Calabasas, Chiquita Canyon, Lancaster Hills, Puente Hills, and Scholl Canyon landfills.

LASAN provides sewer conveyance infrastructure and wastewater treatment services to the City. The City's wastewater sanitary sewer system serves a population of over four million, consisting of 6,439 miles of gravity mains, 33 miles of force mains, and 46 pumping plants (LASAN 2019). In addition, there are about 700,000 privately owned sewer laterals totaling a length of 11,000 miles. The City also provides wastewater conveyance and treatment services to 29 satellite agencies with no management responsibilities. The City's sewer system consists of three separate sanitary sewer systems: Hyperion Sanitary Sewer System, Terminal Island Water Reclamation Plant Sanitary Sewer System, and the City's Regional Sanitary Sewer System (LASAN 2019).

LADWP provides potable water to the City. Primary sources of water for the LADWP service area are the Los Angeles Aqueducts, local groundwater, State Water Project (supplied by the Metropolitan Water District of Southern California), and the Colorado River Aqueduct (Supplied by the Metropolitan Water District). Historically, the majority of City water is delivered by the Los Angeles Aqueducts, with local groundwater providing 8% of the total water supply for the City over the past five years. As a percentage of LADWP's total water supply, purchases of supplemental water from the Metropolitan Water District was 42% on average between 2016 to 2020 fiscal years (LADWP 2020). The City's average water usage in 2020 was below the average amount of water used in the 1970s, with a 29% reduction in water demands between 2004 and 2020 (LADWP 2020).

3.20.2 Regulatory Framework

3.20.2.1 Federal

3.20.2.1.1 Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (40 CFR, Part 258 Subtitle D) establishes minimum location standards for siting municipal solid waste landfills. In addition, because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the USEPA has delegated the enforcement responsibility to the State of California.

3.20.2.2 State

3.20.2.2.1 California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (PRC Division 30) enacted through AB 939 emphasized conservation of natural resources through reduction, recycling, and reuse of solid waste. AB 939 requires that all cities and counties divert 25% of solid waste streams from landfills by 1995 and 50% by 2000. In accordance with AB 939, each local agency must submit an annual report to the California Integrated Waste Management Board summarizing its progress in diverting solid waste disposal.

3.20.2.2.2 Mandatory Commercial Recycling Regulation (Assembly Bill 341)

In October 2011, Governor Brown signed AB 341 into law, setting a 75% recycling goal for California by 2020. The purpose of this law was to reduce GHG emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California. AB 341 went into effect July 1, 2012, and requires all commercial businesses and public entities that generate 4 cubic yards or more of waste per week to have a recycling program in place. The same requirement is also applied to multifamily dwellings of five units or more. The focus of AB 341 has been on dry recyclables such as cardboard, paper fiber, pallets, rigid plastics, and containers. Cardboard and paper fiber recycling offer the highest methane mitigation potential per ton recycled and can also count towards the efforts of SB 1383 compliance.

3.20.2.2.3 CCR Title 14, Natural Resources – Division 7

CalRecycle, created Jan. 1, 2010, through legislation merging the programs of the former California Integrated Waste Management Board and the beverage container recycling program that was previously managed by the California Department of Conservation, administers and provides oversight for all of California's state-managed waste handling and recycling programs. This section of the CCR contains current CalRecycle regulations pertaining to all other non-hazardous waste management in California. Title 14 Chapter 3 Article 5 describes solid waste storage and removal standards that owners and operators of a property must follow, including design requirements for proper storage of waste and timing of removal from the site. Chapter 9.1 mandates recycling for any commercial or public entity that generates 4 cubic yards or more of commercial solid waste per week.

3.20.2.2.4 Senate Bill 610

SB 610 became effective January 1, 2002. SB 610, codified in the California Water Code Sections 10910 et seq., describes requirements for both water supply assessments and Urban Water Management Plans applicable to the CEQA process. SB 610 requires that for specified projects subject to CEQA, the urban water supplier must prepare a water supply assessment that determines whether the projected water demand associated with a proposed project is included as part of the most recently adopted Urban Water Management Plan. Specifically, a water supply assessment shall identify existing water supply entitlements, water rights, or water service contracts held by the public water system, and prior years' water deliveries received by the public water system. In addition, it must address water supplies over a 20-year period and consider average, single-dry, and multiple-dry years. In accordance with SB 610 and Section 10912 of the California Water Code, projects subject to CEQA requiring submittal of a water supply assessment include "*Industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area*".

3.20.2.3 Local

3.20.2.3.1 City of Los Angeles General Plan

The Framework Element

Goal 9D: An integrated solid waste management system that maximizes source reduction and materials recovery and minimizes the amount of waste requiring disposal.

Goal 9E: Adequate Recycling Facility Development - expanded siting of facilities that enhance the City's reduction, recycling, and composting efforts using methods and strategies that are economically, socially, and politically acceptable.

Goal 9F: Adequate collection, transfer, and disposal of mixed solid waste - the City shall seek to ensure that all mixed solid waste that cannot be reduced, recycled, or composted is collected, transferred, and disposed of in a manner that minimizes adverse environmental impacts.

Goal 9G: An environmentally sound solid waste management system that protects public health, safety, and natural resources and minimizes adverse environmental impacts.

Goal 9H: A cost-effective solid waste management system that emphasizes source reduction, recycling, reuse, and market development and is adequately financed to meet operational and maintenance needs.

– Objective 9.12: Support integrated solid waste management efforts.
    - Policy 9.12.1: Prepare a 30-year policy plan that provides direction for the solid waste management decision-making process.
    - Policy 9.12.2: Establish citywide diversion objectives.
    - Policy 9.12.3: Define specific programmatic tasks, roles, and responsibilities for source reduction, composting, special waste, and public education goals, as well as an implementation schedule.

3.20.3 Impact Assessment

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to utilities and service systems. The Program would have a significant impact to utilities and service systems if the Program would:

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments.

d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The L.A. CEQA Thresholds Guide provides guidance for determining the significance of impacts associated with utilities and service systems resulting from a Project on a case-by-case basis. The CEQA Guidelines Appendix G Impact Criteria analyses provided below encompass the following L.A. CEQA Thresholds Guide factors:

– Impact Criteria a) and b)

  - The total estimated water demand for the project;
  - Whether sufficient capacity exists in the water infrastructure that would serve the project, taking into account the anticipated conditions at project buildout;
  - The amount by which the project would cause the projected growth in population, housing or employment for the Community Plan area to be exceeded in the year of the project completion; and
  - The degree to which scheduled water infrastructure improvements or project design features would reduce or offset service impacts.

– Impact Criterion c)

  - The project would cause a measurable increase in wastewater flows at a point where, and a time when, a sewer's capacity is already constrained or that would cause a sewer's capacity to become constrained; or
  - The project's additional wastewater flows would substantially or incrementally exceed the future scheduled capacity of any one treatment plant by generating flows greater than those anticipated in the Wastewater Facilities Plan or General Plan and its elements.

– Impact Criterion d)

  - Result in solid waste generation of five tons or more per week.

3.20.3.1 Program

3.20.3.1.1 Upstream Measures

Impact Criterion a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

The Program's upstream measures would not result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage features. Eliminating or reducing the volume of plastics and their end products from upstream sources would result in a lower burden of treatment for water infrastructure related utilities and services systems. Many treatment facilities will be compelled to expand or upgrade their facilities to eliminate PFAS from wastewater and drinking water once regulatory levels are established (National Association of Clean Water Agencies [NACWA] 2023); however, the Program's measures would not likely be inclusive enough to prevent that need from arising. Treatment requirements for PFAS are discussed in greater detail below, under Impact Criterion (c).

The replacement of certain plastic materials with reusable alternatives would result in energy use for actions such as washing and drying alternatives. This is likely to be the case for those measures that require reusable alternatives, including the ban on single-use plastic water bottles, requirements for refillable plastic bottles, requirements for refillable beverage bottles, a ban on single-use foodware in dine-in restaurants, and a requirement that establishments offer reusable foodware for to-go food. As discussed previously under Section 3.7, Energy, none of the measures would result in a net increase in energy use or wasteful consumption of energy. Therefore, the Program would not result in the construction of new electric power facilities, and ***no impact*** would occur.

Impact Criterion b) Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

The Program's upstream measures would result in or require a shift to reusable alternatives, some of which would lead to increased water use due to the need to wash reusable alternatives. These measures include the ban on single-use plastic water bottles, requirements for refillable plastic bottles, requirements for refillable beverage bottles, a ban on single-use foodware in dine-in restaurants, and a requirement that establishments offer reusable foodware for to-go food. The greatest water use for single-use foodware items is in the resource extraction and manufacturing phases whereas the greatest water use for reusable alternatives is in washing. The amount of water used for alternative materials would depend on consumer behavior including frequency of washing, duration of washing, and handwashing versus using a dishwasher. As discussed previously under Section 3.11, Hydrology and Water Quality, LCAs have shown that various reusable foodware products use less water over their lifetime than single-use products, with break-even points of 2 to 200 uses, depending on the reusable material (Upstream 2020). This analysis assumes that reusable alternatives would be washed along with existing dish loads and would not lead to a substantial increase in water. Therefore, impacts on municipal water supply would be ***less than significant***.

Impact Criterion c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The Program's upstream measures would result in or require a shift to reusable alternatives. Some alternatives would lead to increased water use due to the need to wash reusable alternatives, the water from which would ultimately be routed to wastewater treatment providers. These measures include the ban on single-use plastic water bottles, requirements for refillable plastic bottles, requirements for refillable beverage bottles, a ban on single-use foodware in dine-in restaurants, and a requirement that establishments offer reusable foodware for to-go food. However, reusable alternatives are expected to be washed along with the existing dish loads at homes and businesses and therefore a significant increase in wastewater from the Program is not anticipated. Therefore, the impact would be ***less than significant.***

Removing PFAS from drinking water as part of the wastewater treatment and stormwater management process is technically challenging and costly. Conventional treatment methods like filtration and activated carbon adsorption are partially effective. Efficient and scalable treatment technologies are being explored but are not yet widely available. National MCLs are in development to regulate the legal level of PFAS in drinking water (USEPA 2023; OEHHA 2022; see Section 3.11, Hydrology and Water Quality). The proposed rule would require public water systems to monitor for specific PFAS, notify the public of the levels of these PFAS, and reduce the levels of these PFAS in drinking water if they exceed the proposed standards.

It is very likely that water treatment facilities in the City and state will require expanding or upgrading to address PFAS in the coming years if PFAS levels in drinking water consistently exceed the forthcoming MCLs. A report commissioned by the American Water Works Association (2023) estimated that drinking water utilities will need to invest more than $50 billion to install and operate treatment technology over the next 20 years to comply with the new PFAS regulations and standards. The National Association of Clean Water Agencies conducted a survey and found that individual clean water utilities expect their wastewater operational costs to increase by 60% as a result of new PFAS regulations (NACWA 2023). A new report by the Minnesota Pollution Control Agency estimates that technologies and expenses needed to remove PFAS from wastewater streams in that state would cost between $14 and $28 billion over 20 years and that small wastewater treatment facilities could face per-pound costs over six times greater than larger facilities due to economies of scale (Minnesota Pollution Control Agency 2023a). The Minnesota Pollution Control Agency concluded that preventing PFAS pollution from entering the environment in the first place is critical (Minnesota Pollution Control Agency 2023b). Removing or reducing PFAS from upstream sources in the City would reduce the current and future burden of PFAS that must be treated in drinking water and wastewater once PFAS regulations are finalized, a ***beneficial*** impact of the Program.

Impact Criterion d) Would the Project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Impact Criterion e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Many of the Program measures would result in a reduction of solid waste in the City and thereby help the City to meet reduction statutes and regulations related to solid waste. The upstream measures would reduce solid waste; accordingly, the upstream measures would not result in an increase above 5 tons per day. The potential impacts of each upstream measure on solid waste are provided in Table 3.20-4.

Table 3.20-4. Analysis of Upstream Measures – Utilities and Service Systems Impacts

Measure	Utilities and Service Systems Impact Analysis	Significance Conclusion
Plastic Bottle Policies: Single-Use Plastic Water Bottle Ban	A ban on single-use plastic water bottles would shift use to single-use alternative materials (e.g., aluminum, cardboard, glass) as well as reusable water bottles. The removal of single-use plastic water bottles, which are accepted for recycling in the City, would not result in any changes in solid waste in the City and would therefore have a less than significant impact on solid waste.	Less than Significant
Plastic Bottle Policies: Refillable Plastic Bottles	A requirement that 25% of all plastic bottles and jugs sold in full-line supermarkets be refillable would result in the replacement of single-use products with reusable products. It is assumed that some of these reusable bottles would replace plastics that are not accepted for recycling in the City, and therefore the measure would result in fewer plastic bottles and jugs that enter the City's waste stream. Therefore, this measure would have a beneficial impact by reducing solid waste in the City.	Beneficial Impact
Plastic Bottle Policies: Refillable Beverage Bottles	Implementation of a refillable beverage bottle policy requiring 10% of all beverage bottles be refillable would lead to replacement behavior including a transition to alternate beverage container materials including aluminum, glass, and/or other more durable materials. Beverage companies report that they can use refillable glass bottles up to 50 times and refillable PET bottles up to 20 times before they are retired and recycled (Schroeer et al. 2020). Additionally, requiring refillable bottles would result in a decrease in the number of single-use bottles disposed of as solid waste and therefore, have a beneficial impact on solid waste.	Beneficial Impact
Plastic Bottle Policies: Leashed Lids	Requiring leashes on plastic bottle caps would ensure that the caps and plastic bottles are both recycled together but would have no impact on solid waste in the City.	No Impact
Plastic Bottle Policies: Single-Use Plastic Beverage Holder Rings	Plastic rings are not recyclable and must be disposed of as waste in the City. Alternative materials such as cardboard would be compostable while other plastic-based alternatives would still require landfilling. Therefore, impacts would be less than significant.	Less than Significant
Foodware Policies: Dine-In Services	A requirement that all food or beverage establishments provide only reusable foodware for dine-in services would result in a decrease in materials discarded as solid waste, thereby resulting in a beneficial impact on solid waste in the City.	Beneficial Impact
Foodware Policies: Single-Use To-Go Foodware	Single-use foodware is disposed of as solid waste in the City. Establishing a requirement that at least 50% of to-go/delivery foodware must be returnable and reusable, or that to-go foodware is recyclable and compostable, would reduce this source of solid waste in the City, resulting in beneficial impacts to solid waste streams. A requirement for post-consumer content in to-go foodware would not result in changes to solid waste, as the products with post-consumer content may or may not be recyclable in the City and may end up as waste. Therefore, there would be no impact to solid waste in the City.	Beneficial Impact

Measure	Utilities and Service Systems Impact Analysis	Significance Conclusion
Foodware Policies: Bioplastic Ban	A ban on the distribution, offer, provision, and rental of single-use foodware and food-contact products made partially or wholly from bioplastics would result in alternative materials used for these products. Other single-use plastics would still be allowed, and impacts would be less than significant.	Less than Significant
Foodware Policies: Meal Kit Reuse and Recycling	Requiring an EPR program for the non-recyclable components of meal kits in the City would result in those components going back to the producer for recycling and reuse and being kept out of the City's waste stream. This would reduce the solid waste associated with meal kits and would be a beneficial impact.	Beneficial Impact
Foodware Policies: City Reusable Foodware Pilot Projects	Reusable foodware pilot projects would help businesses throughout the City incorporate reusable foodware into their business practices. As discussed above, the switch to reusable products would reduce the volume of waste material being landfilled and would be a beneficial impact.	Beneficial Impact
Foodware Policies: Plastic Tea Bags	Tea bags are not a large contributor to the City's solid waste and non-plastic alternatives may still end up in the City's waste stream due to the presence of staples on the bags. Prohibiting the distribution, offer, provision, and sale of tea bags constructed of, or containing, plastic components would have a less than significant impact on solid waste in the City.	Less than Significant
Foodware Policies: Beverage Pods	Due to the difficulty in separating the different materials from the spent coffee grounds (Marinello 2021), and the current inability for MRFs to process the pods, regardless of material, single-use pods end up in landfills from the City's waste stream. Removing these products from the waste stream would therefore reduce the volume of plastics that are in landfills and be a beneficial impact to solid waste in the City.	Beneficial Impact
Textile Policies: Textile Disposal Policies	It is assumed that take-back/resale/donation programs would be facilitated from existing operation locations and would not require construction of new facilities. Further, these policies would reduce the volume of textiles that are sent to landfills. Therefore, there would be a beneficial impact to solid waste in the City.	Beneficial Impact
Textile Policies: Washing Machine Microfiber Filtration	Clothing microfibers are not a substantial source of solid waste in the City. Therefore, a filter requirement that removed microfibers from water would have a less than significant impact on solid waste in the City.	Less than Significant
PFAS Ban	A ban on PFAS in products would result in the removal of PFAS from certain products but not a decrease in the number of products manufactured and used. Therefore, there would be no impact to the City's solid waste.	No Impact
Additional Product Bans: Plastic Bag Clips	Single-use plastic bag clips are not a substantial contributor to solid waste volumes in the City. Their replacements (twist-ties, cardboard clips, and plastic tape) are similar with regard to size and would also require disposal at landfills. Impacts would be less than significant.	Less than Significant

Measure	Utilities and Service Systems Impact Analysis	Significance Conclusion
Additional Product Bans: Silly String	Overall, silly string represents a very small portion of plastic waste in the City and is more likely to enter storm drains following outdoor use than enter the City's solid waste stream to be landfilled. Therefore, banning silly string would have a less than significant impact on solid waste.	Less than Significant
Additional Product Bans: Plastic Sandbags	Plastic sandbags are meant to interface with water during flooding events. Replacement materials would also have to be disposed of at landfills, and therefore there would be a less than significant impact to solid waste.	Less than Significant
Additional Product Bans: Lighter-Than-Air Balloons	Lighter-than-air balloons are not a substantial contributor to solid waste in the City. Further, balloons filled with air would still be allowed under this measure. Therefore, there would be a less than significant impact to solid waste.	Less than Significant
Additional Product Bans: Single-Use E-Cigarettes and Vape Cartridges	The ban on single-use e-cigarettes and cartridges would potentially reduce the number of cartridges that end up in landfills due to replacement products which could be recycled for reuse. Thus, having a beneficial impact on solid waste in the City.	Beneficial Impact
Additional Product Bans: Single-Use Printer Cartridges	The ban on single-use printer cartridges would potentially reduce the number of cartridges that end up in landfills due to replacement products which could be recycled for reuse. Thus, having a beneficial impact on solid waste in the City.	Beneficial Impact

3.20.3.1.2 Downstream Measures

Impact Criterion a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

CONSTRUCTION

During construction of downstream facilities, a minimal amount of wastewater would be generated by construction workers and likely collected by portable toilet facilities. All waste generated in portable toilets would be collected by a permitted portable toilet waste hauler and appropriately disposed of at one of the Los Angeles County identified liquid waste disposal stations that have been appropriately permitted by the RWQCB. Construction-related dewatering discharges would be subject to compliance with a temporary dewatering permit issued by the RWQCB. As discussed in Section 3.11, Hydrology and Water Quality, on-site treatment of dewatering discharges may be required depending on the groundwater quality. Dewatered water would be discharged either through the nearest storm drain or other location in compliance with discharge permit limitations. Construction activities would result in less than significant impacts to wastewater treatment facilities.

The water demands for construction activities would likely be met using potable water sourced from fire hydrants serviced by LADWP or other existing LADWP connections. Construction activities would require power to some construction equipment and power tools, but this minimal demand for electricity would be supported with portable generator units. Natural gas is not anticipated to be needed for construction operations.

Construction could result in the need to relocate existing water, wastewater, electric, natural gas, or telecommunications facilities, depending on the location. Utilities with underground or overhead service lines that would be impacted by the proposed Program would include but would not be limited to Metropolitan Water District of Southern California, West Basin Municipal Water District, Los Angeles County, Southern California Edison, LADWP, local municipalities, and other private utility service providers. In order to ensure that existing utilities are not impacted by construction of the proposed Program, LASAN would implement **MM UTIL-1**, which would require an underground utilities search and coordination with utility providers operating within proposed construction impact areas during the design phase and prior to construction. With implementation of **MM UTIL-1**, impacts during construction would be considered ***less than significant with mitigation***.

Operation

Once operational, downstream facilities would be permanently sited and would not require relocation of utilities. Table 3.20-2 provides estimated water, wastewater, and energy consumption/usage for future municipal solid waste processing facilities that will be required to process the additional material diverted from landfills. The information provided in Table 3.20-2 is used in the impact analyses for water supply, wastewater, and energy usage.

Table 3.20-2. Estimated Water, Wastewater, and Energy Usage for Future Downstream Waste Management Facilities

Facility Type (processing capacity tpd)	Water Supply/ Water Consumption (Million Gallons per Year)	Wastewater Discharge (Million Gallons per Year)	Energy Consumption/ Energy Producer
Green Bin Facilities			
Anaerobic Digestion (350 tpd)[c]	7	14	Produce ~20 GWh (net)
Aerobic Composting and Mulching (1 to 1,000 tpd)	2 to 10	0.5 to 5	Consume 20 to 200 MWh/year
Blue Bin Facilities			
Clean Materials Recovery (300 tpd)	1.5	0.5	Consume 800 MWh/year
Resource Recovery (100 tpd)[a]	0.3	0.1	Consume 100 MWh/year
Construction and Demolition Materials Processing (300 tpd)	1.5	0.5	Consume 800 MWh/year

Facility Type (processing capacity tpd)	Water Supply/ Water Consumption (Million Gallons per Year)	Wastewater Discharge (Million Gallons per Year)	Energy Consumption/ Energy Producer
Black Bin Facilities			
Mixed Material Processing (300 tpd)	1.5	0.5	Consume 800 MWh/year
Advanced Thermal Recycling (1,200 tpd)[b-]	15	2	Produce 200 GWh/year
Non-Combustion Thermal Technologies (250 tpd)[d]	2 to 89	1	Produce 50 GWh/year

Notes:
[a] Assumes approximately 15 employees 6 days/week
[b] Assumes use of an air cooled condenser (instead of cooling tower); also assume about 50 employees, 7 days/week
[c] Assumes use of high solids anaerobic process
[d] High end assumes gasification process & low end assumes claims from plasma arc process
tpd = tons per day; MWh = Megawatt-hours; GWh = Gigawatt-hours; 1,000 MWh = 1 GWh

Water

Depending on the location, additional utility connections may be required to meet the operational demands of the future downstream facilities. The principal constraint associated with this issue area is the construction and operation of future processing facilities. Table 3.20-2 provides estimated water consumption and wastewater discharge in million gallons per year (MGY) for each type of facility. The water consumption ranges from 0.3 MGY to 89 MGY (0.31 acre-feet per year to 273 acre-feet per year). The Citywide water demand, based on normal weather conditions, is anticipated to be about 565,751 acre-feet per year by 2045 (LADWP 2020). The total project water supply for the City is expected to exceed the post-conservation demand for the years 2025 through 2045 (LADWP 2020). Therefore, it is expected that the City will have capacity to serve the water demand of future downstream facilities. However, because the location of future downstream facilities is unknown, it is also unknown if this expectation would be correct for all future facilities, and that the existing facilities would have the capacity to serve the additional water demand, resulting in a potentially significant impact. Implementation of **MM UTIL-3** would require water conservation measures such as landscaping plans that incorporate the planting of water-efficient, well-adapted, and/or native shrubs, trees, and grasses (i.e., drought and heat tolerant), use of recycled water as landscaping irrigation to the maximum extent practicable, use of high-efficiency/low flow toilets and sink faucets, and use of a water recycling system for truck washing. Implementation of **MM UTIL-3** would further reduce the water demand associated with the facility and minimize impacts. In addition, per the requirements of SB 610 and Section 10912 of the CWC, industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area are subject to CEQA requiring submittal of a water supply assessment. Accordingly, implementation of **MM UTIL-4** would ensure that a water supply study is conducted for downstream projects and if facility demands are projected to exceed the water supply, then the facility must be redesigned so as not to exceed supply or must be re-sited to a location in which it would not exceed supply. Therefore, impacts on water supply would be ***less than significant with mitigation***.

Wastewater Treatment

Wastewater discharge for the various downstream facilities would range from 0.1 MGY to 14 MGY (275 to 38,355 gallons per day). Industrial wastewater is defined as any wastewater generated from any manufacturing, processing, institutional, commercial, or agricultural operation, or any operation that discharges other than domestic or sanitary wastewater. Industrial facilities and certain commercial facilities which plan to discharge industrial wastewater to the City's sewage collection and treatment system are required to first obtain an industrial wastewater permit from the Industrial Waste Management Division of LASAN. As shown in Table 3.20-2, wastewater discharge would increase marginally depending on the type of facility and number of employees. Depending on the location within the City, the facility would connect to one of the three separate sanitary sewer systems (i.e., Hyperion System, Terminal Island System, and Los Angeles Regional System [Harbor Gateway]). Operation of the City's wastewater treatment facilities must be consistent with requirements applicable to the wastewater treatment plan prepared for each facility, the LARWQCB, and the City's NPDES permit. LASAN has prepared a Sewer System Management Plan to control and mitigate all sanitary sewer overflows in order to comply with the state waste discharge requirements (City of Los Angeles 2019). LAMC Section 64.15 requires the City to perform a Sewer Capacity Availability Request for any project seeking a sewer permit to connect a property to the City's sewer collection system, proposes additional discharge through their existing public sewer connection, or proposes a future sewer connection or future development that is anticipated to generate 10,000 gallons or more of sewage per day. A Sewer Capacity Availability Request is an analysis of the existing sewer collection system to determine if there is adequate capacity existing in the sewer collection system to safely convey the newly generated sewage to the appropriate sewage treatment plant. As summarized above, estimated wastewater generation at Anaerobic Digestion Facilities and Aerobic Composting/Mulching Facilities may exceed 10,000 gallons per day. Based on the results of the Sewer Capacity Availability Request, additional capacity of LASAN's wastewater system may be required to accommodate the new downstream facility. This is considered a potentially significant impact. Implementation of **MM UTIL-5** would require that a Wastewater Services Information request is performed to determine if the proposed downstream facility would exceed the capacity of existing wastewater treatment facilities. For proposed downstream projects that are determined to have the potential to exceed the capacity of the wastewater system, the downstream facility shall be redesigned such that wastewater generation is reduced to below the threshold for which capacity of the wastewater system would need to be expanded or the facility would need to be re-sited to an area in which the wastewater system capacity would not be exceeded. Therefore, impacts to wastewater during operation would be ***less than significant with mitigation***.

Storm Water Drainage

The Watershed Protection Division of LASAN manages the stormwater program for the City. The Watershed Protection Division develops and formulates pollution abatement projects to comply with the City's federal permit that is designed to eliminate pollutant discharges to the storm drain system and local waters. Future facilities would be required to comply with all stormwater discharge requirements, as well as the City's NPDES permits. Section 3.11, Hydrology and Water Quality, provides a more detailed discussion of stormwater drainage and facilities. As identified in Section 3.11, a site-specific hydrology analysis would be required upon determination of the facility location. Specifically, prior to approval of any new facility, the applicant would be required to submit a LID Plan and/or Standard Urban Stormwater Mitigation Plan to the LASAN Watershed Protection Division for review and approval. The LID Plan and/or Standard Urban Stormwater Mitigation Plan would incorporate design BMPs to capture and treat runoff, in accordance with regulations deriving from the Los Angeles County NPDES MS4 permit (i.e., Standard Urban Stormwater Mitigation Plan, LID Ordinance, LID Handbook). As discussed under Impact Criterion (a), design of future downstream facilities would be required to include BMPs to prevent stormwater contamination and reduce runoff, pursuant to LAMC Article 4.4, and potentially the NPDES General Construction Permit depending on the size of future development projects. With compliance with applicable federal, state, and local regulations, future projects would be required to implement stormwater BMPs, and project development would not generate a substantial increase in runoff and impacts related to drainage and runoff would be ***less than significant***.

<u>Electric Power</u>

Table 3.20-2 shows the projected energy demand from future processing facilities, as well as projected energy production from the alternative technology facilities. The Clean MRFs, large and small composting facilities, resource recovery centers, and mixed-material processing facilities are estimated to consume approximately 20 MWh/year to 800 MWh/year of energy, depending on the size and type of facility. LADWP has a total generating capacity of about 8,000 MW to serve a peak Los Angeles demand of about 5,600 megawatts (one MW equals 1,000,000 watts). Based on the anticipated energy demands of future facilities, it is expected that the City currently has the energy capacity for future facilities; however, incorporating design features that would reduce consumption of energy into future building plans would reduce the demand for power. These “sustainability features” may include the use of energy efficient lighting and machinery. Alternative energy sources would also reduce electrical consumption from LADWP. Incorporation of **MM UTIL-6** would reduce electric demand on the LADWP electric infrastructure. In addition to mitigation, compliance with Title 24 would minimize electric consumption at the facilities. Further, several types of downstream facilities could produce energy through alternative technology. Three categories are evaluated for their diversion potential. These facilities include advanced thermal recycling, anaerobic digestion, and thermal (plasma arc, gasification, and pyrolysis). As shown in Table 3.20-2 above, these facilities have the ability to produce up to 200 GWh/year net of energy (200,000 MWh/year). Energy producing facilities would be regulated by various agencies depending on the technology to produce the energy and the maximum output. These facilities may be subject to review and regulation by the California Energy Commission, the California Public Utilities Commission, the SCAQMD, and the City of Los Angeles. With incorporation of **MM UTIL-6**, impacts are considered ***less than significant with mitigation***.

<u>Natural Gas</u>

Consumption of natural gas at future downstream facilities may include comfort heating of the administrative and support buildings. Natural gas service in the City is provided by SoCalGas. Existing natural gas infrastructure (transmission lines and high distribution lines) are provided throughout the City. As summarized in Section 3.7, Energy, SoCalGas forecasts total gas demand to decline at an annual rate of 1.5% each year. Based on declining natural gas usage and the relatively little natural gas expected to be consumed at downstream facilities, the Program would not exceed the capacity of available natural gas supplies. However, depending on the selected location, future downstream facilities may potentially require new conveyance systems to supply the site with natural gas. The exact locations of natural gas infrastructure would be confirmed during the design and review process. Any need for infrastructure upgrades would be accomplished through the required design review and approval of natural gas plans. Impacts from such construction or relocation work would be anticipated to be less than significant based on their construction and installation in existing right-of-way and other public easements that have been previously disturbed and based on existing regulatory compliance measures and review and oversight by relevant local and state agencies. Additionally, any project to install or relocate facilities would be subject to environmental review and necessary mitigation to address site-specific conditions. Impacts would be ***less than significant***.

<u>Telecommunications Facilities</u>

The City is urbanized with existing above ground and below ground telecommunications infrastructure. Operation of new downstream facilities would negligibly increase demand for existing telecommunications. Individual telecommunication providers provide planned improvements throughout their service areas, which are generally limited to small scale upgrades and new facilities in existing developed areas. Construction of additional telecommunications facilities or upgrades to existing facilities to meet demands of future downstream facilities would be undertaken by private telecommunication service providers in accordance with applicable federal, state, and local regulations. Impacts from such construction or relocation work would be anticipated to be less than significant based on their construction and installation in existing right-of-way and other public easements, or incorporation into existing buildings or structures that are on previously disturbed land and based on existing regulatory compliance measures and review and oversight by relevant local and state agencies. Additionally, any project to install or relocate facilities would be subject to future environmental review and necessary mitigation to address site-specific conditions. Impacts would be ***less than significant***.

Impact Criterion b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

CONSTRUCTION

Construction of proposed Program facilities would require water during construction for purposes of dust control, concrete-mixing, and other general construction activities. The water demands for construction activities would likely be met using potable water sourced from fire hydrants serviced by LADWP or other existing LADWP connections. New or expanded water supply entitlements would not be required during construction of downstream facilities. Impacts would be ***less than significant***.

OPERATION

Total water demand projected by the LADWP 2020 Urban Water Management Plan accounts for growth within its jurisdictional boundaries, which is based on SCAG's demographic data and the 2020-2045 RTP/SCS, which would include the cumulative projects. The LADWP is projected to supply 675,800 acre-feet per year during a period of multiple dry years by 2030, which would accommodate the citywide estimated water demand of 526,600 acre-feet per year in addition to the water demand associated with downstream facilities. Per the 2020 Urban Water Management Plan, based on current water supplies, planned future water conservation and planned future water supplies during dry years, average years, and multiple dry years, LADWP would be able to reliably provide water to meet the demands of the City for the 25-year planning horizon identified in the 2020 Urban Water Management Plan, including any future development of downstream facilities through the year 2045. However, per the requirements of

SB 610 and Section 10912 of the California Water Code, industrial, manufacturing, or processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area are subject to CEQA requiring submittal of a water supply assessment. Accordingly, implementation of **MM UTIL-4** would ensure that a water supply study is conducted for downstream projects. If the proposed downstream facility is determined to exceed the projected water supply with implementation of water conservation measures per **MM UTIL-3**, then the facility must be redesigned so as not to exceed supply or must be re-sited to a location in which it would not exceed supply. Therefore, impacts on water supply would be ***less than significant with mitigation***.

Impact Criterion c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

CONSTRUCTION

As discussed for Impact Criterion (a) above, facility construction would result in a minimal amount of wastewater generated by construction workers and likely collected by portable toilet facilities. All waste generated in portable toilets would be collected by a permitted portable toilet waste hauler that has been appropriately permitted by the RWQCB. Impacts would be considered ***less than significant***.

OPERATION

As discussed for Impact Criterion (a) above, estimated wastewater discharge for downstream facilities ranges from 0.1 MGY to 14 MGY (275 to 38,355 gallons per day). Depending on the location within the City, the facility would connect to one of the three separate sanitary sewer systems (i.e., Hyperion System, Terminal Island System, and Los Angeles Regional System [Harbor Gateway]). Operation of the City's wastewater treatment facilities must be consistent with requirements applicable to the wastewater treatment plan prepared for each facility, the LARWQCB, and the City's NPDES permit. LAMC Section 64.15 requires the City to perform a Sewer Capacity Availability Request to determine if there is adequate capacity existing in the sewer collection system to safely convey the newly generated sewage to the appropriate sewage treatment plant. As summarized above, estimated wastewater generation at Anaerobic Digestion Facilities and Aerobic Composting/Mulching Facilities may exceed 10,000 gallons per day. Based on the results of the Sewer Capacity Availability Request, additional capacity of LASAN's wastewater system may be required to accommodate the new downstream facility. This is considered a potentially significant impact. Implementation of **MM UTIL-5** would require that a Wastewater Services Information request is performed to determine if the proposed downstream facility would exceed the capacity of existing wastewater treatment facilities. For proposed downstream projects that are determined to have the potential to exceed the capacity of the wastewater system, the downstream facility shall be redesigned such that wastewater generation is reduced to below the threshold for which capacity of the wastewater system would need to be expanded or the facility would need to be re-sited to an area in which the wastewater system capacity would not be exceeded. Therefore, impacts to wastewater during operation would be ***less than significant with mitigation***.

Impact Criterion d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

CONSTRUCTION

Construction of downstream facilities would generate solid waste, potentially including excavated soils removed during construction. Excavated soils would be stockpiled and reused on-site to the extent feasible to minimize the need for disposal. In addition, excavated clean soil that is not reused on-site would be diverted to the existing market as clean reusable soil.

Demolition of existing structures may also be required for construction of future downstream facilities. Depending on the size of the existing structures to be removed, the demolition of structures may generate a substantial volume of demolition debris. The disposal of demolition waste would contribute to the diminishing available landfill capacity. Clean and recyclable metals recovered from the demolition debris would be diverted to authorized recyclers for recovery and reuse (i.e., sold as valuable scrap); therefore, they would not burden existing landfills. A private contractor who would haul the waste to a local landfill for disposal would export non-recyclable construction waste for the project.

LASAN currently disposes of non-hazardous refuse at the privately-owned Sunshine Canyon Landfill. It is anticipated that non-hazardous demolition debris would primarily be delivered to Sunshine Canyon Landfill although LASAN also disposes waste at several other landfills throughout Los Angeles County, such as the Antelope Valley, Calabasas, Chiquita Canyon, Lancaster Hills, Puente Hills, and Scholl Canyon landfills, as well as the Southeast Resource Recovery Facility. As of December 31, 2019, the estimated remaining permitted capacity of solid waste disposal facilities in Los Angeles County is 148.4 million tons (184.3 million cubic yards) (Los Angeles County 2020). Although the quantity of demolition material is not known at this time, it is expected that total demolition debris to be delivered to a landfill would be less than 1,000,000 cubic yards. As such, the landfills would have sufficient capacity to receive solid waste generated during construction of downstream facilities. Implementation of **MM UTIL-2** and **MM UTIL-3** would reduce the amount of solid waste expected to be generated by construction and minimize the need for solid waste disposal. Further, all applicable local, state, and federal regulations and statutes would be followed throughout operation. With implementation of **MM UTIL-2** and **MM UTIL-3**, impacts to landfill capacity during construction would be ***less than significant with mitigation***.

OPERATION

The Program includes numerous measures to reduce or eliminate the production and use of single-use plastic products and encourage reuse or recycling of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and furthering the City's waste reduction and recycling goals. Therefore, expansion of solid waste diversion facilities would increase the capacity for the City to divert solid waste from landfills and would result in a ***beneficial impact***.

Impact Criterion e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

CONSTRUCTION

Construction of downstream facilities would generate solid waste, including excavated soils removed during construction of each facility. A significant impact could occur if the construction of the downstream facility would conflict with any statutes and regulations governing solid waste. The City has enacted numerous waste reduction and recycling programs to comply with the California Integrated Waste Management Act (AB 939), which requires every city in California to divert at least 50% of its annual waste, and be consistent with AB 341 which sets a 75% recycling goal for California. Further, the City has adopted a Citywide Construction and Demolition Waste Recycling Ordinance that requires all mixed construction and demolition waste generated within City limits be taken to City certified Construction and Demolition waste processors. The handling of all debris and waste generated during construction would be required to be taken to a certified Construction and Demolition waste processor. The project development would be required to comply with all other federal, state, and local statutes and regulations related to solid waste. Therefore, impacts related to conflict with statutes and regulation governing solid waste generated during construction would be ***less than significant***.

OPERATION

The Program includes numerous measures to reduce or eliminate the production and use of single-use plastic products and encourage reuse or recycling of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and furthering the City's waste reduction and recycling goals. Future downstream facilities may be required to meet the need for additional waste that would be diverted from landfills. Operation of downstream waste diversion facilities would be consistent with the California Integrated Waste Management Act (AB 939) requirement to divert at least 50% of its annual waste and be consistent with AB 341 which sets a 75% recycling goal for California. Further, the City has adopted a Citywide Construction and Demolition Waste Recycling Ordinance that requires all mixed construction and demolition waste generated within City limits be taken to City certified Construction and Demolition waste processors. Installation of Construction and Demolition Materials Processing Facilities would be consistent with this requirement. Further, the project development would be required to comply with all other federal, state, and local statutes and regulations related to solid waste. Therefore, operation of future downstream facilities would be considered a ***beneficial impact***.

MITIGATION MEASURE(S)

MM UTIL-1: Underground Utilities Search. During design and prior to construction of Program facilities, LASAN shall conduct an underground utilities search and coordinate with all utility providers that operate in the same public rights-of-way impacted by construction activities. LASAN shall ensure that any temporary disruption in utility service caused by construction is minimized and that any affected parties are notified in advance.

MM UTIL-2: Construction Waste Reduction. Program facility design and construction methods that produce less waste or that produce waste that could be recycled or reused more readily, shall be encouraged.

MM UTIL-3: Water Conserving Design. Future processing facilities shall incorporate water conservation design features. These features may include, but are not limited to, the following:

- Landscaping plans shall incorporate planting of water-efficient, well-adapted, and/or native shrubs, trees, and grasses (i.e., drought and heat tolerant).
- Use of recycled water as landscaping irrigation to the maximum extent practicable.

- Use high-efficiency/low flow toilets and sink faucets.
- If truck washing will occur on-site, a water recycling system shall be implemented to reduce water demand.

MM UTIL-4: Water Supply Assessment. Development applications for future downstream facilities greater than 40 acres of land, having more than 650,000 square feet of floor area, or employing more than 1,000 persons shall include a water supply assessment. The water supply assessment shall be prepared by the water agency serving the facility and address: (1) document wholesale water supplies; (2) identify and quantify the existing and planned sources of water availability to the water supplier in five-year increments for the 20-year projection. For each identified supply, the assessment shall detail the quantity available and whether it is a water supply entitlement, water right, or water service contract; (3) document the project demand; (4) document dry year supplies; (5) document dry year demand; and (6) determine if projected water supply is sufficient or insufficient for the proposed facility. If the projected water needs of the facility exceed the projected water supply, then the facility shall be redesigned so as not to exceed the water supply or shall be re-sited to a location with a sufficient water supply.

MM UTIL-5: A Wastewater Services Information (WWSI) Request. A WWSI request shall be performed to verify the sewer capacity of the adjacent sewer mains. This preliminary evaluation shall review potential impacts to the wastewater system for the project and determine cumulative impacts and guide the planning process for any future sewer improvement projects needed to provide future capacity as the City grows and develops. For proposed downstream projects that are determined to have the potential to exceed the capacity of the wastewater system, the facility shall be redesigned such that wastewater generation at the facility is reduced to below the threshold for which capacity of the wastewater system would need to be expanded or the downstream facility shall be re-sited.

MM UTIL-6: Energy Efficient Design. Future processing facilities shall be required to incorporate energy efficient design features. These features shall include, but are not limited to, the following:

- Energy efficient light fixtures
- Energy efficient equipment/machinery
- Alternative energy source (i.e., solar power, wind power, thermal).

3.21 Wildfire

This section describes the existing wildfire of the City; identifies applicable federal, state, and local regulations; and analyzes the potential impacts of the Program and alternatives on wildfire in the City. Table 3.21-1 summarizes impacts on wildfire that could result from implementation of the Program or alternatives.

Table 3.21-1 Summary of Wildfire Impacts

Would the Program:	Impact Determination	Mitigation Measure(s)
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Upstream: No impact	None
	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

3.21.1 Existing Conditions

The State of California has seen a large increase in frequency and size of wildfires in the past two decades. Ten of the largest California wildfires have occurred in the last 20 years, five of which occurred in 2020. Locally, there have been brushfires in the City such as the La Tuna, Creek, and Skirball fires (LAFD n.d.).

Public Resources Code, Section 4126 classifies lands that are state and privately-owned forest, watershed, and rangeland as State Responsibility Areas (SRAs), in which the Department of Forestry and Fire Protection (CAL FIRE) is the primary emergency response agency responsible for fire suppression and prevention. CAL FIRE is required to map Fire Hazard Severity Zones (FHSZs) in SRAs based on factors such as fuel, slope, and fire weather to identify the degree of fire hazard throughout California. FHSZs are classified as moderate, high, or very high. SRAs, by definition, do not include any lands within city limits. Local Responsibility Areas (LRAs) are lands where the local government provides fire protection services instead of state or federal entities. CAL FIRE provides FHSZ classification recommendations for LRAs but the responsibility for mapping LRAs lies within the local jurisdiction responsible for fire management and control. The Program Area is located entirely with the LRA (CAL FIRE 2023).

The LAFD is responsible for fire and emergency response within the LRA (i.e., the City). Approximately 19% of calls to LAFD in 2022 were related to fire (LAFD 2023).

As shown in Figure 3.21-1, large portions of the Program Area are within Very High FHSZs (VHFHSZs) in the LRA. The VHFHSZ comprises most of the hilly and mountainous regions of the City of Los Angeles. It includes portions of the following communities: Baldwin Hills, Bel Air Estates, Beverly Glen, Brentwood, Castellammare, Chatsworth, Eagle Rock, East Los Angeles, Echo Park, El Sereno, Encino, Glassell Park, Granada Hills, Hollywood, Lake View Terrace, Los Feliz, Montecito Heights, Monterey Hills, Mount Olympus, Mount Washington, Pacific Palisades, Pacoima, Palisades Highland, Porter Ranch, San Pedro, Shadow Hills, Sherman Oaks, Silver Lake, Studio City, Sunland, Sun Valley, Sylmar, Tarzana, Tujunga, West Hills, Westwood, and Woodland Hills (City of Los Angeles 2021).

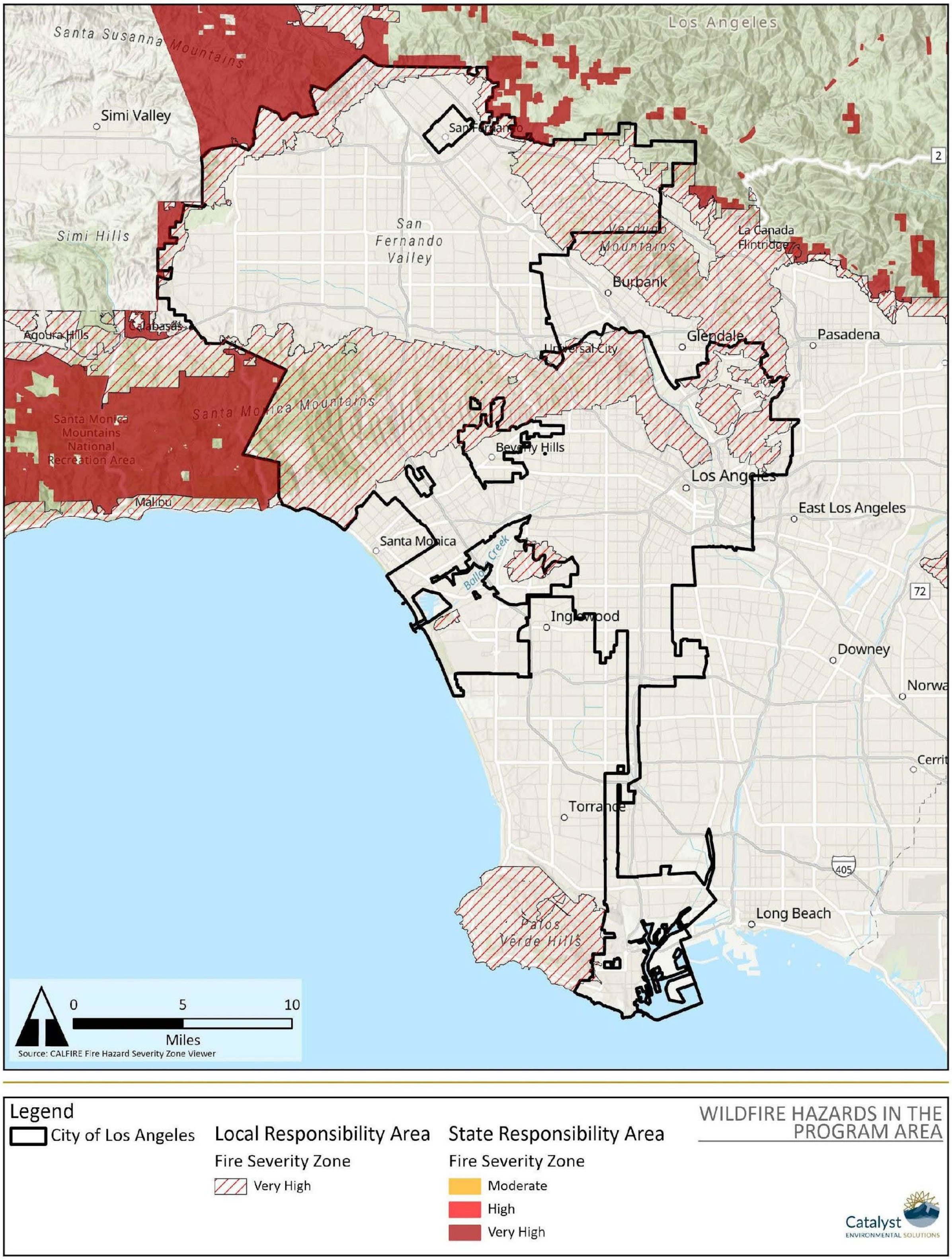


Figure 3.21-1. Fire Hazard Severity Zones in the City

3.21.2 Regulatory Framework

3.21.2.1 Federal

There are no federal regulations related to wildfire that are applicable to the Program.

3.21.2.2 State

Wildland fire protection in California is the responsibility of the local, state, or the federal government depending on the jurisdiction where the fire event is located. The Local Responsibility Areas include incorporated cities, unincorporated county areas, cultivated agriculture lands, and portions of the desert. Local Responsibility Area fire protection is typically provided by county fire departments, city fire departments, fire protection districts, and by CAL FIRE under contract to local government. The SRA is a legal term defining the area where the state has financial responsibility for wildland fire protection.

3.21.2.2.1 California Fire Code (California Code of Regulations Title 24, Part 9)

The California Fire Code, part of the CBC, establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The California Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the California Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The California Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

3.21.2.2.2 California Building Code

The CBC includes regulations that are consistent with nationally recognized standards of good practice, intended to facilitate protection of life and property. Among other things, its regulations address the mitigation of the hazards of fire explosion, management and control of the storage, handling and use of hazardous materials and devices, mitigation of conditions considered hazardous to life or property in the use or occupancy of buildings, and provisions to assist emergency response personnel.

Chapter 7 of the CBC details the materials, systems, and assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area. A Wildland-Urban Interface Area is defined in Section 702A as a geographical area identified by the areas of fire hazard severity in accordance with PRC Sections 4201 through 4204 and California Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.

3.21.2.3 Local

3.21.2.3.1 City of Los Angeles General Plan

Safety Element

Goal 1: A city where potential injury, loss of life, property damage and disruption of the social and economic life of the City due to hazards is minimized.

- Objective 1.1: Implement comprehensive hazard mitigation plans and programs that are integrated with each other and with the City's comprehensive emergency response and recovery plans and programs.
    - Policy 1.1.3: Facility/Systems Location and Maintenance. Locate new critical facilities and infrastructure outside of hazard areas, especially VHFHSZs, when feasible. If no feasible alternative site exists, ensure that these facilities incorporate all necessary protections to allow them to continue to serve essential community needs during and after disaster events. Provide redundancy (back-up) systems and strategies for continuation of adequate critical infrastructure systems and services so as to assure adequate circulation, communications, power, transportation, water and other services for emergency response in the event of disaster related systems disruptions and the growing climate emergency.
    - Policy 1.1.6: State and Federal Regulations: Assure compliance with applicable State and federal planning and development regulations. Regularly adopt new provisions of the California Building Standards Code, Title 24, and California Fire Code into the LAMC to ensure that new development meets or exceeds Statewide minimums. Ensure new development in VHFHSZs adheres to the California Building Code, the California Fire Code, Los Angeles Fire Code and California Public Resources Code. Facilitate compliance with new standards for existing non-conforming structures and evacuation routes.
    - Policy: 1.1.8: Land Use. Consider hazard information and available mitigations when making decisions about future land use. Maintain existing low density and open space designations in Very High Fire Hazard Severity Zones. Ensure mitigations are incorporated for new development in hazard areas such as VHFHSZs, landslide areas, flood zones and in other areas with limited adaptive capacity.

GOAL 2: Emergency Response. A city that responds with the maximum feasible speed and efficiency to disaster events so as to minimize injury, loss of life, property damage and disruption of the social and economic life of the City and its immediate environs.

- Objective 2.1: Develop and implement comprehensive emergency response plans and programs that are integrated with each other and with the City's comprehensive hazard mitigation and recovery plans and programs.
    - Policy 2.1.6: Standards/Fire. Continue to maintain, enforce and upgrade requirements, procedures and standards to facilitate more effective fire suppression and safety.

    A. Enforce peak water supply / fire flow requirements and ensure that new development is able to sufficiently source water, including in VHFHSZs.

B. Enforce minimum roadway widths and clearances for evacuation and fire suppression.

C. Maintain special fire-fighting units at the Port of Los Angeles, Los Angeles International Airport, and Van Nuys Municipal Airport capable of responding to special emergencies unique to the operations of those facilities.

D. Coordinate with CALFIRE, local fire agencies, fire safe councils, private landowners, and other responsible agencies to identify the best method(s) of fuel modification to reduce the severity of future wildfires, including: Prescribed fire; Forest thinning; Grazing; Mechanical clearing; Hand clearing (piling, burning/chipping); Education; and Defensible space.

E. Maintain mutual aid or mutual assistance agreements with local fire departments to ensure an adequate response in the event of a major earthquake, wildfire, urban fire, fire in areas with substandard fire protection, or other fire emergencies.

3.21.2.3.2 Los Angeles Municipal Code

The City of Los Angeles Fire Code, Article 7, Chapter V of the Los Angeles Municipal Code (LAMC), consists of the California Fire Code with Los Angeles–specific amendments that are further restrictive. The Fire Code establishes the minimum requirements consistent with nationally recognized good practices for providing a reasonable level of life safety and property protection for the hazards of fire, explosion, panic, or dangerous conditions in new and existing buildings, structures, or premises. The Fire Code also establishes requirements to provide a reasonable level of safety to firefighters and emergency responders during emergency operations. Section 57.322 of the City of Los Angeles Fire Code specifies that owners of property located in the VHFHSZ shall maintain their property in accordance with the Fire Code. Year-round compliance shall be maintained as described below on all native brush, weeds, grass, trees, and hazardous vegetation within 100 feet of any structures/buildings, whether those structures are on the owner's property or adjoining properties, and within 10 feet of any combustible fence or roadway/driveway used for vehicular travel. Brush clearance requirements per the Fire Code include the following:

- Areas within 100 feet of structures and/or 10 feet of roadside surfaces or combustible fence: Grass shall be cut to 3 inches in height. Native brush shall be reduced in quantity to 3 inches in height. This does not apply to individual native shrubs spaced a minimum of 18 feet apart, provided such shrubs are trimmed up from the ground to 1/3 of their height with all dead material being removed.
- For trees taller than 18 feet and within 100 feet of any building or structure or within 10 feet of any highway, street, alley, or driveway, trim lower branches so no foliage is within 6 feet of the ground, and remove all dead material. For trees and shrubs less than 18 feet, remove lower branches to 1/3 of their height, and remove all dead material.
- Trees shall be trimmed up so the foliage is no closer than 10 feet from the outlet of a chimney.
- All roof surfaces shall be maintained free of substantial accumulation of leaves, needles, twigs, and any other combustible matter. Maintain 5 feet of vertical clearance between roof surfaces and portions of overhanging trees.
- All cut vegetation and debris shall be removed in a legal manner. Cut vegetation may be machine processed (i.e., chipped) and spread back onto the property at a depth not to exceed 3 inches within

30 feet of structures and 6 inches beyond 30 feet of structures. In addition, spread material shall not be placed within 10 feet of any usable roadside (in accordance with Fire Prevention Bureau Procedure No. 25).

Section 3308 of the Fire Code also requires that the owner or owner's authorized agent shall be responsible for the development, implementation, and maintenance of a written plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration, or demolition work. The plan is required to address the requirements of Chapter 33 including and not limited to:

- No driving (cars, trucks, or similar) over unmaintained dry vegetation shall occur.
- Vehicles shall be parked a minimum of 10 feet from vegetation as long as the vehicle is parked in an area previously cleared of vegetation.
- All construction vehicles and equipment shall carry at least one fully charged fire extinguisher. Fire extinguishers shall be of the type and size set forth in the California PRC Section 4431. Fire extinguishers shall be appropriately maintained throughout construction.
- Site activities shall be restricted during Red Flag Warning weather periods.
- Minimize combustible and flammable materials storage on-site.
- Store combustible or flammable materials that need to be on-site away from ignition sources.
- Keep evacuation routes free of obstructions.
- Smoking and open fires shall be prohibited for all personnel at the site during Program activities.

3.21.3 Impact Assessment

3.21.3.1 Significance Criteria

The City reviewed Appendix G of the CEQA Guidelines to determine whether the Program would result in significant impacts related to wildfire[34]. For potential Program sites located in or near SRAs or lands classified as VHFHSZs, the Program would have a significant impact to wildfire if the Program would:

a. Substantially impair an adopted emergency response plan or emergency evacuation plan.
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire.
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

[34] The L.A. CEQA Thresholds Guide does not address wildfire impacts.

3.21.3.2 Program

3.21.3.2.1 Upstream Measures

Impact Criterion a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

The Program's upstream measures would not result in any construction or ground-disturbing activities that would impair an adopted emergency response plan or emergency evacuation plan. Therefore, there would be ***no impact to*** Impact Criterion (a).

Impact Criterion b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?

Impact Criterion c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Impact Criterion d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The Program's upstream measures would not result in any construction or ground-disturbing activities that would result in any physical changes to the environment that would exacerbate wildfire risks or expose people or structures to a significant risk from wildland fires. Upstream measures would not require installation of any infrastructure and would not impact slope stability or drainage, and would not expose people or structures to significant risks. Therefore, the upstream measures would have ***no impact*** with regard to Impact Criteria (b)-(d).

3.21.3.2.2 Downstream Measures

Impact Criterion a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

During construction and operation of the downstream facilities, there could be temporary and permanent increases in vehicular traffic along roadways used to access the facility sites, which could affect emergency access. As part of standard development procedures, future plans for downstream facilities in VHFHSZs would be submitted for review and approval to ensure that the facility has adequate emergency access and escape routes in compliance with existing City regulations.

Construction of downstream facilities in VHFHSZs could interfere with adopted emergency response or evacuation plans as a result of temporary construction activities within rights-of-way. However, temporary construction barricades or other construction-related obstructions that could impede emergency access would be subject to the City's permitting process, which requires a traffic control plan subject to City review and approval. In addition to the required traffic control plan, implementation of **MM TR-1** requires a traffic analysis and mitigation of any identified impacts upon approval of any future facilities. Implementation of the traffic control plan would limit the extent to which construction activities would impair or physically interfere with adopted emergency response or evacuation procedures. Implementation of **MM HAZ-6** would facilitate emergency access to project sites. In addition, implementation of **MM HAZ-7** would be expected to reduce the risk of construction-related activities impairing an emergency response plan or emergency evacuation plan for those projects LAFD finds pose an unusual threat that existing regulations do not address by limiting parking on streets in areas subject to fire-hazard-related parking restrictions, limiting the amount of heavy machinery on a development site at a given time, regulating traffic related to construction and deliveries, and installing personnel to coordinate traffic to and from the development site. However, because this is a program-level analysis and cannot foresee the potential for unusual site-specific conditions, project- or road-specific conditions, installation of new downstream facilities may result in impacts related to emergency response plan or emergency evacuation plan that would be potentially ***significant and unavoidable***.

Impact Criterion b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?

While the specific locations of downstream facilities are not currently known, they would be constructed in urban areas. However, since large portions of the Program Area are within VHFHSZs, it is possible that downstream facilities could be constructed and operated within or near these areas. During construction, there would be increased ignition sources on-site including trucks and heavy construction equipment which could create sparks, be a source of heat, or leak flammable fuels and fluids.

During operation, to the extent any downstream facility is located in or near VHFHSZs or SRAs as mapped by CAL FIRE and Fire Brush Clearance Zones, regulations require fire risks be minimized during high fire season through vegetation clearance, maintenance of landscape vegetation to minimize fuel supply that would spread the intensity of a fire, compliance with provisions for emergency vehicle access, use of approved building materials and design, and compliance with LAFD hazardous vegetation clearance requirements pursuant to the Los Angeles Fire Code. Part 9 of the California Fire Code mandates minimum building requirements designed to “safeguard the public health, safety and general welfare from the hazards of fire, explosion or dangerous conditions, …and provide safety and assistance to firefighters and emergency responders.” The requirements apply to the construction, alteration, movement, or movement of buildings, in addition to repairs, operation of equipment, use and occupancy of buildings, means of egress, evacuation plans, location, maintenance, removal, and demolition of every building or structure or any appurtenances. PRC Section 4290 establishes minimum standards related to defensible space, including provisions pertaining to road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; and fuel breaks and greenbelts. Applicable sections of the PRC mandate standards for firebreaks (Section 4292) and operation of power equipment (Sections 4427, 4428, 4431) intended to minimize risks in areas subject to wildfire. Provisions in the Los Angeles Fire Code reinforce state regulations by defining standards for fire access road design (Section 503), mandating fire safety procedures for the construction of structures (Section 3301-3317), regulating the types of activities permitted within a VHFHSZ (Section 4908), and requiring property owners in a VHFHSZ clear brush and native vegetation within a 200-foot radius of buildings (Section 57.322).

The City’s extensive regulations and project review scheme would ensure that impacts related to construction and operation of a downstream facility in SRA or VHFSHZ areas exacerbating wildfire risks and resulting in risks to people and structures from pollutants would be avoided. However, based on unknown site-specific conditions or project characteristics, impacts may occur. A wildfire started due to human and equipment sources during Program activities could expose workers and any nearby residents to pollutants, which would result in a potentially significant impact. Compliance with Fire Code regulations per LAMC 57.322 and Fire Code Section 3308 would avoid or minimize the potential for construction activities to exacerbate the risk of wildfire in areas within or near a VHFHSZs. Fire protection measures would be implemented during Program design and activities as part of **MM HAZ-6** and **MM HAZ-7**. However, based on unknown site-specific hazards or project characteristics, impacts may be potentially ***significant and unavoidable***.

Impact Criterion c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Construction and operation of downstream facilities may require associated infrastructure. However, as outlined in Impact Criterion (b) above, the City's extensive regulations and project review scheme would ensure that impacts related to construction and operation of a downstream facility in SRA or VHFSHZ areas exacerbating fire risks and resulting in impacts to the environment would be avoided. However, based on unknown site-specific conditions or project characteristics for downstream facilities, potentially significant impacts may occur. Fire protection measures would be implemented during Program design and activities as part of **MM HAZ-6** and **MM HAZ-7**. However, based on unknown site-specific hazards or project characteristics, impacts may be potentially ***significant and unavoidable***.

Impact Criterion d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

As described above, the City's extensive regulations and project review scheme would ensure that impacts related to construction and operation of a downstream facility in SRA or VHFSHZ areas exacerbating wildfire risks and resulting in risks to people and structures from pollutants, flooding and landslides would be avoided. However, based on unknown site-specific hazards or project characteristics impacts may occur. Therefore, impacts are potentially significant. For downstream facilities within VHFHSZs or areas where LAFD finds it necessary on the basis that existing regulations are not adequate to avoid risk of fire based on unusual site-specific area or project characteristics, which could include slopes or drainage changes, fire protection measures would be implemented during Program design and activities as part of **MM HAZ-6** and **MM HAZ-7**. Additionally, a geotechnical report would be required for any downstream facilities that are proposed within a landslide zone. However, based on unknown site-specific hazards or project characteristics, impacts may be potentially ***significant and unavoidable***.

MITIGATION MEASURE(S)

MM TR-1: Traffic Impact Report. See Section 3.18, Transportation.

MM HAZ-6: Emergency Access. See Section 3.10, Hazards and Hazardous Materials.

MM HAZ-7: Hillside Construction Staging and Parking Plan. See Section 3.10, Hazards and Hazardous Materials.

SECTION 4 Cumulative Impact Analysis

The evaluation of cumulative impacts considers the potential impact of the Program in combination with past, present, and probable future projects that overlap in terms of the nature of the impact, the time frame, and the geographic area (e.g., a watershed or air basin). This section describes the methodology, projects considered in the cumulative impact assessment, and potential cumulative impacts that would occur if these projects were implemented along with the Program. The focus of this analysis is to identify the potential impacts of the Program that might not be significant when considered alone, but that could contribute to a significant impact when viewed in conjunction with other projects.

The upstream and downstream measures have limited overlap in their environmental impacts. Upstream impacts would be citywide or larger in geographic extent, specific to types of plastic materials and products addressed in the Program, and the cumulative impact is related to other similar regulatory programs at the state or regional geographic areas. Accordingly, the cumulative impact analysis first addresses upstream Program elements and considers the cumulative regulatory context across the state.

Downstream impacts would be local to the area that would have a new or expanded facility, and cumulative impacts would be restricted to similar construction and/or operational activity within the geographic area connected to that location.

4.1 Cumulative Impact Methodology

The CEQA Guidelines Section 15355 defines cumulative impacts as follows:

> "Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects. (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

In addition, CEQA Guidelines Section 15130(a)(1) states:

> "As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the Environmental Impact Report (EIR) together with other projects causing related impacts. An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR."

Furthermore, CEQA Guidelines Section 15064(h)(4) states:

> "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."

CEQA Guidelines Section 15130 provides two alternative approaches for analyzing and preparing an adequate discussion of significant cumulative impacts:

- the list approach, which involves listing past, existing, and probable future projects or activities producing related or cumulative impacts, including, if necessary, those projects outside the control of the lead agency; or
- the projection approach, which uses a summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions and their contribution to the cumulative effect.

4.2 Upstream Cumulative Impact Analysis

This PEIR uses the list approach for analysis of potential upstream cumulative impacts. Factors to consider when determining whether to assess a related project include the nature of each environmental resource being examined, location of the project, and type of project. For upstream cumulative impacts, legislative and regulatory programs similar in scope and geography to the Program contribute to the list of projects and activities considered for cumulative impact assessment.

4.2.1 Geographic Scope of Upstream Analysis

The upstream components of the Program, if enacted, would include policies that would be in force throughout the entire City of Los Angeles. Table 4.2-1 defines the geographic scope of the cumulative impact analysis for the resource topics that are evaluated in this chapter. For cumulative impacts related to plastics waste reduction, this section also considers reduction efforts for non-Program activities, taken together with Program plastic reduction and end-of-life impact mitigations.

Table 4.2-1. Geographic Scope for Resources with Potential Cumulative Impacts Relevant to the Proposed Program

Resource Area	Geographic Scope
Aesthetics	Citywide
Air Quality	Global, Regionwide, and air quality management/air pollution control districts for criteria pollutant emissions
Biological Resources	Citywide
Energy	Citywide
GHG Emissions	Global
Hazards and Hazardous Materials	Citywide
Hydrology and Water Quality	Citywide, under jurisdiction of Los Angeles RWQCB
Noise	Citywide
Transportation	Global for VMT and associated GHGs, Regionwide

Resource Area	Geographic Scope
Utilities and Service Systems	Citywide

4.2.2 Cumulative Upstream Projects

The cumulative environmental projects describe other upstream regulatory activities—past, existing, and probable future programs and projects—occurring in the same geographic area, same timeframe, and generating similar potential impacts on resources as the Program. The State of California, Los Angeles County, and other municipalities are also contemplating or have recently enacted plastics-related ordinances and regulations that could be considered in a cumulative context. See Appendix A for a summary of state and city regulations that are analogous to the Program. In particular, the City has enacted the following ordinances since 2013 which are considered in this cumulative impact analysis:

- Expanded Single-Use Carryout Bag Ban: Ordinance 187716 (2022)
- Expanded Polystyrene Ban: Ordinance 187717 (2022)
- Zero Waste City Facilities and Events on City Property: Ordinance 187718 (2022)
- Disposable Foodware Accessories on Request: Ordinance 187030 (2021)
- Plastic Straws on Request: Ordinance 186028 (2019)
- Single-Use Carryout Bag Ban: Ordinance 182604 (2013).

For the potential for future legislative and regulatory action, the types of past, existing, and probable future increase in the use and disposal of single-use plastics provides an indication of the likelihood of growth in these actions, including non-Program elements. Single-use plastic demand is expected to generally track with population growth and has quadrupled since 1980 due to emerging markets and advancements in manufacturing. With an abundance of plastic use and the subsequent rise of plastic in the environment, special concern has been placed on the concentration of microplastics in aquatic systems. California's beaches and larger hydrological systems uphold the state's aesthetic and recreational value to residents and visitors, making the cumulative impact of plastic waste one that harms the natural and economic prosperity of not just Los Angeles, but also the state. The presence of microplastics in freshwater environments has been correlated with urban land use and population density with temporal drivers including stormwater runoff (Talbot and Chang 2022). California is the most populous state in the nation, and its population is also highly urbanized – 94% of the population lives in urban areas, while only 5% of California's lands are urban – therefore, the population is both highly concentrated and unevenly distributed. About 50% of the population resides in four counties: Los Angeles, Orange, San Diego, and San Bernardino (California Department of Finance 2023). Therefore, the statewide environmental effects, both for the Program and cumulatively, are experienced primarily in southern California.

There have been many legislative and regulatory efforts carried out in jurisdictions in the vicinity of the City to reduce the numerous types of plastic pollution. For example, there are over 100 cities or counties that have a ban on EPS in the state, ranging from bans that apply only to government facilities, to bans on use in restaurants and foodware vendors, to full bans on the distribution or use of any EPS products. This range in applicability of EPS bans can challenge businesses and consumers who operate at the boundary between these cities or counties. Similarly, many nearby jurisdictions (e.g., Laguna Beach, Encinitas, Malibu, Glendale, Hermosa Beach, and Solana Beach) have passed ordinances to restrict or ban the use of lighter-than-air balloons, and the state recently passed AB 847, which will phase out electrically conductive balloons, resulting in a full ban by 2032.

At the local level adjacent to the City, the Los Angeles County Board of Supervisors adopted Ordinance 2022-0016 on April 19, 2022, which requires that single-use articles that food facilities provide to customers with ready-to-eat food, such as food containers, cups, dishes and accessories, be either compostable or recyclable by May 1, 2024. The ordinance also prohibits, effective May 1, 2023, the retail sale of various EPS products, such as coolers, packaging materials, single-use articles such as cups, plates, and pool toys, unless the products are encased in a durable material. Additionally, it requires full-service restaurants to use reusable foodware for dine-in customers.

At the state level, the implementation of SB 54[35] (Plastic Pollution Prevention and Packaging Producer Responsibility Act) (see Appendix A, Section 1.1.1.5 for a full description of the act and implementing regulations) has the potential to change the landscape of plastics manufacturing, disposal, and recycling in California as various parts of the act are phased in over the next decade. SB 343 (Truth in Labeling for Recyclable Materials) works in tandem with SB 54. SB 54's goal is that 100% of single-use packaging will eventually be recyclable or compostable by 2032. SB 54 and SB 343 are already supporting each other in this regard, by evaluating the existing recyclability of material categories, and requiring products to be advertised as such. SB 54 is a fundamentally downstream program; it does not include any bans aimed at keeping certain single-use plastic products from entering the use and disposal streams. Rather, SB 54 seeks to manage single-use plastic in such a way that, ultimately, 100% of it will be recyclable or compostable. SB 54 defines which products are or could be recyclable, and then provides requirements to ensure recyclability and decrease plastic waste through EPR for specific plastic resin types, not products.

SB 54's use of EPR is to require all producers of materials included in the "covered materials categories" to buy in as a member of the Producer Responsibility Organization (PRO) in the state or participate as independent producers. The bill would require the PRO, commencing in the 2027 calendar year, and until January 1, 2037, to remit a $500,000,000 surcharge each year to the California Department of Tax and Fee Administration to be deposited into the California Plastic Pollution Mitigation Fund (created by SB 54), and would outline requirements applicable to the collection and administration of the surcharge. In addition, the PRO would collect up to $150,000,000 from plastic resin manufacturers who sell plastic covered material to producers who are participants of the PRO.

The California Plastic Pollution Mitigation Fund would be spent by state agencies for purposes relating to mitigating the environmental impacts of plastic. SB 54 also requires the PRO to pay a charge named the "California circular economy administrative fee" to CalRecycle and would require the department to set the charge at an amount adequate to cover its and any other state agencies' costs of implementing and enforcing the comprehensive statutory scheme.

[35] CalRecycle, Division of Circular Economy. Plastic Pollution Prevention and Packaging Producer Responsibility Act Regulations, proposed draft regulatory text, CCR Title 14 Division 7, Chapter 11.1, December 2023. 115pp.

SB 54 would also impose a new state-mandated local program that would require that local jurisdictions such as the City and recycling service providers include in their collection and recycling programs covered material contained on the lists published by CalRecycle.

The City's Comprehensive Plastics Reduction Program takes a different but complementary approach to extend the measures in SB 54 to include specific items and programs that LASAN addresses. While SB 54 addresses plastic material type and form through recycling, the City's Program takes a product-specific approach. For example, SB 54 considers many plastic items smaller than 2 inches in diameter to be recyclable; these items are allowed for use and would be recycled by resin type. However, in the City, items this small are not separable and therefore do not enter the recycling stream. For these items that cannot be recycled in the City, the product use is banned; the items would not enter the use stream in the first place. Another difference is that SB 54 includes specific exemptions. For example, SB 54 exempts single-use plastic water bottles and all bottles subject to the existing CalRecycle Beverage Container Recycling Program and the CRV from the requirements. The City's Program would seek to eliminate single-use plastic bottles from the system. Therefore, the City's Program would complement the requirements of SB 54 by either banning certain single-use plastic items, or have focused EPR programs for specific products (such as small single-use beverage pods) that are not captured by the City's material recovery facilities.

In addition to SB 54, state agencies and the legislature are active in proposing new regulations and legislation that seeks to reduce plastic waste, reduce the harm caused by certain plastic products, establish EPR programs, and create a more circular economy for goods in the state. For example, effective October 1, 2023, DTSC has identified 6PPD (N'-phenyl-p-phenylenediamine), a chemical present in motor vehicle tires that readily reacts to form another chemical known to endanger California waters and kill threatened and endangered salmon, as a new priority product. The new regulation requires manufacturers of motor vehicle tires that contain 6PPD for sale in California to identify their products as containing 6PPD by November 30, 2023, and proof that they are phasing out the chemical by March 29, 2024. As another example, AB 888 prohibits the sale in California of personal care products, such as soap, shampoo and toothpaste, that contain plastic microbeads. The ban took effect on January 1, 2020, and targets products designed to "rinse off." Microbeads are a source of microplastic pollution that is particularly difficult to address, as the tiny pieces of plastic easily slip through wastewater treatment plants and make their way into the ocean, where they can harm marine life.

While it is not possible to identify possible future plastics and single-use product regulations, it is clear that regulatory actions that approach plastic waste from a source reduction and EPR standpoint locally and in the state are growing over time. Shifts in consumer behavior are also anticipated to occur over time as regulatory measures supporting circular economy principles are enacted and additional education and outreach efforts are implemented.

4.2.3 Resource Areas Without Potential for Upstream Cumulative Impacts

Table 4.2-2 summarizes the environmental resource categories that do not have the potential for significant cumulative impacts and the rationale for this determination.

Table 4.2-2. Resource Topics Dismissed from Further Consideration in the Upstream Cumulative Impacts Analysis

Resource Topic Not Discussed Further	Rationale
Agricultural and Forestry Resources	As discussed in Section 3.2, the upstream measures of the proposed Program would not affect land use and planning; therefore, no cumulative impacts would occur.
Cultural Resources	As discussed in Section 3.6, the upstream measures of the proposed Program would not affect cultural resources; therefore, no cumulative impacts would occur.
Geology and Soils	As discussed in Section 3.8, the upstream measures of the proposed Program would not affect geology and soils; therefore, no cumulative impacts would occur.
Land Use and Planning	As discussed in Section 3.12, the upstream measures of the proposed Program would not affect land use and planning; therefore, no cumulative impacts would occur.
Mineral Resources	As discussed in Section 3.13, the upstream measures of the proposed Program would not affect mineral resources; therefore, no cumulative impacts would occur.
Population and Housing	As discussed in Section 3.15, the upstream measures of the proposed Program would not affect population and housing; therefore, no cumulative impacts would occur.
Public Services	As discussed in Section 3.16, the upstream measures of the proposed Program would not affect public services; therefore, no cumulative impacts would occur.
Recreation	As discussed in Section 3.17, the upstream measures of the proposed Program would not affect recreation; therefore, no cumulative impacts would occur.
Tribal Cultural Resources	As discussed in Section 3.19, the upstream measures of the proposed Program would not affect tribal cultural resources; therefore, no cumulative impacts would occur.
Wildfire	As discussed in Section 3.21, the upstream measures of the proposed Program would not affect wildfire risks; therefore, no cumulative impacts would occur.

4.2.4 Resource Areas with the Potential for Upstream Cumulative Impacts

This section considers the potential cumulative impact of upstream Program activities, taken together with the non-Program regulatory actions by the state, City of Los Angeles, and Los Angeles County and the expected trends in the regulatory environment summarized in the previous section. The analysis is organized by resource category. Section 6 (Other CEQA Concerns) evaluates the proposed Program to determine whether it would result in significant unavoidable impacts to any resources that may contribute to potential cumulative impacts.

With respect to consideration of cumulative impacts that are significant even without any contribution from the Program, the CEQA Guidelines Section 15064(h)(4) states:

> "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."

In this analysis, only those Program impacts with the potential for cumulative impacts are addressed. None of the upstream Program elements require mitigation. All impacts are either beneficial, no impact, or less than significant impact. No new mitigation measures are identified for cumulative upstream impacts.

4.2.5 Beneficial Cumulative Impacts: Aesthetics and Biological Resources

The Program's upstream measures would have largely beneficial impacts on aesthetic and biological resource areas due to the reduction of trash, litter, and plastics released into the environment. Program elements that would not have a substantive impact on aesthetics or biological resources are determined to have less than significant impacts (see Table 3.2-2 and Table 3.5-2). Cumulatively, the plastics reduction measures in the Program and at the State level and regional level are similar in nature, although with a greater EPR component at the state level. SB 54 and the Program would work together in a complimentary manner. Cumulatively, there would be aggregate beneficial impacts to these resource categories due to reduction in trash, pollution, and exposure to littered items in the environment.

4.2.6 Air Quality

The cumulative air quality impacts of the regulatory programs include global, regional, and/or local effects. The manufacturing process of alternative products such as paper, glass, aluminum, or other plastic products can vary as would the associated air emissions. These would be dependent on the manufacturing process, input materials, and origin of the raw materials anywhere in the world. By eliminating the use of certain products, the Program would result in less manufacturing of the banned products but would increase the manufacture of substitute products. Life cycle emissions include indirect emissions associated with materials manufacture. These indirect emissions involve numerous parties, each of which is responsible for emissions of their particular activity. Because the origin of the raw materials purchased is unknown and specific suppliers are variable, the manufacturing information for those raw materials is also not known. For this reason, the California Natural Resources Agency (2009) found that life cycle analyses were not warranted for project-specific CEQA analysis in most situations. None of the Program elements require changes to manufacturing processes, and several types of alternate materials are available, so no specific material is required. Thus, for the purposes of analyzing cumulative air quality impacts, manufacturing emissions of criteria and toxic air pollutants are not specifically included in this analysis because information is not known and would be speculative, and the proposed Program does not propose any change to any manufacturing processes.

Accordingly, the evaluation of air quality impacts associated with implementation of upstream measures focuses on the product replacement behavior and the local change in consumption, disposal, and associated vehicle trips. The Program-level analysis in Section 3.4, Air Quality, provides an analysis of potential impacts that could result from implementation of the upstream policies and programs associated with the Program relative to air quality.

Several policies and programs may lead to product replacement behavior (e.g., alternative materials used for beverage containers, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., heavier glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown but could range from negligible, if return logistics are at locations the consumer would travel to in any case (e.g., return reusable bottles back to point of sale on their next grocery shopping trip), to a relatively minor increase (e.g., extra trips associated with dedicated return logistics).

The additional air quality effect due to state and other regulations would be complementary and additive to those of the Program, consisting of additional EPR regulatory approaches recycling mandates at the State level, and product bans from other local jurisdictions including Los Angeles County.

As discussed in detail in Section 3.4, Air Quality, which is itself cumulative in approach, the nature of these cumulative policies is such that they would not conflict with or obstruct implementation of the applicable air quality plan. The potential cumulative increase in daily VMT associated with extra trips associated with return logistics for reusable and take-back programs and/or additional trips required for transport of product replacements (e.g., water packaged in heavier glass bottles versus plastic bottles) is not expected to generate emissions above the SCAQMD mass daily thresholds. In addition, a 2020 SIP submittal from CARB to USEPA demonstrates that emissions increases from VMT growth is adequately offset by technology improvements and transportation strategies (CARB 2020). Therefore, any associated increase in VMT would not conflict with or obstruct implementation of the applicable 2022 SCAQMD AQMP. Thus, this policy would not conflict with or obstruct implementation of the applicable air quality plan, and cumulative impacts would be less than significant.

4.2.7 Energy

Energy impacts associated with the implementation of the upstream Program policies and programs together with the cumulative list of state and local programs are primarily related to the transition to alternative materials along with the change in truck trips associated with the collection and transport of recyclables, organic materials, and solid waste to the respective processing facilities and return logistics for reuse programs. As described in Section 3.7, Energy, many of the upstream measures would not result in a change in energy consumption while others may result in a shift in materials disposed as waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin.

Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., heavier glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific calculation of direct energy consumption cannot be conducted. However, as discussed in below, the nature of these cumulative policies is such that they would not result in the wasteful, inefficient, or unnecessary consumption of energy resources that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The policies in the proposed Program in addition to many state and local policies that encourage recycling, reuse, and reduction directly decrease the demand for virgin products, thus avoiding the energy associated with extraction of raw materials and transport from processing and manufacturing facilities that are likely outside of California (e.g., virgin plastic products from China). Accordingly, an increase in recycling volumes of alternative materials would not result in wasteful, inefficient, or unnecessary consumption of energy resources as compared with use of virgin materials and would be consistent with the energy policies set forth in L.A.'s Green New Deal as discussed in Section 1.3.1 (Purpose and Need). Further, the proposed ban would not conflict with the energy or GHG reduction strategies outlined in CARB's *AB-32 Scoping Plan: Achieving Carbon Neutrality by 2045* (CARB 2022). Accordingly, the cumulative impact of the Program's upstream measures and other programs would be less than significant. LCAs relevant to cumulative impacts to energy are discussed in greater detail in Section 3.7, Energy.

4.2.8 Greenhouse Gas Emissions

As with air quality and energy, the cumulative impacts analyses of bans on certain types of plastics focus on the alternative materials that replace the banned material, and as with those cumulative analyses, GHG impacts associated with the implementation of the upstream Program policies and programs are primarily related to the transition to alternative materials and associated transport requirements and end-of-life management. As discussed in more detail in Section 3.9, Greenhouse Gas Emissions, many of the cumulative policies and programs would not result in a change in GHG emissions while others may result in a shift in materials disposed as solid waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin. Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverage containers, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., heavier glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific calculation of cumulative GHG emissions cannot be conducted. However, an increase in use of refillable containers would offset the overall increase in GHG emissions associated with return logistics and/or use of alternative single-use containers. Further, the policies in the proposed Program in addition to many state and local policies that encourage recycling, reuse, and reduction directly decrease the demand for virgin products, thus avoiding the life cycle GHGs associated with extraction of raw materials and transport from processing and manufacturing facilities that are likely outside of California (e.g., virgin plastic products from China). As such, the nature of these policies is such that they would not generate GHGs, either directly or indirectly, that may have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Accordingly, the cumulative impact of the Program's upstream measures and other programs would be less than significant.

4.2.9 Hazards and Hazardous Materials

The only potential impact of the Program's upstream measures on hazards and hazardous materials would be a less than significant impact on creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. This impact is largely due to the wide range of alternative materials that could be used in place of single-use plastics (or in place of PFAS in the case of a PFAS ban), as the upstream measures do not mandate a specific alternative material to be used. Other state and regional plastics and PFAS regulations similarly target specific materials for bans but do not require the use of a specific alternative material. Therefore, an increased shift away from PFAS and single-use plastics and toward recyclable or compostable single-use products or reusable alternatives due to City, regional, and statewide requirements, would have a less than significant cumulative impact.

4.2.10 Hydrology and Water Quality

The only less than significant impact that the Program's upstream measures would have on water resources would be a potential small increase in groundwater use to wash reusable alternatives to single-use plastics (e.g., reusable personal water bottles, refillable product bottles and jugs, and reusable foodware). Other local and state Programs that require a behavioral shift from the use of single-use products to reusable products would also require washing of these products by businesses and consumers. As discussed in Section 3.11, Hydrology and Water Quality, the City derives only approximately 9% of its water supply from groundwater. Further, it is anticipated that reusable alternatives would be washed by consumers in existing dish loads and therefore, the cumulative impact of the Program's upstream measures and other programs would be less than significant.

4.2.11 Noise

Noise impacts associated with the implementation of the cumulative policies and programs are related to the change in truck trips and increase in traffic noise associated with the collection and transport of reusables, recyclables, organic materials, and solid waste to the respective processing facilities. Many of the policies and programs associated with the Program would not result in any additional truck trips (i.e., refillable plastic bottles, leashed lids, single-use plastic beverage holder rings, dine-in services, bioplastic ban, reusable foodware pilot projects, plastic tea bags, coffee/beverage pods, textile disposal policies, machine microfiber filtration, PFAS ban, plastic bag clips, silly string, sandbags, lighter-than-air balloons, and single-use e-cigarettes and vape cartridges), therefore, additional truck-related noise would not occur.

Noise associated with solid waste collection is governed by LAMC Chapter 11, Section 113.01 (Rubbish and Garbage Collection) which addresses operational hours of solid waste collection activities. Any cumulative changes to this traffic would be less than significant through compliance with this code. Noise associated with product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS) may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). It typically takes a doubling of traffic to result in an audible noise increase. In general, for the types of products identified in the cumulative projects, truck capacity would be weight limited rather than volume limited. As such, replacement behavior is not expected to result in a doubling of trips from existing distribution patterns of products identified in the cumulative projects, including SB 54 and other state laws, and other local regulations that are complementary and additive to the proposed Program. Accordingly, there would be a less than significant cumulative effect on noise.

4.2.12 Transportation

Traffic and transportation impacts associated with the implementation of the cumulative policies and programs are primarily related to the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. As discussed in more detail in Section 3.18 (Transportation), many of the cumulative policies and programs would not result in any additional truck trips while others may result in a shift in materials disposed as municipal solid waste to recyclable or compostable materials. Additional truck trips are not expected under these scenarios since trucks are assumed to already be coming to pick up the three bins and the change would be the quantity of material in each bin.

Several policies and programs would not directly result in changes to truck trips associated with green bin, blue bin, and black bin services, but may lead to product replacement behavior (e.g., alternative materials used for beverages, to-go foodware, plastic bag clips, and PFAS). These types of policies may result in changes to truck trips associated with distribution of these materials (e.g., glass-bottled beverages delivered in place of plastic-bottled beverages). Policies that require reusable products may result in additional trips associated with return logistics. At this time, the number of additional vehicle trips and their ultimate destination is unknown, thus a policy-specific traffic analysis cannot be conducted. However, the nature of these policies is such that they would not conflict with another program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. In addition, any change in the number of trips would be distributed throughout the City and would not be expected to lead to cumulative impacts at intersections or increase in traffic delay. Further, the policies in the proposed Program in addition to many state and local policies that encourage recycling, reuse, and reduction directly decrease the demand for virgin products, thus avoiding the relatively greater VMT associated with extraction of raw materials and transport from processing and manufacturing facilities that are likely outside of California (e.g., virgin plastic products from China). Accordingly, there would be a less than significant cumulative effect on transportation.

4.2.13 Utilities and Service Systems

Impacts of the upstream measures to utilities and service systems would be due to increased washing of reusable alternatives to single-use plastics, as described in Section 3.20, and these impacts would be less than significant. As discussed above in Section 5.3.8, increased water use is not anticipated to substantially increase water demand in the City nor impact water availability. Other state and regional plastics regulations that prohibit the use of single-use plastics and incentivize the use of reusable alternatives or promote recycling would similarly incrementally increase the need for water for washing. However, because the majority of new reusables are expected to be washed along with existing dish loads, it is anticipated that the cumulative impact of the Program's upstream measures and other programs on utilities would be less than significant.

4.3 Downstream Cumulative Impacts

Downstream cumulative impacts are analyzed through a summary of projections adopted in a local, regional, or statewide plan (CEQA Guidelines Section 151309(b)). The downstream cumulative impacts relate to the potential for future facilities to impact the physical environment within the geographic area for each resource (watershed, airshed, viewshed, etc.). The potential for the Program to contribute to a cumulative impact is dependent upon where future downstream facilities are located and also when they would be constructed. For this PEIR, cumulative impacts are discussed for the bounding-level case of the facility sizes specified in the analyses conducted in Section 3 (Environmental Analysis) and the mitigation measures required. Using this approach, the cumulative analysis relies on the following regional projections:

- Long-range demographic forecasts based on adopted regional plans.
- A determination of whether the long-term impacts of all related past, present, and future plans and projects would cause a cumulatively significant impact.
- A determination as to whether implementation of the proposed Program would have a "cumulatively considerable" contribution to any significant cumulative impact. (See CEQA Guidelines Sections 15130[a] and 15130[b], 15355[b], 15064[h], and 15065[c].)

The cumulative impacts analysis considers the short-term and long-term effects of the Program; these impacts may not be apparent in the near term but may evolve into beneficial or adverse impacts in the long-term. The discussion of cumulative impacts is guided by standards of practicality and reasonableness. Beneficial impacts are also considered in this analysis of cumulative impacts.

4.3.1 Summary of Projections

The analysis of downstream cumulative impacts proceeds using a "summary of projections contained in an adopted local, regional, or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative impact. Such plans may include a general plan, a regional transportation plan, or plans for the reduction of GHG emissions. A summary of projections may also be contained in an adopted or certified environmental document for such a plan" (State CEQA Guidelines Section 15130(b)).

The geographic boundary considered in the cumulative impact analysis considers the City and reflects consideration of whether the downstream elements of the Program would cause a new significant cumulative impact or result in a cumulatively considerable contribution to a previously identified significant cumulative impact included in an adopted local, regional, or statewide plan. The geographic area for air quality is larger and includes the region, and for GHG emissions are global in effect.

The cumulative impacts analysis for each resource area using the projection method considers impacts related to the general growth projected for the area as well as the policies and programs that are in place to protect, conserve, and improve environmental resources. The regional plans and programs for land use and mobility were consulted for planned future conditions. General plans prepared by the City and County, as well as SCAG's RTP/SCS, provide information on trends as well as forecasts relevant to the cumulative impacts analysis for specific disciplines.

The discussion below describes the plans, programs, and projections as well as the context in which the Program may contribute to potential cumulative impacts.

4.3.1.1 City of Los Angeles General Plan

The City of Los Angeles General Plan is a comprehensive long-range declaration of purposes, policies, and programs for development of the City. The General Plan includes a Framework Element as well as several other elements that help to guide land use and planning decisions in the City. For the purposes of the cumulative impacts analysis for the Program, the Framework Element and Mobility Plan 2035 are addressed herein.

4.3.1.1.1 Framework Element

The General Plan Framework Element (City of Los Angeles 2001) is a strategy for long-term growth that sets a citywide context for guiding updates to the community plan and citywide elements. The Framework Element does not mandate or encourage growth. Because population forecasts are estimates, it is possible that the estimated population growth may be less or more. Should the City continue to grow, the Framework Element provides a means for accommodating new population and employment growth in a manner that enhances rather than degrades the environment. Specifically, the Framework Element plans for a liveable City for existing and future residents and one that is attractive to future investment. In addition, the plan recognizes conservation of the community character of neighborhoods and commercial districts not designated as growth areas. In addition, Section 3.12, Land Use and Planning, of this document summarizes key elements of the 35 Community Plans in the City.

4.3.1.1.2 Mobility Plan 2035

Mobility Plan 2035, an element of the City of Los Angeles General Plan (City of Los Angeles 2016), provides the policy foundation for achieving a transportation system that balances the needs of all road users. The proposed Program could affect levels of transportation, and therefore this plan is relevant for future projections. The purpose of the plan is to guide future development of a citywide transportation system that provides for the efficient movement of people and goods. In 2008, the California State Legislature adopted AB 1358, the Complete Streets Act, which requires local jurisdictions to "plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways, defined to include motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation, in a manner that is suitable to the rural, suburban or urban context." Mobility Plan 2035 incorporates "complete streets" principles and lays the policy foundation for how future residents interact with their streets. Mobility Plan 2035 includes goals that define the City's high-level mobility priorities, objectives to achieve the goals, and policies to support the goals.

4.3.1.2 Los Angeles County General Plan

The Los Angeles County General Plan (County of Los Angeles 2015a) provides a policy framework and establishes a long-range vision for how and where the unincorporated areas will grow. It establishes goals, policies, and programs to foster healthy, livable, and sustainable communities. The County General Plan uses a regional strategy to guide growth in a way that plans for more efficient and sustainable land use patterns and to address climate change, mobility, and community development. The General Plan encourages development in areas with infrastructure and access to transit and discourages growth in undeveloped areas and environmentally sensitive and hazardous areas. The General Plan's growth forecast is from the SCAG 2012 RTP, which accounts for 11.35 million people in Los Angeles County (1.39 million in unincorporated areas) and 3.85 million households in Los Angeles County (405,500 in unincorporated areas) by 2035.

4.3.1.2.1 Mobility Element

The Mobility Element of the County General Plan (County of Los Angeles 2015b) provides an overview of transportation infrastructure and strategies for developing an efficient and multimodal transportation network. The Mobility Element addresses the requirements of AB 1358, which requires the County General Plan to demonstrate how the County will provide for the routine accommodation of all users of a road or street, including pedestrians, bicyclists, users of public transit, motorists, children, seniors, and those in the disability community. The element assesses the challenges and constraints of the Los Angeles County transportation system and offers policy guidance to reach the County's long-term mobility goals.

4.3.1.3 SCAG Regional Comprehensive Plan

SCAG is the federally designated metropolitan planning organization for the six-county Southern California region (i.e., Los Angeles, Orange, Riverside, San Bernardino, Ventura, Imperial). SCAG develops regional growth management plans, with the goal of providing for the efficient movement of people, goods, and information; enhancing economic growth and international trade; and improving the quality of life for the Southern California region.

The 2008 SCAG Regional Comprehensive Plan (RCP) is an action plan for implementing short-term-strategies and long-term initiatives, along with guiding principles for a sustainable and livable region (SCAG 2008). Sustainably planning for land use and housing in Southern California maximizes the efficiency of existing and planned transportation networks, provides the necessary amount and mix of housing for the growing population, enables a diverse and growing economy, and protects important natural resources. The RCP focuses on specific planning and resource management areas, including land use and housing, open space and habitat, water, energy, air quality, solid waste, transportation, security and emergency preparedness, and the economy. The RCP's Growth Management chapter addresses issues related to growth and land use and enumerates guiding principles for development that supports the overall RCP goals.

4.3.1.3.1 SCAG Regional Transportation Plan and Sustainable Communities Strategy

The 2020–2045 RTP/SCS, the most current long-range visioning plan, balances future mobility and housing needs with economic, environmental, and public health goals. The plan provides forecasts through 2045. Per the 2020–2045 RTP/SCS, Los Angeles County is expected to grow through 2045. Table 4.5-1 provides growth forecasts for population and employment.

Table 4.5-1. Growth Forecast for the County of Los Angeles

County Name	2020 Population	2045 Population	2020 Employment	2045 Employment
Los Angeles County	10,407,000	11,674,000	4,838,000	5,382,000

Source: SCAG 2020

4.3.1.4 Metro Long-Range Transportation Plan (2020)

Metro's 2009 Long-Range Transportation Plan provides a 30-year vision for Los Angeles County's transportation system to 2050. The plan identifies public transportation and highway projects, funding forecasts over a 30-year timeframe, multimodal funding availability, sub-regional needs, and performance measures (City of Los Angeles 2020).

The 2020 Long-Range Transportation Plan promotes telecommuting and/or other flexible transportation solutions to help sustain the congestion reduction and air quality benefits. Metro has constructed roughly 130 miles of fixed-guideway transit in the past 40 years. The 2020 Long Range Transportation Plan will add more than 100 miles over the next 30 years as well as invest in arterial and freeway projects to reduce congestion, such as the I-5 North Capacity Enhancements project, and bicycle and pedestrian projects to provide alternative transportation modes, such as the LA River Path and Active Transportation Rail to Rail Corridor.

4.3.1.5 2022 Air Quality Management Plan

The 2022 AQMP (SCAQMD 2022) is a regional blueprint for achieving federal air quality standards and healthful air. The SCAQMD is responsible for clean air in the SCAB. Although air quality has improved dramatically over the years, the SCAB still exceeds federal public health standards for both ozone and particulate matter and experiences some of the worst air pollution in the nation. The 2022 AQMP represents a thorough analysis of existing and potential regulatory control options; includes available, proven, and cost-effective strategies; and seeks to achieve multiple goals in partnership with other entities that promote reductions in GHGs and toxic risk. It also seeks efficiencies in energy use, transportation, and goods movement. The plan recognizes the critical importance of working with other agencies to develop funding and incentives that encourage an accelerated transition to cleaner vehicles and the modernization of buildings and industrial facilities with cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. The 2022 AQMP also includes transportation control measures developed by SCAG in the 2016-2040 RTP/SCS. The 2022 AQMP includes the integrated strategies and measures needed to address the attainment of the 2015 8-hour ozone NAAQS.

4.3.1 Aesthetics

The Program would have the potential to result in a cumulatively considerable impact on aesthetics if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in substantial damage or degradation of a designated scenic vista or state scenic highway; substantial damage or degradation of recognized or valued views—including natural views of topography, mountains, oceans, or man-made visual features—in City-adopted land use plans; or substantial damage or degradation of existing features or elements that contribute to the existing visual character or image of a neighborhood, community, or localized area. Implementation of **MM AES-1**, **MM AES-2,** and **MM AES-3** would result in siting of downstream facilities that would avoid any areas that may affect visual resources, and impacts of the Program would not be cumulatively considerable.

4.3.2 Agriculture and Forestry

As discussed in Section 3.3, Agriculture and Forestry, there is little protected farmland in the City, and it is highly unlikely that a downstream Program facility would be sited there. There is no timberland in the City. The City General Plan including the Framework element is protective of the existing culture and use of agricultural and forested areas. Depending on the location of future facilities, as well as other projects that are proposed in the vicinity, there may be a less than significant cumulative impact to agriculture resources.

4.3.3 Air Quality

The Program would have the potential to result in a cumulatively considerable impact on air quality if, in combination with cumulative plans and programs within the greater Los Angeles region, it would conflict with or obstruct implementation of the SCAQMD 2022 AQMP; generate air pollutant emissions during construction or operational activities of sufficient quantity to exceed the Air Quality Significance Thresholds established by the SCAQMD; or expose sensitive receptors to substantial TAC concentrations.

The cumulative plans and programs within the greater Los Angeles region would result in the production of significant regional or localized emissions. The regional growth that would occur over a 30-year planning horizon would increase both mobile and stationary emission sources and contribute to an adverse cumulative air quality impact. The City acknowledges that implementation of the General Plan Framework would contribute to adverse cumulative impacts on air quality (City of Los Angeles 1996). The Los Angeles County portion of the SCAB is designated nonattainment for O_3, $PM_{2.5}$, and Pb under the NAAQS and nonattainment for O_3, $PM_{2.5}$, and PM_{10} under the CAAQS. Construction of cumulative projects will further degrade the regional air quality.

Furthermore, the implementation of the transportation projects included in the 2020-2045 RTP/SCS, when taken into consideration with other development and infrastructure projects within the SCAG region and surrounding areas, would have the potential to result in a significant cumulative impact related to violating an air quality standard or contributing substantially to an existing or projected air quality violation in the short-term from construction emissions (SCAG 2020). Similarly, while the 2020-2045 RTP/SCS includes transportation projects and strategies to improve public health, it would result in a significant cumulative impact by exposing sensitive receptors to substantial pollutant concentrations that would harm public health outcomes due to placing sensitive receptors within 500 feet of freeways and high-volume roadways.

Already-imposed mitigation measures from certified EIRs prepared for cumulative projects, as well as existing regulatory programs and plan policies and strategies, would assist in mitigating these cumulative impacts. However, even with implementation of mitigation measures and existing regulatory programs construction and operational emissions from major development projects would still exceed SCAQMD significance thresholds (County of Los Angeles 2015). Therefore, emissions associated with projected growth and development would be considered a significant cumulative impact on air quality. The 2022 AQMP acknowledges that the most significant air quality challenge in the SCAB is the reduction of NO_X emissions sufficient to meet the ozone standard deadlines.

The SCAQMD has developed strategies to reduce criteria pollutant emissions, as outlined in the 2022 AQMP, pursuant to federal Clean Air Act mandates. The Program would be required to comply with all regulatory requirements and would be required by law to comply with any relevant control measures adopted by the SCAQMD as part of the AQMP. The City recognizes the importance of reducing emissions and improving air quality and would adhere to these goals and objectives.

Construction activities and long-term operation of the downstream elements of the Program would generate air pollutant emissions from mobile sources such as off-road equipment exhaust, on-road vehicle trips to and from the project site, and stationary sources associated with waste management facility operations (e.g., advanced thermal recycling units) and off-gassing of decomposing organics.

The SCAQMD approach for assessing cumulative operational impacts is based on the SCAQMD's Air AQMP forecasts of attainment of the NAAQS/CAAQS in accordance with the requirements of the federal and state Clean Air Act. This forecast also considers the SCAG's forecasted future regional growth. If a project is consistent with the regional population, housing, and employment growth assumptions upon which the SCAQMD's AQMP is based, then future development would not impede the attainment of the NAAQS/CAAQS and a significant cumulative air quality impact would not occur. Further, the SCAQMD thresholds and guidance for CEQA analysis are informed by their knowledge and understanding of air quality conditions and conformity considerations for the geographic area of their jurisdiction. In general, in the case of criteria pollutants, no single project would be sufficient in size, by itself, to result in emissions that are considered significant. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. As such, the SCAQMD's significance thresholds for regional air quality impacts are designed to establish cumulatively considerable contributions. Therefore, if a project does not exceed the identified significance thresholds for criteria pollutants, its emissions would not be cumulatively considerable. As detailed in Section 3.4, Air Quality, the modeled scenarios for downstream facilities would not exceed the regional or localized thresholds, and therefore would not be cumulatively considerable. In addition, implementation of MM AQ-1 would require development of an Air Quality Impact Analysis and implementation of emission reduction measures to further reduce the construction and operational emissions associated with future facilities to a less than significant level. The SCAQMD White Paper on Potential Control Strategies to Address Cumulative Impacts (2003) addresses cumulative impacts of air pollution and notes that projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant. Therefore, potential adverse impacts associated with the proposed Program would not be "cumulatively considerable" as defined by CEQA Guidelines Section 15064(h)(1) for air quality impacts. The court upheld the SCAQMD's approach to utilizing the established significance thresholds to determine whether the impacts of a project would be cumulatively considerable in *Rialto Citizens for Responsible Growth v. City of Rialto (2012) Cal. App. 4th 899*. Thus, it may be concluded that construction and operation of downstream facilities would not significantly contribute to an existing violation of air quality standards for regional pollutants (e.g., O_3) and would not contribute to a significant and unavoidable cumulative air quality impact.

4.3.4 Biological Resources

The Program would have the potential to result in a cumulatively considerable impact on biological resources if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS, or NMFS; substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS; substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means; interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; conflict with the provisions of an adopted local street tree preservation policy or ordinance; or conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or impact common wildlife species.

Present and future regional growth involving the construction of transportation infrastructure occurring over a 30-year planning horizon would have the potential to result in a loss of species and/or habitats and natural communities. While the City of Los Angeles Framework Plan (City of Los Angeles 2001) attempts to reduce biological effects through its policies regarding the use of open space and targeting growth within developed areas, the potential growth that may be pushed out to other areas could result in the loss of habitat for plants and animals (including some sensitive species). In this context, the Framework Plan itself is considered to generate significant cumulative impacts on biological resources. The cumulative effect of numerous small projects in natural open space would have a significant impact as the remaining habitat for plants and animals is fragmented and lost to piecemeal evaluation of potential project effects (City of Los Angeles 1996).

The County General Plan acknowledges that although any direct impacts on special-status species and the loss of sensitive habitats would be mitigated, due to the loss of common habitats and diminished resource availability, impacts on special-status species remain significant at the General Plan level, and cumulative impacts on special-status species would be cumulatively significant. Similarly, the County finds that avoidance or minimization of impacts on wildlife movement corridors and linkages may not always be feasible; therefore, the impediment of wildlife movement would be significant at the General Plan level and cumulatively significant (County of Los Angeles 2015).

Activities and projects included in the 2020-2045 RTP/SCS would include the conversion of natural landscapes containing sensitive biological resources. The incremental impacts of all of the projects and land use strategies included in the 2020-2045 RTP/SCS on biological resources would be expected to result in a significant cumulative impact because these projects would contribute to an increase in habitat fragmentation and development upon native habitats (SCAG 2020).

Any future related development within the City would be subject to all required laws, permits, ordinances, and plans to reduce impacts on biological resources. Reasonably foreseeable future programs and projects would be required to implement biological avoidance and minimization measures when obtaining relevant permits, including implementation of BMPs during construction. Future development would most likely include site-specific mitigation and be expected to comply with all applicable regulations. Development projects causing impacts on wetlands and riparian habitats would be subject to mitigation and the permit requirements of the U.S. Army Corps of Engineers, CDFW, SWRCB, and RWQCB. In addition, the policies and implementation measures within the respective cumulative plans, which aim for sustainable development, would help to preserve, replace, restore, or compensate for the loss of biological resources. Although direct impacts on special-status species and the loss of sensitive habitats would generally be mitigated on a case-by-case basis, impacts on biological resources would nonetheless be considered cumulatively significant even without the potential effects from the downstream elements of the proposed Program.

Depending on the locations of proposed new facilities necessary to support the Program, as well as other projects that are proposed in the Program, there may be a cumulative impact to biological resources. After implementation of **MM BIO-1**, the required habitat assessment would determine if potential impacts to biological resources could occur due to project implementation. **MM BIO-2** and

MM BIO-3 require sensitive community mitigation plans and worker training to avoid impacts to biological resources, respectively. However, even with incorporation of mitigation measures, the Program's downstream facilities could have a significant impact on common wildlife species. It is assumed that other projects would contain similar measures for the protection of biological resources and the Program could contribute to an already cumulatively considerable effects from other regional plans.

4.3.5 Cultural Resources

The Program would have the potential to result in a cumulatively considerable impact on cultural resources, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in: a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5; a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; or disturbance of human remains, including remains interred outside of formal cemeteries.

Historic, archaeological, and paleontological resources are important parts of the City's identity. These resources are nonrenewable and irreplaceable. Cumulative land use and transportation projects located in the Southern California region—including programs and policies implemented under the City of Los Angeles General Plan, Los Angeles County General Plan Mobility Element, and transportation development under the 2020-2045 RTP/SCS Active Transportation Plan–would have the potential to result in a cumulative impact associated with the loss of cultural resources. Due to the regional scale of the cumulative plans and programs in the Los Angeles region and the potentially large number of cultural resources that could be disturbed as a result of their implementation, a significant cumulative impact would result through the physical demolition, destruction, relocation, or alteration of a resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (County of Los Angeles 2015; SCAG 2020).

These projects included in the projection method are regulated by federal, state, and local regulations, including PRC Section 5097, Mills Act, CHSC Sections 18950–18962, and the Secretary of the Interior's Standards for Rehabilitation and Standards for the Treatment of Historic Properties, and are required to comply with the regulations. City, County, and regional goals and policies also aim to preserve and protect significant cultural resources to the extent practicable. Even with regulations in place, individual historical resources could still be affected or degraded (e.g., from demolition, destruction, alteration, structural relocation) as a result of new private or public development or redevelopment and implementation of land use strategies under cumulative plans and projects (County of Los Angeles 2015; SCAG 2020).

Notification and inventory of archeological and paleontological resources, implementation of an unanticipated discovery plan, and compliance with Public Resources Code and the California Health and Safety Code mandatory processes that are required to be followed in the event of a discovery of any human remains would help mitigate potentially significant impacts, but they are expected to remain significant when considered cumulatively due to the large number of paleontological and archaeological resources within the greater Los Angeles region and the likelihood of yielding undiscovered human remains. Therefore, impacts on paleontological and archaeological resources and disturbance of human remains would be cumulatively significant from cumulative plans and projects.

Direct impacts to cultural resources are generally site specific. Future downstream components of the proposed Program that would require earth-disturbing activities, in combination with other cumulative projects resulting from growth and development in the study area, have the potential to contribute to the already cumulatively significant effects of other regional plans and projects. Implementation of **MM CUL-1** would require pre-construction surveys and tribal monitoring and **MM CUL-2** would require the implementation of an unanticipated discoveries plan should any resource be found during construction, both of which would provide for the preservation or recovery of significant resources. Additionally, other projects in the study area are subject to similar requirements. Developments that would disturb native soils or where no previous development has occurred have the potential to disturb or destroy unknown cultural resources. The extent or significance of these resources cannot be determined until discovery during surveys and evaluation or excavation of native soils. Mitigation on a case-by-case basis would reduce impacts but the proposed Program would have a contribution to an already cumulatively considerable impact.

4.3.6 Energy

The Program would have the potential to result in a cumulatively considerable impact related to energy, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in the wasteful, inefficient, or unnecessary consumption of energy.

Cumulative growth and development in the greater Los Angeles region would result in additional energy demand, resulting in increased consumption of electricity and natural gas. The anticipated power and natural gas demands for the buildout of the City of Los Angeles Framework Plan would be considered to be cumulatively significant in the context of future growth elsewhere in Los Angeles County (City of Los Angeles 1996). Cumulative electricity demands within Los Angeles County in 2035 would total about 15.1 billion kWh per year (15,100 GWh per year), which is within Southern California Edison's demand forecast for its service area. Cumulative natural gas demands in 2035 would total about 232 million therms per year (61.6 million cf of natural gas per day), which is within the Southern California Gas Company's natural gas supply forecast. These cumulative impacts were considered to be less than significant (County of Los Angeles 2015).

Construction of downstream facilities would require the use of fuels (primarily gasoline and diesel) for the operation of construction equipment and vehicles to perform a variety of activities, including excavation, installation of proposed Project components, and vehicle travel (including on-site and commuter trips). Operation of downstream facilities would also require the use of fuels for stationary and mobile sources. Per the methodology presented in Section 3.7.3.2, fuel consumption was estimated for the construction and operation of each type of facility as summarized in Table 3.7-9. As shown in Table 3.7-9, the construction of downstream facilities would result in a maximum consumption of approximately 43,770 gallons of fuel per year. Operation of the Advanced Thermal Recycling facility would be the most energy intensive, with an estimated consumption of 182,140 gallons of fuel per year. Implementation of these regulatory measures would further reduce fuel consumption and energy use. Accordingly, with compliance with applicable regulations, construction and operation of downstream facilities would not result in wasteful, inefficient, or unnecessary consumption of energy resources.

The California Building Energy Efficiency Standards (24 CCR, Parts 6 and 11) are designed to reduce unnecessary energy consumption in newly constructed and existing buildings, such as residential and commercial structures. Further, consistent with the 2045 carbon neutrality goal (CARB 2022), it is projected that zero-carbon emission electric and hydrogen equipment and vehicles will gradually replace traditional liquid-fueled mobile sources in urban fleet applications where overnight recharging and refueling can be done at designated facilities. Thus, the Program would not conflict with Title 24 or obstruct its implementation on applicable land use development projects in California. Thus, downstream facilities would not conflict with or obstruct any adopted energy conservation plans or state or local plans for renewable energy or energy efficiency and the Program's contribution to cumulative impacts are expected to be less than significant.

4.3.7 Geology and Soils

The Program would have the potential to result in a cumulatively considerable impact on geology and soils, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would: directly/indirectly cause substantial risk of injury resulting from rupture of a known earthquake fault, landslides, and seismic ground shaking or seismic-related ground failure, including liquefaction; destroy, permanently cover, or materially and adversely modify one or more distinct and prominent geologic or topographic features; constitute a geologic hazard to other properties by causing or accelerating instability from erosion; accelerate natural processes of wind and water erosion and sedimentation, resulting in sediment runoff or deposition that would not be contained or controlled on-site; be located on unstable soil; or result in an on-site or off-site landslide, collapse, or lateral spreading; or directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

As discussed in the Los Angeles County General Plan, most of southern California, including the cumulative programs and projects in the greater Los Angeles region, is in an area of relatively high seismic activity, and buildout and development of the cumulative programs and projects in the County would expose of additional people and new infrastructure to the effects of earthquakes, seismically related ground failure, liquefaction, and seismically induced landslides. As the region grows, plan- and site-specific studies will be necessary to identify potential hazards and stipulate mitigation to reduce the impacts. Adequate studies, designs, and construction measures can be taken to reduce the potential impacts (County of Los Angeles 2015). Because of the site-specific nature of geological conditions (i.e., soils, geological features, seismic features, etc.), geological and soil impacts are typically assessed on a project-by-project basis rather than a cumulative basis.

Future cumulative development in the area, in addition to the Program, would be subject to local, state, and federal regulations pertaining to geology and soils, including California Building Code and City of Los Angeles Building Code requirements (or County requirements, as appropriate). These regulations contain requirements for development in areas that are subject to Seismic Design Categories D, E, and F. In addition, cumulative projects would be subject to the Alquist-Priolo Earthquake Fault Zone Act, which restricts development on active fault traces. Adherence to these regulations and standard engineering conditions would help reduce cumulative impacts related to geology and soils. Implementation of transportation projects and land use strategies included in the 2020-2045 RTP/SCS and City of Los Angeles General Plan within the region would contribute to cumulative significant impacts with regard to the potential to expose additional people and infrastructure to the effects of earthquakes, seismic related ground-failure, liquefaction, and seismically induced landslides due to: thousands of acres of land subject to severe peak ground acceleration, potential liquefaction, and potential earthquake-induced landslides within 500 feet of major land use and transportation projects; tens of thousands of acres subject to moderate or high soil erosion within 500 feet of major land use or transportation projects; and several miles being within the Alquist-Priolo Earthquake zone. In addition, expansive soils are present throughout the region, and larger transportation projects and regional land use strategies in particular may result in significant cumulative impacts where projects are located within areas of expansive soils. Even with the implementation of mitigation measures, these cumulative impacts would remain significant (SCAG 2020).

Geology and soils impacts are site-specific and are generally mitigated by project design and engineering features to safeguard against seismic and geological hazards and, thus, are not typically considered to contribute to a cumulative impact. Additionally, with implementation of **MM GEO-1**, potential project-level impacts would be minimized and would be less likely to contribute to a significant cumulative impact. As such, the Program's impacts on geology and soils would not be cumulatively considerable.

4.3.8 Greenhouse Gases

The Program would have the potential to result in a cumulatively considerable impact on GHG emissions, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, regulation, or recommendation of an agency adopted for the purpose of reducing emissions of GHGs.

Past, present, and future development, including buildout of the cumulative land use and transportation plans, would generate GHGs in significant quantities. The Climate Action Plans of state, regional, and city governments would help minimize GHGs. In addition, implementation of the 2020-2045 RTP/SCS would reduce GHG emissions from transportation and stationary sources compared with existing conditions. The 2020-2045 RTP/SCS meets and exceeds SB 375 targets for reducing GHG emissions, which demonstrates that the RTP/SCS is able to do more than its share to reduce GHG emissions for light- and medium-duty vehicles and heavy trucks, resulting in a less-than-significant cumulative impact with respect to the SB 375 targets (SCAG 2020). However, additional measures would be necessary to reduce GHG emissions to levels that would meet the long-term GHG reduction goal under Executive Order S-03-05 (i.e., reduce GHG emissions to 80% of 1990 levels by 2050).

Although it is possible that individual projects may mitigate their respective GHG emissions, not all projects will be able to achieve adequate reductions. Furthermore, the cumulative effect of various projects and overall growth in the region, according to applicable plans, will result in exceedances of long-term goals. CARB has updated the scoping plan to identify additional measures for achieving long-term GHG reduction targets (CARB 2022). As identified by the California Council on Science and Technology, the state cannot meet the 2050 goal without major advancements in technology. While the 2020-2045 RTP/SCS acknowledges all the responsible sectors are not in conflict with AB 32 and Executive Orders, in the event of a worst-case scenario, such as if other responsible agency implementation activities do not achieve their respective GHG emission reduction goals to the appropriate level, the environmental analysis would result in a determination that there would be a potential for a significant cumulative impact.

Because no single project is large enough to result in a measurable increase in global concentrations of GHG emissions, climate change impacts of a project are already considered on a cumulative basis.

Specifically, the analysis in Section 3.9, Greenhouse Gases, is consistent with CEQA Guidelines Section 15064.4(b) and considers whether the incremental contributions of the Program and associated downstream facilities could be cumulatively considerable. Although the City has not established a numeric threshold of its own as a lead agency, the Program's conformance with regional and local GHG emission reduction initiatives demonstrates that the Program would be consistent with applicable plans and policies adopted to meet the statewide reduction targets. The CEQA Guidelines advise that, "[p]ursuant to Sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances" (OPR 2017). The Program's conformance with local plans and policies has been sufficiently demonstrated in Section 3.9, Greenhouse Gases; therefore, the Program's impact on GHG emissions would be less than cumulatively considerable.

4.3.9 Hazards and Hazardous Materials

The Program would have the potential to result in a cumulatively considerable impact related to hazards and hazardous materials, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions through the routine transport, use, or disposal of hazardous materials or handling in such a way as to involve the release of hazardous materials into the environment; emit/handle/involve hazardous materials and/or waste within one-quarter mile of an existing or proposed school; be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment; or hinder or impair an adopted emergency response or evacuation plan or route.

Hazardous material use or hazardous emissions are cumulatively significant when the combined activities of individual industrial or commercial businesses that use, transport, or dispose of hazardous materials result in hazardous conditions. Cumulative impacts may also occur when multiple development projects disrupt existing hazardous materials sites in adjacent areas. In addition, the transport of hazardous materials may increase as a direct result of increased hazardous materials usage within the region (County of Los Angeles 2015). Continued growth and development in the greater Los Angeles region, including land use development and the implementation of transportation improvements, and the anticipated increased mobility from implementation of the 2020-2045 RTP/SCS may result in greater exposure of local populations to various hazards and may create a significant hazard to the public or the environment as a result of increased hazardous materials storage, use, disposal, and/or transport.

While mitigation measures incorporated in development projects would help reduce impacts to the maximum extent practicable, cumulative impacts related to routine transport, use, or disposal of hazardous materials, upset or accident conditions involving the release of hazardous, and hazardous materials emissions in the vicinity of a school would remain significant.

The potential of exposure to hazards is equally high in urban and rural areas where former land uses may have contaminated soil or groundwater, which could be disturbed from the construction of new land uses and infrastructure. However, where such incidences occur, the need for remediation is limited to the horizontal and vertical extent of contamination. Such incidences would not necessarily be affected by other sites in surrounding areas. Any future development would be required to comply with applicable federal, state, and local regulations related to hazardous materials. Required compliance with these regulations would minimize contribution of cumulative impacts related to the hazardous materials sites, and impacts would not be cumulatively significant.

Depending on the location of future facilities, as well as other projects that are proposed in the vicinity, there may be a cumulative impact from the transportation, use, storage, recycling, and disposal of hazardous wastes that may be generated during implementation of the proposed Program, which could cumulatively increase potential risks to the surrounding community. Upon determination of the facility location, **MM TR-1** and **MM HAZ-1** through **MM HAZ-7** would be required to minimize or avoid impacts. However, the program-level analysis and the potential for unusual site-specific, project-specific, or road-specific conditions, installation of new downstream facilities may result in impacts related to emergency response plan and emergency evacuation plans that would contribute to a considerable cumulative impact.

4.3.10 Hydrology and Water Quality

The Program would have the potential to result in a cumulatively considerable impact on hydrology and water quality, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would: violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin; substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces; result in In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Further urbanization in the greater Los Angeles region and implementation of transportation improvements and land use strategies would result in a continuing increase in stormwater runoff, water quality degradation, and the exposure of persons and property to floodplain hazards.

Cumulative growth and development would generate additional pollutants from residential, commercial, industrial, and transportation facilities. The increase in impervious surface areas would increase urban runoff, resulting in the transport of greater quantities of contaminants to receiving waters that may currently be impaired. Paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. In addition, the increase in impervious areas could decrease groundwater recharge, increase runoff rates and/or volumes and expose additional people and property to risks associated with dam inundation, seiche, tsunami, and/or mudflow. Population growth could contribute incrementally to depleted groundwater supplies due to additional demand for potable water such that there would be a net deficit in aquifer volume or a lowering of local groundwater level.

Buildout in the region would involve soil disturbance, construction, and operation of developed land uses that could each generate pollutants affecting stormwater. Although specific impacts may not rise to significant runoff or pollutant levels, the cumulative effect could be considerable. However, various regulatory requirements are in place to minimize these effects, including the Clean Water Act, compliance with which is administered by the Los Angeles RWQCB. Other requirements involve preparing and implementing stormwater pollution prevention plans pursuant to the Statewide General Construction Permit, complying with the MS4 Permit, improving flood control facilities and design requirements to raise structures above flood zones, and complying with recommendations in geotechnical reports to minimize mud flows. Even with compliance with these water quality, drainage, and flood safety regulations and policies, impacts on hydrology and water quality would be cumulatively significant.

The Program would not affect the City's ability to implement or enforce its goals or policies or otherwise be inconsistent with regulatory requirements related to the minimization of water quality impacts. Hydrology and water quality impacts are typically site-specific and mitigated on a project-by-project basis. Depending on the location of future facilities, as well as other projects that are proposed in the vicinity, there may be a cumulative impact, however. Once a project site for a downstream facility is identified, **MM HWQ-1** would require preparation of a project-specific hydrology and water quality study. Generally, urban areas will have a drainage master plan which identifies the project site conditions assumed during design of master drainage plans. A number of natural drainages within the project area may also have current geomorphologic studies which would more clearly identify potential impacts to the overall system. As part of **MM HWQ-1**, review of master drainage plans in the vicinity of the project, and those continuing downstream to the ultimate discharge of the drainage, would be conducted. All project development will address any deviations from these master plans and studies through regulatory compliance or site-specific mitigation.

From a cumulative impact perspective, **MM HWQ-1** would evaluate Basin Plan goals, and if applicable any other basin-wide or jurisdiction-wide master plans to facilitate evaluation of potential cumulative impacts to the region. Further, **MM UTIL-4** would require a site-specific water supply study, which would ensure that water supplies are not significantly impacted. With implementation of **MM HWQ-1** and **MM UTIL-4**, potential project-level impacts would be minimized and would be less likely to contribute to a cumulative impact. As such, cumulative impacts would be less than significant.

4.3.11 Land Use and Planning

The Program would have the potential to result in a cumulatively considerable impact on land use and planning, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would not be consistent with adopted land use goals, objectives, or policies of applicable lands use plans or create incompatible land uses with the immediate surrounding land uses. The cumulative growth and development in the greater Los Angeles region is expected to be largely consistent with the plans that have been established to guide and regulate growth patterns and infrastructure improvements. Regional planning documents, such as SCAG's RCP and RTP/SCS, are often used during planning within the greater Los Angeles area.

Land use impacts tend to be localized and site dependent. General Plans and other land use plans are by their nature cumulative, and therefore Plan consistency would be determined on a facility-by-facility basis and would also take into consideration the existing and proposed development in the vicinity of a proposed facility.

The ability for the project and the future facilities to contribute to cumulative land use impacts will be dependent upon the siting of the future facilities, what the applicable General Plan and Zoning is for the site, and what the surrounding uses are. Additionally, other projects proposed or under construction in the vicinity of the future facilities would be considered. Compliance with applicable General Plan and zoning conditions would have less than significant cumulative impacts.

4.3.12 Mineral Resources

The proposed Program would have the potential to result in a cumulatively considerable impact if, in combination with other projects that are proposed in the vicinity, it would result in the loss of availability of such resources. Mineral resource impacts are site-specific and are generally mitigated by project design and siting to safeguard against loss of availability. As such, they are not typically considered to contribute to a cumulatively considerable impact.

4.3.13 Noise

The Program would have the potential to result in a cumulatively considerable impact on noise and vibration, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would exceed the thresholds established by the City of Los Angeles (refer to Section 3.14.2.3). Development of new residential, commercial, or industrial structures could increase both stationary and mobile sources of noise from heating, ventilation, and air-conditioning and other equipment as well as vehicles. The extension of new roadways and transit corridors could also expose sensitive receptors to new sources of elevated noise that are adjacent to these areas. Construction activities could also generate significant cumulative noise and vibration effects if in proximity to one another or in combination with operational or vehicular noise. Cumulative projects would be required to comply with the applicable land use compatibility classifications and noise ordinances. However, there may be situations where noise and vibration levels from individual and cumulative projects exceed applicable standards, thereby resulting in cumulatively significant noise impacts.

The planned development under the County of Los Angeles General Plan and City of Los Angeles General Plan would increase the ambient noise environment and would have the potential to affect noise sensitive land uses in the vicinity of an individual project. Similarly, significant noise impacts may occur from operation of heavy earthmoving equipment and truck hauling that would occur with construction of individual development projects. Because construction activities associated with any individual development may occur near noise-sensitive receptors and, depending on the project type noise, disturbances may occur for prolonged periods of time, construction noise impacts associated with implementation of the downstream elements of the Program are considered significant. Additionally, vibration generated by construction equipment has the potential to exceed the FTA criteria for human annoyance and structural damage, which would be significant.

Further, implementation of the 2020-45 RTP/SCS (SCAG 2020) could result in significant cumulative impacts from the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Both construction and operation activities could expose people to excessive groundborne vibration or groundborne noise levels, constituting a significant impact even without the proposed Program.

Upon determination of the facility locations under the proposed Program, **MM NOI-1** requires the preparation of a Noise and Vibration Study. This study would establish the project-specific impacts of the project, and the applicability of **MM NOI-2** through **MM NOI-6**. **MM NOI-1** also requires consideration of the noise levels in the ambient environment for consideration of cumulative impacts. Implementation of these mitigation measures would minimize noise associated with construction and operation of downstream facilities and are likely to reduce the proposed Program's contribution to the already regionally considerable cumulative impacts.

4.3.14 Public Services, Utilities, and Service Systems

The Program would have the potential to result in a cumulatively considerable impact on public services, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities. The Program would have the potential to result in a cumulatively considerable impact on utilities and service systems, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would exceed the existing and planned water supply; cannot be adequately served by the existing and planned water infrastructure; exceed the existing sewer capacity; conflict with solid waste policies and objectives in the City of Los Angeles Solid Waste Management Policy Plan or Framework; or result in a need for an additional solid waste collection route, or recycling or disposal facility to adequately handle project-generated waste.

Cumulative growth within the greater Los Angeles region would result in increased demand and a need for fire and police services and other public services and utilities to serve new development and populations (City of Los Angeles 1996; County of Los Angeles 2015). Many areas within the region already have inadequate public services for the existing populations and commercial businesses. Further growth, including implementation of the 2020-2045 RTP/SCS, would exacerbate existing needs as well as the expanded needs of cumulative programs and plans. In order to maintain adequate service capacity, the construction or expansion of public service facilities would be required, which would have the potential to result in an adverse impact on the environment (County of Los Angeles 2015). Although the majority of cumulative projects would involve discretionary actions and therefore would be required to demonstrate compliance with CEQA prior to approval, they would incrementally increase the need for public services. These impacts would be largely mitigated through local municipal and school district developer fees to fund the development of new or expansion of existing public service facilities (County of Los Angeles 2015). However, the incremental increases would have the potential to result in significant cumulative impacts even without the contribution of the proposed Program.

Demand for additional public services is usually created when there is a net increase in population in an area as a result of a project. The Program would not result in an increase in population because the construction crews would not require relocated housing during construction. The construction and operation of downstream measures would not increase the need for additional or altered schooling or park infrastructure in the Program Area.

Depending on the location of future facilities, as well as other projects that are proposed in the vicinity, related to their wastewater discharge, water consumption, energy consumption, and stormwater discharge, there could be a cumulative impact on these resources. However, implementation of **MM UTIL-4** and **MM UTIL-5** would require an assessment of water supply and the capacity of wastewater systems affected by the proposed project prior to final site selection. In addition, implementation of **MM UTIL-3** would require water conservation measures to be incorporated into the facility design, and **MM UTIL-6** would require energy efficient design to reduce energy demand. The construction of downstream facilities would support future growth and diversion of waste from landfills. As a result, impacts would be minimized and would be considered to have a less than cumulatively considerable effect on existing cumulatively considerable impacts.

4.3.15 Transportation

The Program would have the potential to result in a cumulatively considerable impact on transportation/traffic, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would result in temporary or permanent traffic constraints; result in the temporary or permanent loss of access; result in the loss of bus stops or the rerouting of bus lines; conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)(2) by substantially inducing additional automobile travel due to operations; or negatively affect residential streets due to operations.

Development projects in Los Angeles County that have converted undeveloped and agricultural land to urban uses as well as infill development have resulted in residential and employment population increases and associated demand for expansions of roadway systems. The cumulative traffic impact of the Los Angeles County General Plan buildout will be largely mitigated through a combination of regional programs that are the responsibility of other agencies such as cities and Caltrans. However, if these programs are not implemented by the agencies with the responsibility to do so, the cumulative transportation and traffic impacts would remain cumulatively significant (County of Los Angeles 2015).

The 2020-2045 RTP/SCS, in addition to other projects from other regional plans (e.g., RTPs of adjacent jurisdictions), could result in additional impacts inside and outside the region. Therefore, when considered with other projects outside the region, the Program would have the potential to conflict with established performance of the circulation system by increasing overall VMT, constituting a significant cumulative impact. Forecasted urban development and growth that would be accommodated by the transportation investments in the RTP/SCS and increased mobility provided by the RTP/SCS would contribute to the significant impacts. Therefore, when considered with other additional projects outside the region, the Program would have the potential to conflict with established performance of the circulation system by increasing overall delays and congestion, constituting a significant cumulative impact.

The transportation and land use strategies considered in the 2020-2045 RTP/SCS and other RTPs in surrounding areas have the potential to conflict with emergency access, constituting a significant impact. While there are provisions in many other RTPs outside the SCAG region to offer connectivity in terms of goods and services so residents can enjoy a high quality of life complemented by easily accessible transportation options, the timing, location, and duration of construction activities from transportation projects—including grade crossings, arterials, interchanges, and auxiliary lanes outside the region—could result in delayed emergency vehicle response times or otherwise disrupt delivery of emergency response services. For example, closing off one or more lanes of a roadway would result in impaired emergency routes. The closure of these lanes could potentially cause traffic delays and ultimately prevent access to calls for service. Construction and operation of the transportation projects, and related development projects outside the SCAG region, would have the potential to conflict with emergency access plans, constituting a significant cumulative impact.

Cumulative traffic analysis is a function of the impact of the Program, as well as the impact of other projects that are proposed in the vicinity. The potential traffic impacts associated with the implementation of the proposed Program are primarily associated with the construction and operation of the future downstream facilities that would be required to process the additional materials that would be diverted from the landfill. Future downstream facilities could have short-term traffic impacts associated with facility construction. Long-term transportation and traffic impacts would primarily be associated with truck trips associated with incoming and outgoing material and employee commutes.

While construction activities would generate some additional vehicle activity on Los Angeles roadways, these effects would be temporary. The number of trips relative to existing volumes would be highly dependent on the site location and surrounding circulation system. Temporary increases in vehicle trips generated during construction could have a potentially significant impact if the timing of those trips occurred during peak hours and contributed to congestion within City-designated congested roadway segments. Section 3.18, Transportation, provides greater detail on this topic.

The analysis in Section 3.18, Transportation, includes trip generation that assumes both the trips associated with incoming material, as well as the trips associated with outgoing material, once it has been processed. From a cumulative perspective, if all the proposed facilities were constructed, the proposed Program could generate approximately 16,586 total daily VMT. It is important to note that not all of the project operation trips would be considered "new" trips as some of these trips may carry materials that would have otherwise been destined for landfills. The associated net change in VMT would be relative to the change in distance of the trips diverted from the landfill to the new downstream facility.

Under the assumption that all of the proposed facilities are constructed and given the estimated number of employes for operation of each of the facilities, the maximum calculated VMT per capita (i.e., per employee) would be 75 VMTs per employee per day (e.g., 16,586 VMT/222 employees), which is greater than the LADOT threshold of 7.6 to 15.0 VMTs per employee per day depending on the location of the downstream site (refer to Table 3.18-3). Further, because the location and scale of downstream facilities is currently unknown, there is the potential that the project would require modifications to the public right-of-way (i.e., dedications and/or improvements in the right-of-way, reconfigurations of curb line, etc.) that could negatively affect existing pedestrian, bicycle, transit, or vehicle circulation resulting in a potentially significant impact.

Operation of the downstream facilities would generate ongoing additional vehicle activity on Los Angeles roadways. The number of trips relative to existing volumes would be highly dependent on the site location, surrounding circulation system, and scale of the project. **MM TR-1** requires the preparation of a project-specific traffic report once a facility has been proposed at a specific location. The project-specific traffic analysis would determine the existing traffic conditions and would use project-specific traffic data to characterize operation-related impacts to the existing circulation system. If proposed activities are forecast to exceed the established thresholds, project-specific mitigation measures shall be implemented to minimize impacts to the extent feasible. Such measures could include but are not limited to: restricting traffic during peak hours, providing preparation and implementation of a traffic management plan, and requiring carpooling or shuttle service to the project site. Incorporation of **MM TR-1** would ensure that the trips generated during operations would not exacerbate existing congestion problems within the City. With implementation of this measure, the increase in vehicle trips generated by a project would be fully analyzed with required mitigation measures to reduce as appropriate. **MM TR-1** would consider the cumulative traffic setting, and therefore, construction and operation of downstream facilities would have a less than considerable cumulative impact on the traffic system and would not conflict with any transportation-related program, plan, ordinance, or policy.

4.3.16 Tribal Cultural Resources

The Program would have the potential to result in a cumulatively considerable impact on tribal cultural resources, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would cause a substantial adverse change in the significance of a tribal cultural resource. Tribal cultural resources in the region are protected by state and regional laws. Cumulative growth and development within the region, as well as implementation of the 2020-2045 RTP/SCS strategies, have the potential to result in the loss or disturbance of tribal resources (County of Los Angeles 2015). Although these potential impacts are normally addressed on a project-specific basis through the AB 52 consultation process, some projects are unable to fully avoid or fully mitigate potential impacts. Impacts related to the loss and/or disturbance of known or unknown archaeological sites within the greater Los Angeles area, such that the significance of such resources would be materially impaired, are considered to be cumulatively significant even without the proposed Program (City of Los Angeles 1996; County of Los Angeles 2015).

Construction of downstream facilities would result in ground-disturbing activities that have the potential to cause a substantial adverse change in the significance of a tribal cultural resource if they are present at or near the future site. The City would implement **MM CUL-1**, **MM CUL-2**, and **MM CUL-3** to identify any known tribal cultural resources at a potential downstream facility site and ensure that they are avoided, and no damage is caused by construction. However, even with these mitigation measures, impacts to tribal cultural resources could occur, and the Program could result in a cumulatively considerable contribution to a significant cumulative impact on tribal cultural resources.

4.3.17 Wildfire

The Program would have the potential to result in a cumulatively considerable impact related to wildfire, if, in combination with cumulative plans and programs within the greater Los Angeles region, it would: substantially impair an adopted emergency response plan or emergency evacuation plan; exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment; or expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Los Angeles County faces major wildland fire threats due to its hilly terrain, dry weather conditions, and the nature of its plant coverage. Although fires are a natural part of the wildland ecosystem, development in wildland areas increases the danger of wildfires to residents, property, and the environment. Cumulative growth and development within the Los Angeles region would increase the number of wildfire events and increase the exposure of people to risks associated with wildfires. Continued growth and development in Los Angeles County would significantly affect the Los Angeles County Fire Department operations. In an effort to reduce the threats to lives and property, the Los Angeles County Fire Department and LAFD have has instituted a variety of regulatory programs and standards for vegetation management, pre-fire management and planning, fuel modification, and brush clearance. The City and County General Plan policies and conditions of approval for future development projects, in addition to compliance with applicable regulations, would minimize proposed Program impacts related to wildland fires. Any future development would be required to comply with applicable federal, state, and local regulations related to wildland fires. Required compliance with these regulations would ensure impacts related to wildland fires would be less than cumulatively considerable (County of Los Angeles 2015).

As described in Section 3.21, Wildfire, regulatory requirements and **MM TR-1**, **MM HAZ-6**, and **MM HAZ-7** would be expected to reduce the risk of construction-related activities impairing an emergency response plan, emergency evacuation plan or landslide risks. However, the program-level analysis and the potential for unusual site-specific, project-specific, or road-specific conditions, installation of new downstream facilities may result in impacts related to emergency response plan, emergency evacuation plans, or landslide risk that would contribute to a considerable cumulative impact.

4.4 Disadvantaged Communities

Solid waste facilities have historically been located in heavy industrial zones and residents living adjacent to these zones may be affected by cumulative impacts. Under state law, environmental justice is "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12(e)). The principle of environmental justice ensures equal and equitable protection from environmental and health hazards, while giving people fair and equal access to the planning and decision-making process.

CEQA does not require consideration of environmental justice as a specific resource area, and there are no formal requirements or procedures to evaluate potential environmental justice impacts for specific projects or programs under CEQA. The state (SB 1000) does require the preparation of an environmental justice element to general plans, and OPR-established procedures for that analysis inform consideration of environmental justice in project-level CEQA analysis. The current standard of practice for General Plans is to consider environmental justice in the cumulative impact analysis because it reflects the combined effects of project-level impacts with the effects of other stressors on environmental justice communities.

The City is aware that certain upstream measures may be perceived to pose or could pose an economic hardship to residents and businesses in Disadvantaged Communities due to the start-up cost to shift from the use of single-use plastics to recyclable, compostable, or reusable alternatives. Therefore, the

Program includes pilot projects to assist businesses with this transition as well as public outreach and education to inform citizens about alternative materials.

Although not required by CEQA for an EIR or PEIR, when siting new downstream facilities, the City would seek to consider concerns of disadvantaged communities and apply a precautionary approach. This follows from the state’s reliance on pollution burden on communities as a measure of whether a community is disadvantaged or subject to environmental justice concerns. CalEPA has prepared an Environmental Justice Action Plan to develop guidance on Environmental Justice issues (such as “precautionary approaches” and “cumulative impacts”) for state boards, commissions, and regulatory agencies to ensure that Environmental Justice concerns are integrated into the state’s environmental programs. A precautionary approach means taking anticipatory action to protect public health or the environment if a reasonable threat of serious harm exists based upon the best available science and other relevant information, even if absolute and undisputed scientific evidence is not available to assess the exact nature and extent of risk.

For downstream facilities, consideration of Disadvantaged Communities and environmental justice is dependent on the future location of the facility. The City would engage in community/public outreach to the disadvantaged communities that may be affected by the future facility, consistent with the requirements of CEQA (i.e., during scoping and circulation of draft and final environmental reviews), but with elements of enhanced public outreach to ensure that Disadvantaged Communities have the opportunity for meaningful input.

SECTION 5 Alternatives

The CEQA Guidelines (Section 15126.6(a-f)) require an EIR to describe a reasonable range of feasible alternatives, including a No Project/Program Alternative, and to analyze the impacts of the alternatives to allow for a comparative analysis of impacts for consideration by decision-makers.

Specifically, CEQA requires consideration of a range of alternatives to the Project or Program that: (1) could feasibly attain most of the basic Program objectives and (2) would avoid or substantially lessen any of the significant impacts of the proposed Program. An alternative cannot be eliminated simply because it is costlier than the proposed Program or if it could impede the attainment of all Program objectives to some degree. However, the CEQA Guidelines state that an EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote or speculative. CEQA requires that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Program.

The following sections discuss the alternatives screening methodology, the screening results, and the alternatives that have been eliminated from consideration.

5.1 Alternatives Development Process

In addition to the No Program Alternative, the City has identified a reasonable range of alternatives to analyze in comparison to the Program in the PEIR, based on the following steps:

- Step 1: Defining the alternatives to allow comparative evaluation.
- Step 2: Evaluating each alternative in consideration of the following criteria:
    - the extent to which the alternative would accomplish most of the basic goals and objectives of the Program;
    - the extent to which the alternative would avoid or lessen one or more of the identified significant environmental effects of the Program;
    - the potential feasibility of the alternative, in consideration of site suitability, economic viability, availability of infrastructure, and consistency with other applicable plans and regulatory limitations; and
    - the appropriateness of the alternative in contributing to a “reasonable range” of alternatives necessary to permit a reasoned choice.

Step 3: Determining the suitability of the proposed alternative for full analysis in the PEIR. If the alternative was unsuitable, then it was eliminated from further consideration, with appropriate justification. In the final phase of the screening analysis, the City carefully weighed the environmental advantages and disadvantages of the remaining alternatives with respect to the potential for overall environmental advantage, technical feasibility, and consistency with Program objectives.

The following subsections present the results of this process.

5.1.1 Step 1: Alternatives Considered

Throughout the PEIR the upstream and downstream elements are identified and analyzed separately, which is continued in the development of alternatives. The direct impacts of upstream program elements are driven by the removal or reduction of the program component, while indirect effects are driven by the market and user's response to the removal through adoption of alternate materials, replacement behavior, or new practices.

The upstream elements are a blueprint for future development of ordinances and programs. If additional elements are identified through the study and engagement process described in the Program description, then these can be added to the Program (although these would not likely be addressed by the PEIR environmental analysis). Similarly, the Los Angeles City Council may decline to move forward to request that ordinances be developed for individual upstream Program elements. Several items were identified during scoping for inclusion of additional upstream Program elements. These were not considered as alternatives, because under the Program future study and engagement process these may be considered in the future. If they are considered in the future, any discretionary action by the City would be subject to a separate environmental review under CEQA. These elements are:

- Receipts only printed on request.
- Prohibit the sale and distribution of products packaged the following materials: Polyvinyl chloride; Polyvinylidene chloride; Oxo-degradable additives, including oxo-biodegradable additives; non-detectable pigments (e.g. carbon black); pigments (other than transparent blue or green) added to polyethylene terephthalate bottles; polyethylene terephthalate glycol.
- Replace plastic packaging with cardboard/paper packaging.
- Recycling of film set walls and set pieces.
- Reduce use of packaging that is not recyclable or compostable.
- Eliminate reusable plastic bags.
- Work with the state on the implementation of SB 54.

No significant impacts were identified for upstream Program elements. Alternatives to the upstream elements of the Comprehensive Plastics Reduction Program are therefore developed at the program level. The upstream Program consists of bans, restrictions on use, EPR programs, and education and outreach to affected businesses, agencies, and the public.

One alternative that would reduce the effects of the Program would be one that does not include bans, but instead replaces them with EPR programs. This could be considered a "reduced project" alternative, although it is more of a change in focus away from any bans. This alternative is similar in principle to the state SB 54 (Plastic Pollution Prevention and Packaging Producer Responsibility Act), which also takes an EPR approach. However, this alternative would follow the City's program approach to target specific products and end uses, rather than the state approach of addressing plastic material type and form through recycling. For example, the consideration of banning plastic bag clips stems from the inability of City material recovery facilities to separate items less than 3 inches in diameter. The SB 54 implementing regulations find that plastic bag clips are recyclable, and addresses them according to recycling by plastic resin type. However, because they cannot be separated in the City, they never enter a recycling stream in the first place. Therefore, in considering an EPR alternative for plastic bag clips, the focus is on product specific end use, and requires a take-back program specific to plastic bag clips.

A second alternative would be to further reduce the Program to voluntary reduction in the use of plastics and other Program elements. This alternative is similar in principle to the Federal National Strategy to Prevent Plastic Pollution (USEPA 2023), which also focuses on voluntary plastic reduction measures, rather than bans or EPR.

Downstream program elements include the potential for construction of new facilities. The ground-disturbing activity and physical changes to the environment for operation and construction of new or modified facilities drive the direct impacts of these elements of the Program. Because neither the location of the facilities nor their actual size and capacity is known at this time, the initial PEIR analysis resulted in the potential for significant impacts to some environmental resources under some specific circumstances of location or capacity. These impacts are driven by the lack of constraint on location or capacity of facilities at this Programmatic level of certainty. An alternative that would reduce or eliminate the significant impacts of the project would be to identify the specific drivers of the significant impact, and use these to constrain the location or capacity of potential new downstream facilities. That is, the facilities could still be developed, but under this alternative, certain locations with significant impacts would not be pursued, or certain size thresholds would not be exceeded.

Four alternatives, in addition to the Program, were identified in this step and are subject to screening level analysis in the next Section:

- Alternative 1: No Program Alternative
- Alternative 2: EPR
- Alternative 3: Voluntary Reduction
- Alternative 4: Reduce Significant Impacts of Downstream Facilities.

5.1.2 Step 2: Screening Level Evaluation of Alternatives

Each alternative is analyzed at a screening level in this step, to determine the alternatives that will be carried forward for full analysis in the PEIR.

5.1.2.1 Alternative 1: No Program Alternative

The purpose of the No Project or Program Alternative is “to allow decisionmakers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project” (CEQA Guidelines Section 15126.6(e)). State CEQA Guidelines Section 15126.6(e)(2) requires that the no project alternative analysis “discuss the existing conditions…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and policies and consistent with the available infrastructure and community services.” Existing conditions are defined as those at the time the NOP was published.

Under the No Program Alternative, the City would not implement any upstream measures to reduce the distribution, offer, provision, and sale of single-use plastic products in the City. The City also would not expand its capacity to recycle, compost, and reuse alternative materials via downstream measures. There would be continued compliance with state-level plastic reduction laws and regulations as well as continued enforcement of existing City ordinances banning or restricting certain types of single-use plastics.

It is reasonably foreseeable, based on population growth and increasing trends in single-use plastics production, use, and improper disposal, that without the proposed Program, the adverse effects of plastic pollution described in Section 1.3 (Program Objectives, Purpose, and Need) would continue in the City, including steadily increasing plastic waste going to landfills, and plastic pollution degrading ecosystem health, human health, and the aesthetics of the City. In considering the effects of the No Program Alternative, these increasing levels of environmental degradation are taken into account.

5.1.2.2 Alternative 2: Extended Producer Responsibility

EPR is generally described as a pollution prevention policy that focuses on products used by consumers, rather than mining/material extraction and manufacturing. EPR allows business as usual in terms of the materials used to produce products and focuses on ways to manage the material once it is discarded. That is, compared to a ban which is an upstream measure that removes the product or material from the system entirely, EPR is fundamentally a downstream measure that seeks to reduce the impacts of products and materials that continue to be used and released in the system.

This EPR concept is based on the premise that the primary responsibility for waste generated during the production process (including extraction of raw materials) and after the product is discarded, is that of the producer of the product. The theory is that by making producers pay for the waste (wasted resources and post-consumer waste) and pollution they create, they will have an incentive to incorporate a broader range of environmental considerations into both their product design and choice of materials, thereby reducing consumption of resources at the various stages of the life cycle of a product or package. Cleaner production and waste prevention are the goals.

In practice, EPR has been implemented for certain products as discussed below at the state level and the responsibility for participation, and in some cases the cost, is borne by the consumer. Depending on how EPR is implemented, it can more accurately be viewed as Enhanced Consumer Responsibility (CRI 1997). For an EPR program to be successful, it is the consumer that must participate by bringing their used materials to a producer, local, or state facility. For most EPR programs, the funding comes from the consumer in the form of regulatory-required increases in the cost of goods to fund the EPR program directly or in the form of deposits with uncollected deposits to fund the EPR program indirectly.

There are five basic types of producer responsibility:

- Liability – the producer is responsible for environmental damage caused by the product in question.
- Economic responsibility – the producer covers all or part of the costs for collection, recycling, or final disposal of products and may charge a special fee to the consumer to offset or remove the need for producer payment.
- Physical responsibility – the producer is involved in physical management of the products or the effect of the products. This can range from merely developing the necessary technology to managing the total "take-back" system for collecting or disposing of products the manufacturer has manufactured for which they may charge a fee.
- Ownership – the producer assumes both physical and economic responsibility.

- Informative responsibility – the producer is responsible for providing information on the product or its effects at various stages of its life cycle, but it is up to the consumer to both act and pay for methods to extend its life cycle or reduce its effects.

Take-back programs generally combine both economic (i.e., fees to both the producer and the consumer) and physical (i.e., producer provides the system, consumer is responsible for taking actions) responsibility for both the consumer and the producer. Take-back programs are also specific to products and producers.

SB 54 applies a different approach to EPR: producers have liability for environmental damage, ownership of physical and economic responsibility, and responsibility for providing information on the product or its effects at various stages of its life cycle. Implementation is through grouping producers into a Producer Responsibility Organization based in part on the amount and type of single-use plastic. Funding is assessed, and expenditures overseen by an expanded CalRecycle and Division of Circular Economy.

In the context of recycling plastics, EPR aims to shift the burden of managing plastic waste from local governments to the companies that produce and sell plastic products, and to the consumers who must take action for the program to work, and who often pay a fee to fund the program. This is particularly relevant due to the challenges posed by plastic pollution and the difficulty of effectively recycling plastic materials at municipal facilities.

Several comments received during public scoping for this PEIR recommended that the City consider an EPR approach to plastics reduction because the state has applied an EPR approach to the reduction of plastic and other packaging through SB 54. The state, through CalRecycle, currently oversees several statewide EPR programs, including:

- Paint Stewardship Program (AB 1343, 2010);
- Carpet Stewardship Program (AB 2398, 2011);
- Mattress Stewardship Program (SB 254, 2013);
- Pharmaceutical and Sharps Waste Stewardship Program (SB 212, 2018);
- Plastic Pollution and Packaging Producer Responsibility Program (SB 54, 2022); and
- Responsible Battery Recycling Program (AB 2440, 2022).

The implementation of these programs varies in their implementation measures and are specific to the relevant legislation within each product area. Of these programs, the paint, mattress, and carpet stewardship programs are funded by fees on the product purchaser (i.e., the consumer). The pharmaceutical and sharps waste stewardship program is funded by producers. Programs for plastic pollution and packaging and battery recycling were recently passed by the legislature in 2022 and have not yet been implemented.

The Program as proposed would apply an EPR approach to reducing waste associated with textiles, coffee/beverage pods, and meal kits, after the City considered application of a ban or restriction on these items and determined that it would be infeasible at this time. These Program elements are different from, but complementary to, SB 54 because they target specific products and end uses. This EPR alternative would only apply to those Program elements for which a ban or restriction is currently proposed. For each of these Program elements, this alternative would replace the ban or restriction with an EPR program that, unlike SB 54, targets specific products and end uses. The alternative would continue the nature of the City Program in being different from, but complimentary to, SB 54. The Program elements that consist of bans are shown below along with the nature of an EPR program in Table 5.1-1. Those elements that would be affected by this alternative are indicated in **bold** text and include single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges. This alternative would still ban the Program elements for which there is no feasible way to implement an EPR program (i.e., plastic tea bags, bioplastics, PFAS, aerosol string, plastic sandbags, and lighter-than-air balloons). Additionally, Program elements that do not ban products, such as a requirement that 25% of all plastic bottles and jugs be refillable or leashed lids on plastic bottles, would still be retained under this alternative.

Table 5.1-1. Comparison of Program Measures vs. EPR Alternative

Program Element Ban	Alternative 2: EPR Element
Single-Use Plastic Water Bottles	**Plastic bottle distributors to fund or implement a take back program, similar to the recommendations of the Legislative Analyst's Office[36] in addressing the funding gap of the existing CalRecycle Beverage Container Recycling Program. SB 54 exempts single-use plastic water bottles because they are currently covered by the Beverage Container Recycling Program.**
Single-Use Plastic Beverage Holder Rings	**Distributors of plastic beverage holder rings to fund or implement a take-back program focused on this product**
Plastic Tea Bags	No feasible EPR program owing to characteristics of used tea bags
Bioplastics	No feasible EPR program owing to the variety of products and difficulty of discerning difference from petroleum-based plastics
PFAS	No feasible EPR program owing to characteristics and uses of PFAS
Plastic Bag Clips	**Manufacturers of plastic bag clips fund or implement a take-back program focused on this product**
Aerosol String	No feasible EPR program owing to characteristics of aerosol strings
Plastic Sandbags	No feasible EPR program owing to characteristics and use of sandbags
Lighter-Than-Air Balloons	No feasible EPR program owing to characteristics of lighter-than-air balloons
Single-use E-cigarettes and Vape Cartridges	**Manufacturers or distributors of single use e-cigarettes and vape cartridges fund or implement a take-back program for these products**

[36] An Analysis of the Beverage Container Recycling Program (2015). California Legislative Analyst's Office: "LAO Recommendations Shift Processing Costs to Manufacturers. First, we recommend shifting processing costs to manufacturers. This would reduce BCRF expenditures significantly, probably eliminating the structural deficit. It would also require producers to cover the recycling costs of their products, which means that these costs are incorporated or "internalized" into the total cost of the product when it is sold. Therefore, the price that consumers pay reflects the entire cost of the product—its production and disposal. Shifting costs to manufacturers could be done in two ways, either by eliminating processing fee offsets or by moving to a market-based system where manufacturers are responsible for the recycling of materials. While either approach could work, we find that the market-based approach has several potential advantages."

The Program seeks to eliminate or substantially reduce single-use plastics with the objective of ultimately removing these single-use plastics from the environment through upstream measures. The EPR alternative would instead allow all of these materials into the environment (no bans) but would instead focus efforts on reusing or recycling these items rather than landfilling them. Thus, this alternative, like SB 54, is fundamentally a downstream approach. Manufacturers could continue to produce, and retailers would continue to sell these materials to consumers, and the EPR program would focus the efforts on diverting these materials from landfills. The success of EPR programs is dependent on consumer behavior: consumers need to properly sort, manage, and return items to the proper location at the proper time. The success of the EPR Alternative would also rely on either the consumer or the producer to fund the programs to reuse or recycle the materials.

Because the EPR approach allows these Program elements to continue being manufactured, distributed, and sold, this alternative would result in a greater amount of plastic pollution in the environment compared to the bans proposed by the Program. As such, the alternative would also have greater adverse effects to ecosystem health, human health, and aesthetics of the City compared to the Program. It would divert less plastic waste from landfills.

However, it is anticipated that the EPR Alternative could still meet in part the following Program objectives:

- Contribute to the City's goal of becoming zero waste by 2050.
- Reduce the volume of single-use plastics, particularly those that cannot be composted or recycled in City-contracted facilities, into the City's waste stream.
- Reduce the amount of plastic waste that is littered and pollutes water resources and has adverse effects on human health and wildlife.
- Reduce aesthetic degradation of the City due to plastic litter.

This alternative is anticipated to reduce some impacts of the Program related to the use of alternative materials because fewer or no alternative materials would be required. The level of reduction of impacts and use is expected to be less than for the Program, however, because of the continued use of the plastic materials and the dependence on consumer participation for EPR program success. However, because it has the potential to avoid some potentially adverse effects of the Program, this alternative is retained for comparative analysis in this PEIR.

5.1.2.3 Alternative 3: Voluntary Reduction

Under a Voluntary Reduction Alternative, the City would not implement new policies that constitute a ban on the manufacture, offer, sale, or provision of specific single-use plastics, nor would the City implement policies that require a form of EPR be implemented. Instead, the City would implement policies that would allow producers, businesses, and consumers to avoid the use of single-use plastics through voluntary measures. This alternative is similar in principle to the Federal National Strategy to Prevent Plastic Pollution (USEPA 2023), which also focuses on voluntary plastic reduction measures, rather than bans or EPR.

The City currently has two voluntary reduction ordinances in place: the 2021 Disposable Foodware Accessories-on-Request Ordinance (Ordinance 187030)[37] and 2019 Plastic Straws-on-Request Ordinance (Ordinance 186028)[38].

The success of a voluntary reduction program is ultimately dependent on behavioral changes of businesses and consumers and would likely be influenced by factors, including but not limited to, the following:

- awareness of voluntary reduction measure(s);
- knowledge/awareness of the benefits of avoiding single-use plastics or single-use products in general;
- cost of substitute products;
- knowledge of substitute products; and
- availability/ease of obtaining substitute products.

Extensive outreach and education to businesses and the public to inform them of the factors listed above would be needed to increase the likelihood of voluntary reduction. The Voluntary Reduction Alternative would seek to raise awareness of the need to reduce single-use plastic use and pollution; provide a focus for the voluntary actions that can be taken to respond to this need; and encourage the availability of the alternate materials or actions that need to be taken. Overall, the draft National Strategy to Prevent Plastic Pollution (USEPA 2023) has recommended primarily Voluntary Reduction, augmented by exploration of the applicability of EPR and inclusion of active reduction in plastics in federal procurement.

While voluntary reduction in the use of plastics can be a part of a more comprehensive strategy to address plastic pollution and environmental sustainability, its effectiveness is limited without the support of regulatory measures and broader systematic changes. Some key obstacles to achieving the Program objectives are:

- Limited Impact: Without regulatory or financial incentives, voluntary efforts might not lead to significant reductions in plastic use, especially when there are economic and convenience factors favoring plastic materials.
- Inequity: Voluntary actions may not ensure consistent reductions across industries or products. Some companies or sectors might not participate, leading to disparities in plastic reduction efforts.
- Behavioral Change: Encouraging consumers to voluntarily change their behavior can be challenging, as convenience and habits often play a significant role in product choices.

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[37] More information about the Disposable Foodware Accessories-on-Request Ordinance, including full ordinance text, can be found at: https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-s/s-lsh-wwd-s-r/s-lsh-wwd-s-r-fwa?_adf.ctrl-state=8ndmsgavf_5&_afrLoop=12665017259225703#!

[38] More information about the Straws-on-Request Ordinance, including full ordinance text, can be found at: https://www.lacitysan.org/san/faces/wcnav_externalId/s-lsh-wwd-s-r-psro?_adf.ctrl-state=8ndmsgavf_5&_afrLoop=12664895721428414#!

- Market Dynamics: In a competitive market, companies might be hesitant to reduce plastic usage voluntarily if it is perceived that customers still prefer plastic-based products.
- Lack of Accountability: Without clear regulations, there might be no mechanism to hold companies accountable if they fail to meet their voluntary commitments.

While voluntary reduction efforts can contribute to raising awareness and fostering innovation, they are often most effective when combined with regulatory measures and systematic changes that create a conducive environment for reducing plastic use and addressing plastic pollution on a larger scale.

Because the Voluntary Reduction Alternative would not prohibit single-use plastics from being manufactured, distributed, and sold in the City, it would result in more single-use plastic items in circulation throughout the City compared to the Program. This in turn would result in a greater amount of plastic pollution in the environment and waste in the City's waste stream and would also have greater adverse effects to ecosystem health, human health, and aesthetics of the City compared to the Program. The effectiveness of the Voluntary Reduction Alternative would be dependent upon business and consumer behavior. The City anticipates that this Alternative would reduce a certain amount of plastic use within the City. However, because there would be no regulatory requirement to reduce plastic use or EPR program in place, the volume of single-use plastics reduced within the City is speculative but would likely be much less than under the Program.

The Voluntary Reduction Alternative would not meet the following Program objectives:

- Contribute to the City's goal of becoming zero waste by 2050.
- Reduce the volume of single-use plastics, particularly those that cannot be composted or recycled in City-contracted facilities, into the City's waste stream.
- Reduce the amount of plastic waste that is littered and pollutes water resources and has adverse effects on human health and wildlife.
- Reduce aesthetic degradation of the City due to plastic litter.
- Develop downstream systems and facilities as needed to support the reuse, recycling, and composting of alternative products to single-use plastics.

As such, this alternative is not analyzed further in this PEIR.

5.1.2.4 Alternative 4: Reduce Significant Impacts of Downstream Facilities

The ground-disturbing activity and physical changes to the environment from the construction and operation of new or modified downstream facilities drive the direct impacts of the Program's downstream elements. However, although this PEIR could analyze the impact driver, the locations of the facilities are not known. As such, some locations could have receptors or setting characteristics that lead to the potential for significant and unavoidable impacts of the downstream elements of the Program.

Under this alternative, the Program impact analysis of downstream facilities is used to identify the characteristics of the environmental setting that lead to significant impacts. Where feasible, this alternative then uses these characteristics as constraints to location or capacity of downstream facilities. Therefore, this alternative consists of a series of constraints that would apply to potential future downstream facilities that would reduce or eliminate the significant impacts.

Each of the resource categories for which the downstream elements of the Program had the potential for a significant and unmitigable impact in the initial resources analyses were considered as part of this alternative and evaluated for the possibility to reduce impacts further than originally identified. Additional mitigation measures constraining the locations and/or design of potential future downstream measures were identified. The City determined these additional mitigation measures to be potentially feasible, in consideration of site suitability, economic viability, availability of infrastructure, and consistency with other applicable plans and regulatory limitations. Therefore, additional siting constraints evaluated as part of Alternative 4 have been incorporated into mitigation measures of the Proposed Program, and Alternative 4 is not evaluated as an independent alternative in this PEIR.

5.1.3 Step 3: Alternatives Carried Forward for Full Evaluation

The CEQA Guidelines (Section 15126.6(d)) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Program. The Lead Agency is required to evaluate and compare the environmental impacts of alternatives to the proposed Program, though not at the same level of detail as the proposed Program. Based on the screening level analysis described above, two alternatives, in addition to the proposed Program, have been carried through for comparative evaluation in the PEIR:

- Alternative 1: No Program Alternative
- Alternative 2: EPR Alternative

Each of the alternatives is potentially feasible, in consideration of site suitability, economic viability, availability of infrastructure, and consistency with other applicable plans and regulatory limitations. Finally, the Program and these two alternatives provide a “reasonable range” of alternatives necessary to permit a reasoned choice.

5.2 Comparative Impact Analysis of Alternatives

Figure 5.2-1 provides a graphical representation of the differences between the Program and alternatives. A comparative summary of the potential impacts under each alternative is provided in Table 5.2-1. The following subsections provide a comparative analysis of the impacts in narrative form to complement Table 5.2-1.

	Upstream: Program	Upstream: No Program Alternative	Upstream: EPR Alternative	Downstream: Program	Downstream: No Program Alternative	Downstream: EPR Alternative
Aesthetics	◔	◔++	◔+	◑	○	◑
Agriculture	○	○	○	◑	○	◑
Air Quality	◔	○	◔	◑	○	◑
Biological	◔	◔++	◔+	●	○	●
Cultural	○	○	○	●	○	●
Energy	◔	○	◔	◔	○	◔
Geology	○	○	○	◑	○	◑
GHG	◔	○	◔	◔	○	◔
Hazards	◔	◔++	◔+	●	○	●
Hydrology	◔	◔++	◔+	◑	○	◑
Land Use	○	◔	○	◔	○	◔
Mineral	○	○	○	◔	○	◔
Noise	◔	○	◔	●	○	●
Population	○	○	○	○	○	○
Public Services	○	○	○	◔	○	◔
Recreation	○	○	○	○	○	○
Transportation	◔	○	◔	●	○	●
Tribal	○	○	○	●	○	●
Utilities	◔	◔++	◔+	◑	○	◑
Wildfire	○	○	○	●	○	●

KEY

No impact ○ Less than significant with mitigation ◑

Less than significant ◔ Significant and unavoidable ●

+ Greater adverse effect compared to Program
++ Greatest adverse effect compared to Program

Figure 5.2-1. Alternatives Impact Comparison

5.2.1 Alternative 1: No Program

Under the No Program Alternative, the adverse effects of plastics pollution described in Section 1.3 (Program Objectives, Purpose, and Need) would continue in the City, including steadily increasing plastic waste going to landfills, and plastic pollution degrading ecosystem health, human health, and the aesthetics of the City. These adverse effects would continue into the future and could be reasonably foreseen to increase in the severity of adverse effects. Under the No Program alternative, it is anticipated that single-use plastics would continue to have the following adverse environmental impacts:

- Being the primary source of land litter in California;
- Infiltrating City drainages and accrue in landfills;
- Being channeled to the Pacific Ocean via urban runoff;
- Contributing to loss of tourism and recreational/aesthetic values;
- Posing a human health threat; and
- Not being routinely recycled (UCLA Luskin School of Public Affairs 2020).

The No Program Alternative and proposed Program upstream measures would have no impact on the following environmental resource areas and therefore, they are not analyzed further in this section:

- Agriculture and Forestry
- Cultural Resources
- Geology and Soils
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Tribal Cultural Resources
- Wildfire

No downstream impacts of the Program would occur under the No Program alternative. All of the significant and unavoidable impacts of the downstream elements of the proposed Program would not occur in the No Program alternative. Therefore, a resource-specific analysis of downstream impacts is not provided below. Due to a continued increase in single-use plastic materials, it is reasonably foreseeable that an increase in the number of City-contracted solid resources facilities would need to increase. However, the types of facilities would be different from those considered in the downstream Program elements because these focus on recycling and reuse. It is speculative at this point to specify with any certainty the relative amounts and impacts of different types of downstream facilities that would be needed in the future to handle additional waste.

5.2.1.1 Aesthetics

Under the No Program Alternative, the single-use plastics and products that would be banned, recycled, or reused under the proposed Program would continue to proliferate throughout the City. As explained in Section 3.2.3.2.1, the upstream Program would have substantial benefits to aesthetic resources. Therefore, the continued and increased use of single-use plastics and subsequent entry into the environment under the No Program Alternative would be greater than those under the Program, because the beneficial impacts of the Program would not be realized.

5.2.1.2 Air Quality

Under the No Program Alternative, air quality impacts associated with single-use plastics are primarily related to the production and delivery of these products ultimately to the consumer as well as end-of-life disposition of such products including truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities or disposal sites, and emissions associated with reuse processing and/or disposal and eventual decomposition. The No Program Alternative would not change air quality and emission trends from existing conditions. As such, the impacts of the No Program Alternative on air quality would be less than those of the Program.

5.2.1.3 Biological Resources

Under the No Program Alternative, the single-use plastics and products that would be banned, recycled, or reused under the proposed Program would continue to proliferate throughout the City. As explained in Section 3.5.3.2.1, single-use plastics pose a risk to biological resources when they enter the environment via beach littering, road runoff, illegal dumping, sewage, wastewater treatment discharge, sewage sludge use in agriculture, and landfills. The adverse impacts of plastics on biological resources include reduced feeding capacity, energy reserves, and reproductive success, impaired digestive and immune system function, developmental abnormalities, thyroid disruption, and mortality, as well as injury and death via entanglement.

Therefore, the continued and increased use of single-use plastics and subsequent entry into the environment under the No Program Alternative would have greater impacts to special status species, riparian habitats or sensitive natural communities, protected wetlands, the movement of wildlife, and common wildlife compared to the Program because the beneficial impacts of the proposed Program on biological resources would not be realized.

5.2.1.4 Energy

Under the No Program Alternative, local energy impacts of single-use plastics would continue to be associated with truck trips related to the delivery of products to regional distribution centers and/or point-of-sale locations, as well as end-of-life transport including truck trips associated with collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for existing reuse programs. The No Program Alternative would not change energy use and consumption trends from existing conditions. As such, the impacts of the No Program Alternative on energy resources would be less than those of the Program.

5.2.1.5 Greenhouse Gas Emissions

Under the No Program Alternative, GHG impacts associated with single-use plastics are primarily related to the production and delivery of these products ultimately to the consumer as well as end-of-life disposition of such products including truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities or disposal sites, and GHGs associated with reuse processing and/or disposal and eventual decomposition. The No Program Alternative would not change GHG emissions and emission trends from existing conditions. As such, the impacts of the No Program Alternative on GHG emissions would be less than those of the Program.

5.2.1.6 Hazards and Hazardous Materials

Under the No Program Alternative, single-use plastics would continue to be a source of human exposure to harmful chemicals, as described in Section 3.10.3.2.1, and would have greater impacts compared to the proposed Program because the beneficial impacts of the proposed Program on human health would not be realized.

5.2.1.7 Hydrology and Water Quality

Under the No Program Alternative, single-use plastics would continue to be a source of litter in terrestrial and aquatic environments in the City and an impediment to the City's ability to meet TMDL goals. Therefore, the No Program Alternative would have greater impacts on water quality compared to the proposed Program, and the beneficial impacts of the proposed Program would not be realized.

5.2.1.8 Land Use and Planning

The No Program Alternative would not result in construction of any infrastructure and would not result in any changes in land use and zoning. It would not divide an established community. However, the No Program Alternative would not support the L.A.'s Green New Deal (City of Los Angeles 2019), which lays out targets for waste reduction. Therefore, the No Program Alternative would conflict with local land use plans, and impacts would be greater than those of the proposed Program because the beneficial impact of the proposed Program in meeting L.A.'s Green New Deal targets would not be realized.

5.2.1.9 Noise

Under the No Program Alternative, noise impacts associated with continued use of single-use plastic in the City would be associated with truck trips and traffic noise associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities. Similarly, vibrations due to rubber-tire heavy vehicles traveling along uneven roadways within proximity to sensitive uses would continue to occur. The No Program Alternative would not directly result in exposure of people residing or working in the project area to excessive noise levels associated with private airstrips, airport land use plan area, or public airport. Therefore, the impacts of the No Program Alternative on noise would be less than those of the Program.

5.2.1.10 Transportation

Traffic and transportation impacts associated with single-use plastics in the City are primarily related to truck trips related to the delivery of products to regional distribution centers and/or point-of-sale locations, as well as end-of-life transport including truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. Under the No Program Alternative, these truck trips would be expected to incrementally increase with population growth and increased single-use plastic use and disposal. The No Program Alternative would not involve any transportation-related design features or incompatible uses that would increase transportation-related hazards nor would they result in any road changes or traffic obstructions that reduce or otherwise affect emergency access. Therefore, the impacts of the No Program Alternative on transportation, transportation hazards, or emergency access would be less than those of the Program.

5.2.1.11 Utilities and Service Systems

The No Program Alternative would not result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage features and would not impact water supply or wastewater treatment capacity in the City.

Under the No Program Alternative, the City would not implement various measures to reduce the use and disposal of single-use plastics in the City and therefore solid waste in the City would not be reduced under the Program. Therefore, the No Program Alternative would impair the attainment of solid waste reduction goals, and impacts would be greater than those for the proposed Program because the beneficial impacts of the Program on solid waste reduction would not be realized.

5.2.2 Alternative 2: Extended Producer Responsibility

The EPR Alternative would meet the Program objectives but to a lesser extent because the manufacture, sale, provision, and offer of single-use plastics that would be banned under the proposed Program would be allowed to continue under this alternative. Alternative 2 is effectively business as usual for the continued use of all types of plastic materials with an emphasis on recycling. Further, the success of the EPR Alternative in meeting the Program objectives would be dependent on effective consumer participation. Any lack of consumer participation would reduce the ability of this alternative to meet the Program objectives compared to the Program. However, the EPR would avoid the potential impacts of the Program that may occur due to the production and disposal (i.e., recycling and composting) of alternative materials to single-use plastics that would be banned under the Program.

These Program elements are different from, but complementary to, SB 54 because the Program targets specific products and end uses. This EPR Alternative would only apply to those Program elements for which a ban or restriction is currently proposed. For each of these Program elements, this alternative would replace the ban or restriction with an extended producer responsibility program that, unlike SB 54, targets specific products and end uses. This alternative would continue the nature of the City Program in being different from, but complimentary to, SB 54.

The comparative Impacts of the EPR Alternative are provided below. The following would have no impact or no change in impact resulting from the EPR Alternative and are not analyzed further in this section:

- Agriculture and Forestry
- Cultural Resources
- Geology and Soils
- Land Use and Planning
- Mineral Resources
- Population and Housing
- Public Services
- Recreation
- Tribal Cultural Resources
- Wildfire

All downstream impacts for this alternative would be the same as those identified for the proposed Program. Therefore, a resource-specific comparative analysis of downstream impacts from the EPR Alternative is not provided below. The comparative evaluation of the potential impacts based on Alternative 2, EPR requirements for upstream measures, is provided below. This analysis focuses on the four Program elements for which replacement of a ban with an EPR program would be feasible: single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges.

5.2.2.1 Aesthetics

Unlike the proposed Program, single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be allowed to be sold within the City and would therefore be potential sources of trash that could adversely affect aesthetics in the City. Therefore, while the EPR Alternative would still reduce overall potential sources of trash in the City (e.g., via the requirement for refillable bottles or reusable foodware for dine-in services), the impacts of the alternative would be greater than those of the Program, and it would not achieve the same level of beneficial impacts with respect to aesthetics as the proposed Program.

5.2.2.2 Air Quality

As for the proposed Program, air quality impacts associated with the implementation of the upstream EPR Alternative upstream measures policies are primarily related to the transition to alternative materials associated with bans that would still occur under the alternative and the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse or take-back programs. An increase in take-back programs would have the potential to increase trips required for consumers to transport used products to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the used product by mail to the recycling facility. Where used products may be returned to the point-of-sale, it is assumed that customers would return used products the next time they purchase a new product. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of used products require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of used products require an extra trip for return. No other sources of emissions different than the proposed Program are identified for the EPR Alternative. Therefore, the EPR Alternative upstream measures would have a similar level of impact on air quality as the proposed Program and would not conflict with or obstruct implementation of the applicable air quality plan, result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state air quality standard, expose sensitive receptors to substantial pollutant concentrations, or result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and impacts would be less than significant and similar to the proposed Program.

5.2.2.3 Biological Resources

Unlike the Program, single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be allowed to be sold within the City and would be potential sources of trash that could adversely affect wildlife in the City. Therefore, while the EPR Alternative would still reduce overall potential sources of trash in the City (e.g., via the requirement for refillable bottles or reusable foodware for dine-in services), it would have greater impacts on biological resources as it would not achieve the same level of beneficial impacts with respect to biological resources as the proposed Program.

5.2.2.4 Energy

As for the proposed Program, local energy impacts associated with the implementation of the EPR Alternative upstream measures are primarily related to the transition to alternative materials along with the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. It is assumed that take-back programs for single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be facilitated from existing operation locations and would not require construction of new facilities. An increase in take-back programs would have the potential to increase trips required for consumers to transport used products to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the used product by mail to the recycling facility. Where used products may be returned to the point of sale, it is assumed that customers would return used products the next time they purchase a new product. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of used products require an extra trip to return, the additional VMT would be 250 miles for every 1,000 cartridges for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of used products require an extra trip for return. Therefore, the EPR Alternative would have the similar level of impact as compared with the proposed Program and would not result in wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant, similar to the proposed Program.

5.2.2.5 Greenhouse Gas Emissions

As for the proposed Program, GHG impacts associated with the implementation of the EPR Alternative upstream measures are primarily related to the transition to alternative materials along with the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. It is assumed that take-back programs for single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be facilitated from existing operation locations and would not require construction of new facilities. An increase in take-back programs would have the potential to increase trips required for consumers to transport used products to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the used product by mail to the recycling facility. Where used products may be returned to the point of sale, it is assumed that customers would return used products the next time they purchase a new product. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of used products require an extra trip to return, the additional VMT would be 250 miles for every 1,000 used products for a 5-mile round-trip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of used products require an extra trip for return. However, recycling and reuse schemes associated with take-back programs would reduce overall VMT associated with production of the avoided virgin products and trips to landfills located outside of the City for materials that are otherwise disposed of. Accordingly, take-back programs are not expected to result in a measurable net increase in direct or indirect GHG emissions associated with transportation requirements. Therefore, the impacts associated with this alternative are considered less than significant and similar to the proposed Program as it would not have the potential to result in a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

5.2.2.6 Hazards and Hazardous Materials

Unlike the Program, single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be allowed to be sold within the City. As described in Section 3.10.3.2.1, single-use plastic water bottles and single-use e-cigarettes and vape cartridges pose human health hazards and allowing them under the EPR Alternative would not remove these potentially harmful products from within the City. Therefore, the EPR Alternative would have greater impacts than the proposed Program with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

5.2.2.7 Hydrology and Water Quality

Unlike the Program, single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be allowed to be sold within the City and would therefore be potential sources of trash that could have an adverse effect on TMDLs within the City's waterbodies. Therefore, while the EPR Alternative would still reduce overall potential sources of trash in the City (e.g., via the requirement for refillable bottles or reusable foodware for dine-in services), it would have a greater impact than the proposed Program as it would not achieve the same level of beneficial impacts with respect to water quality as the proposed Program.

5.2.2.8 Noise

Similar to the proposed Program, the primary source of noise associated with upstream measures would be associated with any resulting changes in truck traffic. The EPR Alternative upstream measures would not result in a significant change in trips associated with purchase or disposal of alternative materials/products similar to the proposed Program, as detailed in Section 3.18, Transportation. No other sources of noise have been identified for the proposed Program or the EPR alternative. Therefore, noise impacts associated with implementation of the EPR Alternative would be less than significant.

Similar to the proposed Program, the EPR Alternative upstream policies have the potential to result in additional heavy vehicle trips on uneven roadways that may result in perceptible vibration at nearby receptors. Rubber-tire heavy vehicles traveling on roadways typically would not produce a significant vibration impact, except in situations where a large number of heavy vehicles are traveling along uneven roadways within proximity to sensitive uses. However, perceptible groundborne vibration generated by heavy vehicles on uneven roadways is typically limited to distances of up to 75 feet and would not be sufficient to cause building damage. Therefore, impacts related to groundborne vibration or groundborne noise levels would be less than significant and similar to the proposed Program.

5.2.2.9 Transportation

As with the proposed Program, traffic and transportation impacts associated with the implementation of the EPR Alternative upstream measures are primarily related to the change in truck trips associated with the collection and transport of recyclables, organic materials, and municipal solid waste to the respective processing facilities and return logistics for reuse programs. An increase in take-back programs would have the potential to increase trips required for consumers to transport used products to the specified collection points. The increase in VMT would be highly dependent on customer behavior and method of return which may include return by the customer to the collection point or shipment of the used product by mail to the recycling facility. Where used products may be returned to the point of sale, it is assumed that customers would return used products the next time they purchase a new product. For other return schemes, the relative increase in VMT associated with extra trips would be highly dependent on the roundtrip distance and percentage of extra trips. As an example, assuming 5% of used products require an extra trip to return, the additional VMT would be 250 miles for every 1,000 used products for a 5-mile roundtrip compared to 1,000 miles for a 10-mile roundtrip assuming 10% of used products require an extra trip for return, representing 0.00007 Household VMT per capita and 0.0003 Household VMT per capita, respectively. Any additional trips generated as a result of returning the used products would not have the potential to exceed the daily Household VMT per capita threshold of 6.0 to 9.4 (depending on APC Area; refer to Table 3.18-3) and would be distributed throughout the City and is not expected to conflict with adopted policies, plans, and programs to encourage the use of alternative transportation. Compared to the proposed Program, because single-use plastic water bottles would still be allowed under the EPR Alternative, it is expected that it would result in fewer substitutions with reusable products and the potential impacts caused by transportation of reusable or non-plastic bottles. In addition, recycling and reuse schemes associated with take-back programs would reduce overall VMT associated with production of the avoided virgin products and trips to landfills located outside of the City for materials that are otherwise disposed of. Further, this policy would not alter the surrounding transportation system, and therefore would not preclude the future establishment of transit, bicycle, and/or pedestrian facilities. Therefore, the EPR Alternative would have a similar level of impact as compared with the proposed Program and impacts pertaining to conflicts with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities would be less than significant and similar to the proposed Program.

5.2.2.10 Utilities and Service Systems

Unlike the Program, single-use plastic water bottles, single-use plastic beverage holder rings, plastic bag clips, and single-use e-cigarettes and vape cartridges would be allowed to be sold within the City. As noted in Section 5.1.2.2, the reduction of waste from an EPR program depends on the behavior of the consumer to return the single-use items to the producer and the producer's recycling or reuse once the item is returned. Thus, requiring EPR programs for these products would remove a certain volume from the City's solid waste facilities but because there would not be 100% compliance from consumers, a certain volume would still end up in the City's solid waste facilities. Therefore, the EPR Alternative's upstream measures would have a beneficial impact on solid waste in the City and compliance with solid waste regulations but would have greater impacts than the proposed Program as it would not achieve the same level of beneficial impact as the proposed Program.

5.3 Environmentally Superior Alternative

The State CEQA Guidelines (Section 15126.6(d)) require that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project. The Guidelines (Section 15126.6 (e)(2)) further state, in part, that "If the environmentally superior alternative is the "No Project" alternative, the EIR would also identify an environmentally superior alternative among the other alternatives". Based on the analysis provided in this PEIR, the City has determined that the Program is the environmentally superior alternative.

In summary, the Program best meets the Program objectives and has the most environmental benefits. The environmental impacts of the Program's upstream measures would be due to the use of alternative materials to replace banned materials, and the impacts of downstream measures would be largely due to construction activities of facilities.

Table 5.3-1. Summary of Alternatives

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Aesthetics				
a) Have a substantial adverse effect on a scenic vista?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	MM AES-2: Lighting

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
e) Create a new source of shading that would degrade the existing visual character or quality of the site and its surroundings?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AES-1: Visual Impact Assessment MM AES-3. Shading Reduction
Agricultural Resources				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AG-1: Farmland replacement/easement
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
d) Result in the loss of forest land or conversion of forest land to non-forest use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Air Quality				
a) Conflict with or obstruct implementation of the applicable air quality plan?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Expose sensitive receptors to substantial pollutant concentrations?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM AQ-1: Air Quality Impact Analysis and Emissions Reduction Measures
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Biological Resources				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-3: Worker Environmental Awareness MM NOI-1: Noise and Vibration Study and Control Plan

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-1: Biological Surveys MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM BIO-2: Sensitive Community Mitigation MM BIO-3: Worker Environmental Awareness
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
g) Would the Project Have a substantial impact, either directly or through habitat modifications, on common wildlife species?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM BIO-3: Worker Environmental Awareness MM NOI-1: Noise and Vibration Study and Control Plan
Cultural Resources				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
				MM CUL-2: Unanticipated Discovery Procedures
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discovery Procedures
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM CUL-1: Pre-construction Cultural Surveys and Tribal Cultural Monitoring MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects
Energy				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Geology and Soils				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Result in substantial soil erosion or the loss of topsoil?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM GEO-1: Paleontological Resources Protection Measures

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
Greenhouse Gas Emissions				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Hazards and Hazardous Materials				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-1: Waste Management Plan MM HAZ-2: WEAP
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-3: Phase I/II Environmental Site Assessment MM HAZ-4: Remediation Action Plan/Soil Management Plan
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HAZ-5: Airport Safety Hazard Assessment MM TR-1: Traffic Impact Report

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Analysis
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
Hydrology and Water Quality				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM HWQ-1: Hydrology Study MM UTIL-3: Water Conserving Design MM UTIL-4: Water Supply Assessment
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) impede or redirect flood flows?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Land Use and Planning				
a) Physically divide an established community?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Upstream: No Impact	Upstream: Less than Significant	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Mineral Resources				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Noise				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan MM NOI-2: Construction Noise Authorization MM NOI-3: Construction Hours MM NOI-4: Sensitive Receptor Buffers MM NOI-5: Property Line Noise Levels
b) Generation of excessive groundborne vibration or groundborne noise levels?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-1: Noise and Vibration Control Plan

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM NOI-6: Airport Impact Analysis
Population and Housing				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Public Services				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
protection? Police protection? Schools? Parks? Other public facilities?				
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Recreation				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: No Impact	Downstream: No Impact	Downstream: No Impact	None
Transportation				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
b) Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
d) Result in inadequate emergency access?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report
Tribal Cultural Resources				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM CUL-1: Pre-construction Cultural Survey and Tribal Cultural Monitoring MM CUL-2: Unanticipated Discoveries Procedures MM CUL-3: Unanticipated Discovery of Human Remains and Associated Funerary or Ceremonial Objects
Utilities and Services Systems				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Less than Significant with Mitigation	Downstream: No Impact	Downstream: Less than Significant with Mitigation	MM UTIL-1: Underground Utilities Search MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment MM UTIL-5: Wastewater Services Information (WWSI) Request

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
				MM UTIL-6: Energy Efficient Design
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Less than Significant with Mitigation	MM UTIL-3: Water Conserving Designs MM UTIL-4: Water Supply Assessment
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	Upstream: Less than Significant	Upstream: No Impact	Upstream: Less than Significant	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Less than Significant with Mitigation	MM UTIL-5: Wastewater Services Information (WWSI) Request.
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant with Mitigation	Downstream: No impact	Downstream: Same as Program	MM UTIL-2: Construction Waste Reduction

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
				MM UTIL-3: Water Conserving Designs
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Upstream: Less than Significant	Upstream: Less than Significant ++	Upstream: Less than Significant +	None
	Downstream: Less than Significant	Downstream: No Impact	Downstream: Less than Significant	None
Wildfire				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None.
	Downstream: Significant and Unavoidable	Downstream: No Impact	Downstream: Significant and Unavoidable	MM TR-1: Traffic Impact Report MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None.
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

Would the Program?	Program	Alternative 1 – No Program	Alternative 2 – EPR	Mitigation Measures
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Upstream: No Impact	Upstream: No Impact	Upstream: No Impact	None
	Downstream: Significant and Unavoidable	Downstream: No impact	Downstream: Significant and Unavoidable	MM HAZ-6: Emergency Access MM HAZ-7: Hillside Construction Staging and Parking Plan

Notes: + = greater adverse effect as compared to those of the Program; ++ = greatest adverse effect as compared to those of the Program

SECTION 6 Other CEQA Concerns

6.1 Growth-inducing Impacts

Section 15126.2(e) of the CEQA Guidelines requires an EIR to include a detailed statement of a proposed Project's anticipated growth-inducing impacts. A project would directly induce growth if it involves the construction of new housing and would indirectly induce growth if it results in substantial increases in short-term employment, which stimulates the need for additional housing and services; substantial new permanent employment opportunities; or removal of an obstacle to growth and development, such as removing a constraint on a public service. Increased growth may lead to other impacts including increased demand for utilities and public services, increased traffic and noise, air or water quality degradation, and habitat loss or degradation.

The proposed Program would not involve new development that could directly induce population growth, nor would it involve the extension of infrastructure that could indirectly induce population growth. The proposed Program would not involve construction of new housing or create a demand for additional housing. No additional staff or workers are expected to be required beyond those that would be needed to meet the City's waste handling demands based on normal increased population growth. The proposed Program would not displace any existing housing units or people. Therefore, the proposed Program is not anticipated to induce growth, nor is it anticipated to remove obstacles to growth. Thus, the proposed Program would have no impact on growth, either positively or negatively.

6.2 Energy

Appendix F of the CEQA Guidelines requires that energy implications of a project be considered in an EIR, with particular emphasis on avoiding or reducing the inefficient, wasteful, and unnecessary consumption of energy. As such, this discussion considers the proposed Program's consumption of energy resources, particularly transportation fuels, during the project's implementation.

As discussed in Section 3.7, the Program's upstream elements would either have less than significant or no impact on energy resources. The proposed Program would consume energy primarily through the use of gasoline- and/or diesel-powered vehicles and equipment. As noted in Section 3.4, Air Quality, Program vehicles would be powered, to the extent feasible, using renewable diesel fuel that meets California's Low Carbon Fuel Standards. As described in Section 3.7, Energy, during construction, mobile and stationary construction equipment be turned off when not in operation. Reducing idling of diesel-fueled vehicles reduces the amount of diesel used by the vehicle. Adherence to local, state, and federal regulations would reduce short-term fuel demand caused by Program vehicles.

The Program would represent only a small fraction of the fuel consumption in California. In addition, several downstream facility types have the potential to produce renewable energy. Specifically, the Anaerobic Digestion Facility would convert organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70% and provide energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. With a proper feedstock, this process produces more energy than is required for processing the materials. Therefore, the proposed Program would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and would not place a substantial demand on regional fuel or energy supplies. Further, the proposed Program would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

6.3 Significant Unavoidable Impacts

Section 3 provides a detailed analysis of the potential environmental impacts that could result from implementation of the proposed Program as well as proposed mitigation measures. The analysis contained herein has not identified any impacts that cannot feasibly be mitigated to a less than significant level for any of the upstream elements of the Program. The analysis also determined that, under most circumstances, there are no impacts due to downstream elements that cannot feasibly be mitigated to a less than significant level. However, for the following resource categories there are specific elements related to facility siting that could lead to Significant and Unavoidable Impacts:

- Biological Resources
- Cultural Resources
- Hazards and Hazardous Materials
- Noise
- Transportation
- Tribal Cultural Resources
- Wildfire

SECTION 7 References

7.1 Program Description

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SECTION 8 List of Preparers

LASAN, Solid Resources Citywide Recycling Division

- Rowena Romana, PhD, PE – Division Manager
- Paul Cobian, MS – Assistant Division Manager
- Christine Batikian, MPH, REHS – Environmental Supervisor
- Marjorie Phan, MPA – Environmental Supervisor
- Andres Ramirez Fromm – Environmental Specialist

Catalyst Environmental Solutions

Project Management Team and Technical Leads

- Daniel Tormey, PhD, PG – Program Manager
- Lindsey Garner, PhD – Deputy Program Manager
- Paden Voget, PE
- Hannah Donaghe, MS

Technical Support

- Emily Merickel, MS
- Olivia Hogan
- Adrian Gonzalez, MS
- Megan Schwartz, MESM

Blackhawk Environmental

- Kris Alberts
- Sarah Toback
- Hayley Minor

Yorke Engineering

- Brad Boyes, BSEnvE, MBA, QEP
- Tina Darjazanie, MSEnvE
- Greg Wolffe, CPP
- Dolores Rodriguez

Dan Tormey, Ph.D., P.G.

President, Technical Director

Summary of Qualifications

Dr. Tormey is an expert in energy, water resources, land management and environmental policy. He has served as a technical expert in state and federal court, including testimony in Federal Court on questions related to water supply and sustainable yield and testimony in state court on contaminant assessment, fate and transport, risk assessment and remediation. Other litigation and testimony have included environmental effects of plastics, water quality and quantity, water rights, and Endangered Species Act issues.

Dr. Tormey has been project manager or technical lead for many controversial CEQA and NEPA projects and is noted for the creativity of his policy and technical approaches. He has managed CEQA/NEPA reviews both for regulatory agencies (US Federal Energy Regulatory Commission, US Bureau of Land Management, US Bureau of Reclamation, US Forest Service, California Public Utilities Commission, California State Lands Commission, California State Water Resources Control Board) and for private-sector applicants.

Dr. Tormey has managed several CEQA reviews for the City of Los Angeles, including the PEIR for the City's enhanced watershed management plans; 2 major projects related to achieving the goal of 100% recycling of wastewater; projects related to reducing the presence of plastics; and several support assignments in environmental justice, cleanup of contaminated sites, and CEQA support. Dr. Tormey has conducted geochemical analysis and fate and transport analysis of plastic waste in the environment and associated natural resource damages. He has benchmarked local and state approaches to reducing plastics in the environment, and in the analysis of the comparative impacts and manufacturing of plastic compounds and replacement compounds.

Education

- Ph.D., Geology and Geochemistry, MIT
- B.S., Civil Engineering and Geology, Stanford University

Registrations

- Professional Geologist

Appointed

- U.S. National Academy of Sciences: Steering Committee on Geoheritage (2020-present)
- IUCN Geoscientist Specialist Group (2015-present)
- UNESCO World Heritage Site Review Panel (2009 - present)
- California Council on Science and Technology: Hydraulic Fracturing Study (2014-2015)
- California governor and legislature-appointed advisory committees on oil and gas issues (2014-present)
- Lead Scientist, Cruz del Sur (Andean post-disaster search and rescue group)
- Fellow, Explorers Club

Representative Project Experience

- Project Manager – Zero Waste City Facilities and Events on City Property; Expanded Polystyrene (EPS) Ban; and Expanded Single-Use Carryout Bag Ban; and Disposable Foodware Accessories on Request Categorical Exemptions – City of Los Angeles Bureau of Sanitation
- Programmatic EIR for Stormwater Management Program – City of Los Angeles Bureau of Sanitation
- Project Manager – EIR for Bacteria TMDL Compliance in Ballona Creek – City of Los Angeles Bureau of Sanitation
- Project Manager – Disposable Foodware Accessories Ordinance Categorical Exemption – City of Los Angeles Bureau of Sanitation
- Project Manager – CEQA/NEPA/Permitting for Santa Felicia Dam Safety Improvement Project – United Water Conservation District
- Geomorphology Expert – Newhall Ranch EIR/EIS, Los Angeles County
- Technical Lead – Comprehensive analysis of impacts of high-volume hydraulic fracturing at an oil and gas field in Los Angeles County

Lindsey Garner, Ph.D.

Senior Scientist

Summary of Qualifications

Dr. Lindsey Garner is an environmental toxicologist with over a decade of aquatic toxicology, water resources, CEQA/NEPA, permitting, litigation support, risk assessment, and project management experience. Dr. Garner has worked on a variety of large and complex projects involving multiple stakeholders including federal, state, and local government agencies, private industry, legal professionals, and the public. She has evaluated the toxicity, fate, and transport for various anthropogenic and natural compounds, including oil constituents, pesticides, drilling fluid-related materials, and metals, in support of environmental impact reports (EIRs), natural resource damage assessments (NRDAs), ecological risk assessments (ERAs), and various litigated cases. She has also served as subject matter expert and resource lead for various sections of EIRs, environmental impact statements (EISs), and environmental assessments (EAs).

Education

- PhD, Integrated Toxicology and Environmental Health, Duke University
- BS, Biology, Aquinas College

Disciplines

- Environmental Toxicology
- Ecological Risk Assessment
- Natural Resource Damage Assessment
- Aquatic Toxicology
- NEPA/CEQA
- Research and Publication

Professional Affiliations

- Society of Toxicology
- Society of Environmental Toxicology and Chemistry (SETAC)
- Pacific Northwest SETAC

Representative Project Experience

- CEQA Lead Author and Analyst - Zero Waste City Facilities and Events on City Property; Expanded Polystyrene (EPS) Ban; Expanded Single-Use Carryout Bag Ban; and Disposable Foodware Accessories on Request Categorical Exemptions – City of Los Angeles Bureau of Sanitation
- Deputy Project Manager, EIR Analyst, and Risk Assessor – Hydrilla Eradication Program Environmental Impact Report, California Department of Food and Agriculture
- CEQA Resource Analyst – San Gabriel Valley Greenway Network Implementation Plan Preliminary Draft Program Environmental Impact Report – Los Angeles County Public Works
- CEQA Lead Author – Categorical Exemption for 61 Oak Grove St Project – EVgo, San Francisco, California
- Project Manager and CEQA Analyst – Ventura County Coastal and Noncoastal Zoning Ordinance Updates for Oil and Gas Development – Ventura County Resource Management Agency
- CEQA Resource Analyst – Hyperion Wastewater Reclamation Plant Recycled Water Program EIR – Los Angeles Bureau of Sanitation
- Environmental Scientist – Comments on Draft CalEnviroScreen 4.0 – Los Angeles Bureau of Sanitation, California
- CEQA Resource Author – San Gabriel Valley Greenway Network Implementation Plan – Los Angeles County Department of Public Works
- CEQA Resource Author – Santa Ana River Watershed Weather Modification Initial Study/Mitigated Negative Declaration – SAWPA
- Deputy Project Manager, EIR and EA Resource Analyst, Biological Assessment Author, Permitting Specialist – Santa Felicia Dam Safety Improvement Project – United Water Conservation District
- Deputy Project Manager, Resource Analyst, Permitting Specialist – Harvey Diversion Fish Passage Restoration Project Environmental Assessment/Mitigated Negative Declaration – CalTrout

Paden J. Voget, P.E., QSD, ENV SP

Senior Civil & Environmental Engineer

Summary of Qualifications

Ms. Voget is a licensed Professional Engineer with over 19 years of experience in environmental and civil engineering consulting. She has a diverse background that includes CEQA and NEPA projects, environmental compliance, construction project management, environmental permitting, civil/restoration engineering, and water resources projects. She is highly experienced in working with federal and California environmental regulations and has a working knowledge of many other state and local regulatory requirements and agencies.

Ms. Voget has accumulated extensive experience in CEQA and NEPA compliance for air quality and greenhouse gas resource areas, including air quality and greenhouse gas impact assessments, air mitigation quantification methods, and air pollution control technology. In particular, she has developed air quality and climate change impact assessments to support CEQA and NEPA environmental review documents. For these assessments, she analysed the construction and operational impacts through quantification of emissions, modelling of pollutant concentrations, and determination of the level of significance, along with providing recommendations for mitigation measures.

Representative Project Experience

- CEQA Resource Analyst - Zero Waste City Facilities and Events on City Property; Expanded Polystyrene (EPS) Ban; and Expanded Single-Use Carryout Bag Ban Categorical Exemptions – City of Los Angeles Bureau of Sanitation
- CEQA Resource Analyst, Transportation/Noise/Air Quality/Greenhouse Gas – Ballona Creek Low-Flow Treatment Facility EIR, City of Los Angeles
- CEQA Resource Analyst, Air Quality/Greenhouse Gas/Noise – Statewide Hydrilla Eradication Program EIR – California Department of Food and Agriculture
- Deputy Project Manager – CEQA Review of the Operation Next/Hyperion 2035 Program EIR, City of Los Angeles
- CEQA Resource Analyst, Air Quality/Greenhouse Gas/Noise - D.C. Tillman Recycled Water Project IS/MND – City of Los Angeles
- CEQA Resource Analyst – San Gabriel Valley Greenway Network Implementation Plan Preliminary Draft Program Environmental Impact Report – Los Angeles County Public Works
- CEQA Specialist – Hollywood Burbank Airport Terminal Replacement Project EIS Review and Comment – City of Los Angeles
- CEQA Specialist – Comments on the Draft Environmental Impact Report prepared for the Biogas Renewable Generation Project at Scholl Canyon Landfill (SCH No. 2017081062), Los Angeles, California
- CEQA Resource Analyst, Hydrology/Geology/Hazards, Transportation and Hazardous Materials/Noise - Santa Felicia Dam Safety Improvement Project EIR, United Water Conservation District
- CEQA/NEPA Resource Analyst, Transportation/Noise/Air Quality/Greenhouse Gas - Bijou Park Creek Watershed Enhancement Project – City of South Lake Tahoe

Education

- Bachelor of Science, Environmental Resources Engineering, Humboldt University

Disciplines

- Civil & Environmental Engineering
- CEQA & NEPA
- Due Diligence
- Site Assessment & Remediation
- Water Resources Compliance & Management
- Hydrology & Geomorphology

Registrations

- California Professional Engineer No. C69238
- California State Water Resources Control Board, QSD Certification No. C06923
- Institute for Sustainable Infrastructure Envision Sustainability Professional

Professional Associations

- American Society of Civil Engineers (ASCE)

Hannah Donaghe, MS

Senior Biologist/Environmental Scientist

Summary of Qualifications

Ms. Donaghe is a biologist with 10 years of experience working in environmental consulting to support clients with environmental monitoring/planning and compliance. She has an interdisciplinary background in environmental and biological sciences, with a focus in marine ecosystems.

Ms. Donaghe holds a Federal Section 10(a)(1)(A) Recovery Permit for tidewater goby (*Eucyclogobius newberryi*) and California red-legged frog (*Rana draytonii*) and a state Scientific Collecting Permit. She is skilled in the following: sensitive species surveys, biological and environmental monitoring, aquatic studies, writing technical reports, California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation, permitting, and editing scientific reports for technical and non-technical audiences. She is skilled at performing sensitive species surveys/monitoring for the following: tidewater goby, California red-legged frog, western snowy plover, California least tern, California tiger salamander, salmonids, and nesting birds.

Ms. Donaghe has extensive experience working with contractors to protect biological resources by ensuring permit and mitigation measure compliance for construction projects throughout Santa Barbara County. She has assisted clients with compliance under the Endangered Species Act, assessed impacts of development and other projects on listed species and their habitat, and developed mitigation measures.

Education

- Master of Science, Earth Systems, Stanford University, 2012
- Bachelor of Science, Earth Systems, Stanford University, 2011

Disciplines

- Sensitive Species Surveys
- Environmental/Biological Monitoring
- Biological Resources
- Aquatic Studies
- CEQA/NEPA Compliance
- Environmental Planning

Permits/Certifications

- Federal Section 10(a)(1)(A) Recovery Permit for Tidewater Goby and California Red-legged Frog
- CDFW Scientific Collecting Permit
- First Aid and CPR
- 40-hour Hazwoper

Representative Projects

- CEQA Resource Analyst - Zero Waste City Facilities and Events on City Property; Expanded Polystyrene (EPS) Ban; and Expanded Single-Use Carryout Bag Ban Categorical Exemptions – City of Los Angeles Bureau of Sanitation
- CEQA Resource Analyst – San Gabriel Valley Greenway Network Implementation Plan Preliminary Draft Program Environmental Impact Report – Los Angeles County Public Works
- Project Manager/Biologist – Pre-Construction Assessment Program for VenturaWaterPure Project – Ventura County, California
- Project Manager/Biologist – Biological Assessment for the City of Santa Barbara Waterfront Department's Sediment Management Program – Santa Barbara, CA
- Biologist – Salton Sea Management Program 10-year Plan Programmatic Environmental Assessment – Imperial County, California
- Biologist – Olcese Water District Rio Bravo Hydroelectric Project Sediment Management Mitigated Negative Declaration – Kern County, California
- Biologist – Pajaro River Vegetation Mapping/Wetland Delineation and EIR – Santa Cruz, California
- Project Manager – County of Los Angeles Department of Beaches & Harbors, Western Snowy Plover Surveys and Monitoring for Beach Berm Construction – Los Angeles County, California

Appendix A Current State and Local Regulatory Landscape

SECTION 1 Relevant State and Local Regulations

As described in the Purpose and Need (Section 1.3.1), reduction of plastics in the environment is currently underway through a United Nations-mediated international treaty negotiation which includes the United States; through several California Senate and Assembly bills; and through actions by the Los Angeles City Council. As such, the City's Comprehensive Plastics Reduction Program must balance the potential for preemption by state actions with the need for action.

The state regulates across a broad range of counties and cities with very different conditions and needs. Los Angeles, the largest city in the State and second largest in the country, has local needs and concerns that require further local regulation. This section provides an overview of the current regulatory environment pertaining to single-use plastic reduction and similar measures at both the state and city levels of government. Key provisions of relevant state laws and city ordinances are provided herein. The legislative language of each bill in its entirety can be found at the California Legislative Information website (https://leginfo.legislature.ca.gov/faces/home.xhtml). Where the state has preempted a Program element, the Program Description (Section 2) clearly identifies the aspects over which the state has established preemption.

1.1 State of California

1.1.1 Recycling Regulations

1.1.1.1 1989, California Integrated Waste Management Act

CalRecycle administers the California Integrated Waste Management Act of 1989, which requires each city, county, and regional agency to develop a source reduction and recycling element of an integrated waste management plan containing specified components, including a source reduction component, a recycling component, and a composting component. With certain exceptions, the source reduction and recycling element of that plan is required to divert 50% of all solid waste from landfill disposal by January 1, 2000, through source reduction, recycling, and composting activities.

1.1.1.2 2011, AB 341: Solid waste: diversion

AB 341, passed in 2011, updated the 1989 California Integrated Waste Management Act to state that the policy goal of the state is that not less than 75% of solid waste generated be source reduced, recycled, or composted by 2020. This bill specifically requires a business that generates more than four cubic yards of commercial solid waste per week or a multifamily residential dwelling of five units or more to arrange for recycling services by July 1, 2012. The bill also imposes a state-mandated local program by requiring that each jurisdiction implement a commercial solid waste recycling program meeting specified elements of the law by July 1, 2012. The bill allows local agencies to collect a fee from commercial waste generators to recover the local agency's costs incurred in complying with the commercial solid waste recycling program requirements.

1.1.1.3 2021, AB 881: Recycling: plastic waste: export

AB 881 requires regional agencies (i.e., cities, counties, or joint powers authorities) must count exported plastic mixtures as disposal waste and not recycled. Exported plastic mixtures may be counted as diverted through recycling if they meet the following criteria: (1) The plastic waste export is a mixture of plastic wastes consisting of polyethylene, polypropylene, or polyethylene terephthalate and the export is destined for separate recycling of each material, and (2) The plastic waste export is not prohibited by an applicable law or treaty of the country of destination and the import of the plastic waste into the country of destination will be conducted in accordance with all applicable laws and treaties of the country of destination.

1.1.1.1 2022, AB 1857: Solid waste

Prior to AB 1857, the Integrated Waste Management Act permitted jurisdictions to count up to 10% of their waste that they sent to municipal solid waste incinerators towards their obligation to divert at least 50% of their waste away from landfills. AB 1857 repealed the provision authorizing the inclusion of not more than 10% of the diversion through transformation. The act also requires CalRecycle, upon appropriation by the Legislature, to establish and administer the Zero-Waste Equity Grant Program as a competitive grant program to support targeted strategies and investments in communities transitioning to a zero-waste circular economy.

1.1.1.4 PCC 12153-12156 and 12320, State Agency Buy Recycled Campaign

CalRecycle and the Department of General Services implement state law requiring the legislature and state agencies to purchase products containing post-consumer recycled content material through the State Agency Buy Recycled Campaign. The Campaign stipulates minimum post-consumer recycled content percentages for various products from 16 product categories (include plastic products, foodware, and paper products) that state agencies and the legislature purchase.

1.1.1.5 2022, SB 54: Solid waste: reporting, packaging, and plastic food service ware (Plastic Pollution Prevention and Packaging Producer Responsibility Act)

The Plastic Pollution Prevention and Packaging Producer Responsibility Act (SB 54) was signed into law on July 8, 2022. The Act sets specific statewide source reduction goals for plastic “covered materials”[1],

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[1] Per SB 54 and PRC 42041(e), a covered material is defined as follows:
(A) Single-use packaging that is routinely recycled, disposed of, or discarded after its contents have been used or unpackaged, and typically not refilled or otherwise reused by the producer.
(B) Plastic single-use food service ware, including, but not limited to, plastic-coated paper or plastic-coated paperboard, paper or paperboard with plastic intentionally added during the manufacturing process, and multilayer flexible material. For purposes of this subparagraph, “single-use food service ware” includes both of the following:
(i) Trays, plates, bowls, clamshells, lids, cups, utensils, stirrers, hinged or lidded containers, and straws.
(ii) Wraps or wrappers and bags sold to food service establishments.

which are single-use packaging and plastic single-use foodware items, and places the responsibility of this source reduction and recycling, composting, and reuse on producers of covered materials through a process known as Extended Producer Responsibility. The law requires that producers create a Producer Responsibility Organization (PRO) that will implement a statewide Extended Producer Responsibility program in which plastic products are collected and recycled, composted, and reused. All producers of covered material must form and join a PRO by 2024. The PRO's governing body must then submit an application to CalRecycle and, if approved, the PRO would be responsible for carrying out SB 54's requirements, including creating a comprehensive plan and budget, which the PRO must first submit to an advisory board for review and comment and then to CalRecycle for approval. Individual producers that are part of the PRO must submit individual source reduction plans to the PRO, including data regarding plastic usage. No later than 2027, no producer may sell, offer for sale, import, or distribute covered materials in California unless the producer is approved to participate in the PRO's plan.

The Extended Producer Responsibility is to be fully funded and operated by the PRO, with CalRecycle providing oversight. SB 54 establishes significant financial obligations for producers of covered material. These include fees to the PRO, and the PRO must pay CalRecycle a "circular economy administrative fee" in an amount to be set by CalRecycle. This fee will then be deposited into the California Circular Economy Fund, established by the new law. In addition, beginning in 2027, the PRO must deposit an annual surcharge of $500 million into the California Plastic Pollution Mitigation Fund. The bill would allow the PRO to collect up to $150 million from plastic resin manufacturers that sell plastic covered materials to the PRO's members for the purpose of paying this surcharge. The California Plastic Pollution Mitigation Fund would be used by state agencies for purposes relating to mitigating the environmental impacts of plastic.

The law requires the following additional key elements:

- That all covered material offered for sale, distributed, or imported in or into the state on or after January 1, 2032, is recyclable in the state or eligible for being labeled "compostable".
- That all plastic covered material offered for sale, distributed, or imported in or into the state achieves the following recycling rates:
- 30% by January 1, 2028

Per PRC 42041(s), "Packaging" means any separable and distinct material component used for the containment, protection, handling, delivery, or presentation of goods by the producer for the user or consumer, ranging from raw materials to processed goods. "Packaging" includes, but is not limited to, all of the following:
(1) Sales packaging or primary packaging intended to provide the user or consumer the individual serving or unit of the product and most closely containing the product, food, or beverage.
(2) Grouped packaging or secondary packaging intended to bundle, sell in bulk, brand, or display the product.
(3) Transport packaging or tertiary packaging intended to protect the product during transport.
(4) Packaging components and ancillary elements integrated into packaging, including ancillary elements directly hung onto or attached to a product and that perform a packaging function, except both of the following:
(A) An element of the packaging or food service ware with a de minimis weight or volume, which is not an independent plastic component, as determined by the department.
(B) A component or element that is an integral part of the product, if all components or elements of the product are intended to be consumed or disposed of together.

- 40% by January 1, 2030
- 65% by January 1, 2032.
- Producers of EPS food service ware shall not sell, offer for sale, distribute, or import in or into the state EPS food service ware unless the producer demonstrates to the department that all EPS meets the following recycling rates:
- 25% by January 1, 2025
- 30% by January 1, 2028
- 50% by January 1, 2030
- 65% by January 1, 2032.

Draft regulations for SB 54, in addition to the mandated study on materials characterization and existing recyclability, were released by CalRecycle on December 28, 2023.

1.1.2 Microplastics Regulations

1.1.2.1 2018, SB 1263 Statewide Microplastics Strategy

The California Legislature recognized the need for a comprehensive plan to address this environmental challenge with the adoption of SB 1263 in 2018, requiring the California Ocean Protection Council to adopt a statewide research strategy and identify early actions to reduce microplastic pollution in California's marine environment.

This Statewide Microplastics Strategy was published in February 2022 in response to SB 1263 to identify early actions and outline research priorities to address microplastics in the marine environment. The Ocean Protection Council Statewide Microplastic Strategy provides a multi-year roadmap for California to take a national and global leadership role in managing microplastics pollution. The Strategy outlines a two-track approach to comprehensively manage microplastics in California. The first track (Chapter 2A: Solutions) outlines immediate, 'no regrets' actions and multi-benefit solutions to reduce and manage microplastic pollution, while the second track (Chapter 2B: Science to Inform Future Action) outlines a comprehensive research strategy to enhance the scientific foundation for microplastic monitoring, source identification, risk assessment, and development of management solutions.

1.1.2.2 2020, AB 888, Waste Management: Plastic Microbeads

AB 888 prohibits the sale in California of personal care products, such as soap, shampoo and toothpaste, that contain plastic microbeads. A plastic microbead is defined as an intentionally added solid plastic particle measuring five millimeters or less in every dimension. The ban took effect on January 1, 2020, and targets products designed to exfoliate or cleanse via "rinsing off". The law does not apply to prescription drugs or to products containing less than one part per million (ppm) of plastic microbeads.

1.1.3 Plastic Bottle Regulations

1.1.3.1 2019, AB 1162, Lodging establishments: personal care products: small plastic bottles

AB 1162 prohibits a lodging establishment from providing a small plastic bottle containing a personal care product to a person staying in a sleeping room accommodation, in any space within the sleeping room accommodation, or within a bathroom shared by the public or guests. The law took effect for establishments with more than 50 rooms on January 1, 2023, and will apply to all other lodging establishments on January 1, 2024.

The bill prohibits, on and after January 1, 2020, a city, county, or city and county from passing or enforcing an ordinance, resolution, regulation, or rule relating to personal care products in plastic bottles provided at lodging establishments.

1.1.3.2 2020, AB 793, California Beverage Container Recycling and Litter Reduction Act

AB 793 establishes recycled content standards for plastic beverage containers[2] subject to the California Refund Value (CRV). The law requires that the total number of plastic beverage bottles for sale in the state contain on average 15% post-consumer plastic recycled content from January 1, 2022 to December 31, 2024; an average of 25% post-consumer plastic recycled content between January 1, 2025 and December 31, 2029; and 50% post-consumer plastic recycled content per year beginning January 1, 2030. Beginning January 1, 2023, beverage manufacturers that do not meet the minimum content requirements are subject to annual administrative penalties. Penalties will be assessed beginning March 1, 2024, for non-compliance.

In addition, the law requires plastic material reclaimers to report the amount and type of empty plastic beverage containers collected and sold. It also requires manufacturers of post-consumer recycled plastic to report the amount of food-grade and bottle-grade plastic material sold in the state.

CalRecycle is proposing permanent regulations to implement AB 793. The proposed regulations were submitted to the Office of Administrative Law on January 24, 2023, and published in the California Regulatory Notice Register on February 3, 2023 (CalRecycle 2023). The public comment period concluded with a rulemaking hearing on March 21, 2023.

The bill prohibits a city, county, or other local government jurisdiction from adopting an ordinance regulating the minimum recycled plastic content requirements for single-use plastic beverage containers.

1.1.3.3 2021, AB 962, California Beverage Container Recycling and Litter Reduction Act: Reusable beverage containers

AB 962 requires CalRecycle to allow reusable bottles to flow through the state's bottle bill program, ensuring that recycling centers and processors, including bottle washers, that handle reusable glass

[2] Per PRC 14505, A "beverage container" means the individual, separate bottle, can, jar, carton, or other receptacle, however denominated, in which a beverage is sold, and which is constructed of metal, glass, or plastic, or other material, or any combination of these materials. "Beverage container" does not include cups or other similar open or loosely sealed receptacles.

beverage containers receive the same payments they would receive for recycling single-use glass bottles.

1.1.3.4 2022, SB 1013, Beverage container recycling

SB 1013 revised the definition of "beverage" under the California Beverage Container Recycling and Litter Reduction Act to include distilled spirits, wine, or wine from which alcohol has been removed in whole or in part, whether or not sparkling or carbonated, and wine or distilled spirits contained in a beverage container that is a box, bladder, or pouch, or similar container, regardless of the material type from which the beverage container is made. Therefore, beginning January 1, 2024, wine and distilled spirits will be included in the California Beverage Container Recycling Program.

1.1.1.2 2023, SB 353 Beverage containers: recycling

SB 353 expanded the California Beverage Container Recycling and Litter Reduction Act to include any size container of 100% fruit juice and any size container of vegetable juice, beginning January 1, 2024. This bill exempts beverage containers of 46 ounces or more of 100% fruit juice and beverage containers with more than 16 ounces of vegetable juice from consideration in calculating the required percentage of postconsumer recycled plastic for a beverage manufacturer until January 1, 2026.

1.1.4 Foodware and Foodware Accessories Regulations

1.1.4.1 2018, AB 1884, Food facilities: single-use plastic straws

AB 1884 prohibits a full-service restaurant from providing single-use plastic straws to consumers unless requested by the consumer. The law allows a city, county, city and county, or other local public agency to adopt and implement an ordinance or rule that would further restrict a full-service restaurant[3] from providing a single-use plastic straw to a consumer.

1.1.4.2 2018, SB 1335, Solid waste: food service packaging: state agencies, facilities, and property

SB 1335, the Sustainable Packaging for the State of California Act of 2018, prohibits a food service facility located in a state-owned facility, operating on or acting as a concessionaire on state property, or under contract to provide food service to a state agency from dispensing prepared food using a type of food service packaging unless the type of food service packaging is on CalRecycle's List of Approved Food Service Packaging, which contains types of approved food service packaging that are reusable,

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[3] "Full-service restaurant" means an establishment with the primary business purpose of serving food, where food may be consumed on the premises, and where all of the following actions are taken by an employee of the establishment:
(1) The consumer is escorted or assigned to an assigned eating area. The employee may choose the assigned eating area or may seat the consumer according to the consumer's need for accommodation or other request.
(2) The consumer's food and beverage orders are taken after the consumer has been seated at the assigned seating area.
(3) The food and beverage orders are delivered directly to the consumer.
(4) Any requested items associated with the consumer's food or beverage order are brought to the consumer.
(5) The check is delivered directly to the consumer at the assigned eating area.

recyclable, or compostable. Food service packaging products that must be approved include bowls, cups, plates, containers, and trays. Straws, lids, plastic bags, and utensils are exempt from the law.

1.1.4.3 2021, AB 619, Retail food: reusable containers: multiuse utensils

AB 619 allows consumers to bring their own clean, reusable containers to a food facility to be filled by an employee/owner or the consumer, provided the food facility meets three requirements:

1. Consumer-owned containers must be isolated from the serving surface or the surface must be sanitized after each filling.
2. The food facility is required to prepare, maintain and adhere to written procedures that address cross-contamination prevention and wastewater disposal.
3. The food facility shall ensure compliance with handwashing requirements specified in California Retail Food Code.

1.1.4.4 2022, SB 1383, Short-lived climate pollutants: methane emissions: dairy and livestock: organic waste: landfills

SB 1383 requires jurisdictions (cities, counties, cities and counties, or special districts that provide solid waste collection services) to purchase recycled-content paper products that are recyclable, effective January 1, 2022. SB 1383 builds upon the existing recycled-content requirements, adding that paper purchases must also be recyclable and eligible to be labeled with an “unqualified recyclable label,” which indicates that recycling facilities are available to at least 60% of the consumers or communities where the item is sold. If recycling facilities are available to less than 60% of the consumers or communities, a product labeled as “recyclable” should have a “qualified label” that includes additional descriptors, such as “This product may not be recyclable in your area.” Products that include a qualified label do not meet SB 1383 procurement requirements.

Existing recycled-content requirements are provided in Public Contract Code Sections 22150-22154, which requires that jurisdictions purchase paper products that contain the following minimum percentages of postconsumer recycled content per PCC 12209:

- Printing and writing paper – 30%
- Other paper products – 30%, except as specified below:
    - Toilet paper – 45%
    - Paper towels – 40%
    - Facial tissue – 10%
    - Toilet seat covers – 20%
    - General purpose paper wipers – 40%
    - Food service ware (including but not limited to, napkins, plates, bowls, food trays, takeout boxes, placemats) – 40%

1.1.5 PFAS Regulations

PFAS-related regulations put forth by the state are described below. Table 1 provides notes on the applicability of or exemptions contained within these regulations and identifies aspects of the regulation that could be expanded upon by the City in the future under certain circumstances.

1.1.5.1 2020, SB 1044 – Firefighting Equipment and Foam: PFAS Chemicals

SB 1044 adds language to the Health and Safety Code. Beginning January 1, 2022, the bill requires any person, including a manufacturer, that sells firefighter personal protective equipment (PPE) to any person to provide a written notice to the purchaser at the time of sale if the PPE contains intentionally added PFAS.

The bill also requires the seller and the purchaser to retain a copy of the written notice on file for at least three years and to furnish the notice and associated sales documentation to the Attorney General, a city attorney, a county counsel, or a district attorney within 60 days of request, as provided.

Beginning January 1, 2022, the bill prohibits a manufacturer from manufacturing and selling of class B firefighting foam with intentionally added PFAS and prohibit a person from using class B firefighting foam containing intentionally added PFAS chemicals. The bill establishes exemptions from this requirement, including a limited-term waiver, as prescribed.

The bill requires a person that uses class B firefighting foam containing intentionally added PFAS chemicals to report use of the chemical, or report if there is a release to the environment, to the State Fire Marshal.

1.1.5.2 2021, AB 1200, Plant-based food packaging: cookware: hazardous chemicals

AB 1200 prohibits any person from distributing, selling, or offering for sale in the state any food packaging that contains PFAS at a concentration of 100 ppm or higher, beginning January 1, 2023. The bill requires a manufacturer to use the least toxic alternative when replacing regulated PFAS in food packaging to comply with this requirement. The bill defines "food packaging," to mean a nondurable package, packaging component, or food service ware that is intended to contain, serve, store, handle, protect, or market food, foodstuffs, or beverages, and is comprised, in substantial part, of paper, paperboard, or other materials originally derived from plant fibers. "Food packaging" includes food or beverage containers, take-out food containers, unit product boxes, liners, wrappers, serving vessels, eating utensils, straws, food boxes, and disposable plates, bowls, or trays.

AB 1200 also requires that beginning January 1, 2024, a manufacturer of durable cookware sold in California that contains one or more intentionally added chemicals on a designated list in the handle of the product or in any product surface that comes into contact with food, foodstuffs, or beverages to list the presence of those chemicals on the product label and include a statement on the product label and on the product listing for online sales, in both English and Spanish, regarding how a consumer can obtain more information about the chemicals in the cookware, as provided. It also requires, beginning January 1, 2023, a manufacturer of cookware to post on an internet website for the cookware a list of chemicals in the cookware that are present on the designated list. The bill would prohibit a manufacturer from making a claim, either on the cookware package commencing January 1, 2024, or on the internet website for the cookware commencing January 1, 2023, that the cookware is free of any specific chemical if the chemical belongs to a chemical group or class identified on the designated list, unless no individual chemical from that chemical group or class is intentionally added to the cookware. The bill would prohibit this cookware from being sold, offered for sale, or distributed in California unless the cookware and the manufacturer of the cookware comply with these provisions.

1.1.5.3 2021, AB 652, Product Safety: Juvenile Products: Chemicals: Perfluoroalkyl and Polyfluoroalkyl Substances

AB 652 bans the sale and distribution of new, not previously owned, children's products[4] containing PFAS, and requires the use of the "least toxic alternative", effective July 1, 2023. The bill prohibits manufacturers from replacing PFAS chemicals with carcinogens or reproductive toxicants as identified by the USEPA or as listed in the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). The bill excludes certain electronic products and internal components of any product that would not come into contact with a child's skin or mouth.

1.1.5.4 2022, AB 2771, Cosmetic Products: Safety

AB 2771 updates existing law so that beginning on January 1, 2025, all persons and entities are prohibited from selling, delivering, holding, or offering for sale, any cosmetics product[5] that contains intentionally added PFAS[6].

1.1.5.5 2022, AB 1817, Product Safety: Textile Articles: PFAS

AB 1817 prohibits the manufacture, distribution, or sale of any new, not previously owned, textile article[7] containing PFAS[8] beginning January 1, 2025, and requires a manufacturer to use the least toxic alternative when removing regulated PFAS in textile articles to comply with these provisions.

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[4] Children's (juvenile) products are those designed for use by infants and children younger than 12 years of age, including, but not limited to, a booster seat, changing pad, child restraint systems for use in motor vehicles and aircraft, floor playmat, highchair, highchair pad, infant bouncer, infant carrier, infant seat, infant swing, infant walker, nursing pad, nursing pillow, portable hook on chair, stroller, and sleeping products. Sleeping products include such things as nap mats, portable cribs, playpens, bassinets, co-sleepers, and pillows.

[5] Cosmetic products are defined as "an article for retail sale or professional use intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance."

[6] Intentionally added PFAS is defined in the text of AB 2771 as either of the following: PFAS chemicals that a manufacturer has intentionally added to a product and that have a functional or technical effect on the product; or PFAS chemicals that are intentional breakdown products of an added chemical. Previous PFAS bills do not provide this definition.

[7] Textile articles are defined as "textile goods of a type customarily used in households and businesses, and includes, but is not limited to, apparel, costumes and accessories, handbags, backpacks, draperies, shower curtains, furnishings, upholstery, beddings, towels, napkins, and tablecloths.

[8] Regulated PFAS include PFAS that a manufacturer has intentionally added to a product and that have a functional or technical effect in the product and PFAS that are intentional breakdown products of an added chemical that also have a functional or technical effect in the product. The presence of PFAS in a product or product component,

The bill excludes products applied to carpets and rugs that are regulated under the Safer Consumer Products (Green Chemistry) Program; workplace PPE; and clothing items for exclusive use by the U.S. military.

1.1.5.6 Safer Consumer Products Regulations – Listing Treatments Containing Perfluoroalkyl or Polyfluoroalkyl Substances for Use on Converted Textiles or Leathers as a Priority Product

Effective April 1, 2022, this regulation amended section 69511 and adopted section 69511.5, to article 11, chapter 55, division 4.5 of title 22 of the California Code of Regulations, to add treatments containing PFAS for use on converted[9] textiles or leathers to the Priority Products list of product-chemicals pursuant to section 69503.5.

These treatments include any product containing any member of the PFAS class of substances that may be marketed or sold for the purpose of:

- Eliminating dirt or stains from carpets, rugs, clothing, shoes, upholstery, or other converted textiles or leathers; or
- Repelling stains, dirt, oil, or water from carpets, rugs, clothing, shoes, upholstery, or other converted textiles and leathers.

These treatments are sometimes referred to as aftermarket treatments or impregnating agents (DTSC 2021).

Products covered include:

- Cleaner: a product marketed or sold for the purpose of eliminating dirt or stains;
- Protectant: a product marketed or sold to protect a surface from soiling when in contact with dirt or other impurities, or to reduce liquid absorption;
- Spot remover: a product marketed or sold to clean localized areas, or to remove localized spots or stains; and
- Water proofer or water repellant: a product marketed or sold to repel water.

The regulation does not include products marketed or sold exclusively for use during the manufacturing of carpets, rugs, clothing, shoes, furniture, or other converted textiles and leathers.

Table 1. Existing state senate and assembly bills related to PFAS regulation.

Bill	Affected Products	Notes and Exemptions	City of Los Angeles Options
SB 1044: Firefighting Equipment and	Beginning January 1, 2022	Does not restrict the use of PFAS in these clothing items, but does	None proposed

measured in total organic fluorine, is considered to be 100 parts per million on January 1, 2025 and 50 parts per million beginning on January 1, 2027.

[9] The term “converted” indicates textile and leather that manufacturers and craftspeople have turned into consumer products such as carpets, upholstery, furnishings, clothing, shoes, etc.

Bill	Affected Products	Notes and Exemptions	City of Los Angeles Options
Foam: PFAS Chemicals	Firefighter PPE (intentionally added PFAS)	require labeling/notification that the PPE contains PFAS	
	Beginning January 1, 2022 Class B Firefighting Foam (intentionally added PFAS)	Affects manufacturers and sellers/ distributors as well as users. Prohibits discharge and use of PFAS-containing Class B firefighting foams except when preempted (e.g., U.S. military). The bill establishes exemptions from this requirement, including a limited-term waiver, as prescribed.	None proposed
AB 1200: Ting. Plant-Based Food Packaging: Cookware: Hazardous Chemicals	Beginning January 1, 2023 Food Packaging: nondurable package packaging component, or food service ware that is comprised, in substantial part, of paper, paperboard, or other materials originally derived from plant fibers	Paper/Plant-based food packaging Prohibits sale, distribution of packaging containing PFAS concentrations of **100 ppm or higher.** Must use least toxic alternative.	Expand to all food-contact items, such as containers, cups, wraps/wrappers, snack bags (e.g., French fry bags), and boats and trays.
	Beginning January 1, 2024 Durable cookware	Labeling requirement only for food-contact products containing “designated list” chemicals.	Ban from food-contact products such as cookware, bakeware, etc.
AB 652: Friedman, Product Safety: Juvenile Products: Chemicals: Perfluoroalkyl and Polyfluoroalkyl Substances	On or after July 1, 2023. Bans sale and distribution of new (not used) juvenile products as those designed for use by infants and children younger than 12 years of age, including, but not limited to: a booster seat, changing pad, child restraint systems for use in motor vehicles and aircraft, floor playmat, highchair, highchair pad, infant bouncer, infant carrier, infant seat, infant swing, infant walker, nursing pad, nursing pillow, portable hook on chair, stroller, sleeping products (e.g., nap mats, portable cribs, playpens, bassinets, co-sleepers, and pillows).	Excludes certain electronic products and internal components of any product that would not come into contact with a child’s skin or mouth.	None proposed
AB 1817: Ting. Product Safety: Textile Articles: PFAS	Beginning on January 1, 2025 extends existing prohibitions to textile goods of a type	Excludes carpets and rugs regulated under the Safer Consumer Products (Green Chemistry) Program from the	Expand to cover other types of furniture and carpets/rugs

Bill	Affected Products	Notes and Exemptions	City of Los Angeles Options
	customarily used in households and businesses, and includes, but is not limited to, apparel, costumes and accessories, handbags, backpacks, draperies, shower curtains, furnishings, upholstery, beddings, towels, napkins, and tablecloths." Apparel is defined as either of the following: 1) Clothing items intended for regular wear or formal occasions, including, but not limited to, undergarments, shirts, pants, skirts, dresses, overalls, bodysuits, vests, dancewear, suits, saris, scarves, tops, leggings, school uniforms, leisurewear, athletic wear, sports uniforms, everyday swimwear, formal wear, onesies, bibs, diapers, footwear, and everyday uniforms for workwear; or, 2) Clothing items intended primarily for outdoor activities, including, but not limited to, hiking, camping, skiing, climbing, bicycling, and fishing.	definition of "textile articles". The Safer Consumer Products Program only covers aftermarket or impregnating agents that are applied to textiles and leathers and does not apply to the manufacturing process of the textiles. Therefore, carpets or other textiles manufactured with PFAS as a component are unaffected by either AB 1817 or the Safer Consumer Products Program. It also excludes personal protective equipment for industrial applications from the definition of clothing items intended for regular wear or formal occasions.	
AB 2762, Muratsuchi. Cosmetic products: safety.	Beginning on January 1, 2025, Prohibits sale and distribution of cosmetics containing intentionally added ingredients including the following PFAS and their salts: (A) Perfluorooctane sulfonate (PFOS); heptadecafluorooctane-1-sulfonic acid (CAS no. 1763-23-1). (B) Potassium perfluorooctanesulfonate; potassium heptadecafluorooctane-1-sulfonate (CAS no. 2795-39-3). (C) Diethanolamine perfluorooctane sulfonate (CAS 70225-14-8).		None proposed

Bill	Affected Products	Notes and Exemptions	City of Los Angeles Options
	(D) Ammonium perfluorooctane sulfonate; ammonium heptadecafluorooctanesulfonate (CAS 29081-56-9). (E) Lithium perfluorooctane sulfonate; lithium heptadecafluorooctanesulfonate (CAS 29457-72-5). (F) Perfluorooctanoic acid (PFOA)(CAS no. 335-67-1). (G) Ammonium pentadecafluorooctanoate (CAS no. 3825-26-1). (H) Nonadecafluorodecanoic acid (CAS no. 355-76-2). (I) Ammonium nonadecafluorodecanoate (CAS no. 3108-42-7). (J) Sodium nonadecafluorodecanoate (CAS no. 3830-45-3). (K) Perfluorononanoic acid (PFNA)(CAS no. 375-95-1). (L) Sodium heptadecafluorononanoate (CAS no. 21049-39-8). (M) Ammonium perfluorononanoate (CAS no. 4149-60-4).		
AB 2771: Friedman, Cosmetic Products: Safety	Beginning on January 1, 2025 Prohibits sale and distribution of cosmetics containing intentionally added PFAS or PFAS chemicals that are intentional breakdown products of added chemicals. An article for retail sale or professional use intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance.		None proposed

1.1.6 Labeling Regulations

1.1.6.1 2021, SB 343, Truth in Labeling Law

SB 343 prohibits a person from offering for sale, selling, distributing, or importing into the state any product or packaging for which a deceptive or misleading claim about the recyclability of the product or packaging is made. The bill requires that a product or packaging that displays a chasing arrows symbol must be considered recyclable pursuant to statewide recyclability criteria and be of a material type and form that routinely becomes feedstock used in the production of new products or packaging. The bill requires that all rigid plastic bottles and rigid plastic containers sold in the state shall be labeled with a resin code (0-7) but prohibits the resin identification code from being placed inside a chasing arrows symbol unless the rigid plastic bottle or rigid plastic container meets the requirements for statewide recyclability[10].

1.1.6.2 2021, AB 1201, Solid waste: products: labeling: compostability and biodegradability

AB 1201 prohibits a person from offering for sale a product (consumer product; package or a packaging component; a bag, sack, wrap, or other thin plastic sheet film product; and a food or beverage container or a container component, including, but not limited to, a straw, lid, or utensil) that is labeled as "compostable" or "home compostable" unless it meets the criteria below or has that specified certification. Fiber products that do not contain any plastics or polymers are exempt from the requirement to comply with an applicable standard specification.

This bill prohibits a person from selling or offering for sale a product that is labeled with the term "compostable" or "home compostable" unless the product satisfies specified criteria. The following criteria must be met by January 1, 2024:

- Compostable plastic products must meet the requirements of American Society for Testing and Materials (ASTM) D6400-19.
- Compostable plastic-coated fiber products must meet the requirements of ASTM D6868-19.
- Any consumer product labeled "Home Compostable" must be certified to meet the OK compost HOME certification requirements.

Compostable consumer products must also meet all the following requirements:

- Have a total organic fluorine concentration of less than 100 ppm.
- Be labeled in a manner that distinguishes it from noncompostable products.
- Be designed to be associated with the recovery of desirable organic wastes, such as food scraps and yard trimmings.

[10] A product or packaging is considered recyclable in the state if, based on the information published by the department, the product or packaging is of a material type and form collected for recycling by recycling programs for jurisdictions that collectively encompass at least 60% of the population of the state, among other statewide recyclability criteria.

Beginning January 1, 2026, all compostable consumer products must be made of materials that are allowable agricultural organic inputs under the USDA National Organic Program requirements.

1.1.7 Textile Regulations

1.1.7.1 2022, SB 1187, Fabric recycling: pilot project

SB 1187 requires CalRecycle to establish a pilot project in Los Angeles and Ventura counties in partnership with garment manufacturers to study and report on the feasibility of recycling fabric to create a circular economy for textiles and reducing the disposal of textiles in California. The pilot project may not exceed three years and end before January 1, 2027. The pilot project may include, but is not limited to, the following project elements:

- Creating accessible textile collection sites.
- Developing a hub for consolidating pre-consumer textile scraps to facilitate the use of those materials by other businesses.
- Remanufacturing of fibers.
- Increasing capacity to sort textiles to create cleaner and more uniform material streams, either manually or through investment in machinery and permanent infrastructure development.
- Community engagement and education on impacts of and alternatives to “fast fashion,” which may include, but is not limited to, conducting mending workshops in the community.

1.1.8 Balloon Regulations

1.1.8.1 1990, California Penal Code Section 653.1: Balloon Law

Section 653.1 of the California Penal Code prohibits the sale or distribution of a balloon that is constructed of electrically conductive material and filled with a gas lighter than air (helium), without affixing an object of sufficient weight to the balloon to counter the lift capability, affixing a specified warning statement on the balloon, and affixing a printed identification of the balloon’s manufacturer.

1.1.8.2 2018, AB 2450: Electrically conductive balloons

AB 2450 requires the manufacturer of a balloon that is constructed of electrically conductive material to permanently mark each balloon with the identity of the manufacturer and a printed statement that warns the consumer about the dangerous risk of fire if the balloon comes in contact with an electrical power line.

1.1.8.3 2022, AB 847: Electrically Conductive Balloons

AB 847 will partially phase out metallic balloons starting in 2028 before totally banning them in 2032. The bill mandates that all metallic balloons sold or made for sale in California be made of material that does not conduct electricity. This bill does not outlaw the sale or distribution of lighter-than-air balloons.

This bill requires the manufacturer of a foil balloon to permanently mark the balloon with additional specified information, including the dangers of releasing foil balloons that may come into contact with overhead power lines and that the balloon is in compliance with the provisions of this bill. The bill defines a "foil balloon" to mean a balloon that is constructed of electrically conductive material.

This bill requires a person who sells, offers for sale, or manufactures for sale any foil balloon to ensure that those foil balloons are manufactured to meet certain requirements, including passing a standard test that is approved by the Institute of Electrical and Electronics Engineers. The bill would require foil balloons to become compliant with that requirement pursuant to a prescribed phase-in period. By January 2031, the bill would prohibit a person from selling, offering for sale, or manufacturing for sale, a foil balloon, unless the balloon complies with all provisions of the law.

1.1.9 Single-use Plastic Bag and Plastic Packaging Regulations

1.1.9.1 2016, SB 270: Single Use Carryout Bag Ban

SB 270 updated PRC Section 42280 to prohibit California stores[11] from providing single-use carryout bags to customers at the point of sale, beginning on July 1, 2015. The state defined a single-use carryout bag as one made of a "plastic, paper, or other material that is provided by a store to a customer at the point of sale and that is not a recycled paper bag or a reusable grocery bag."

SB 270 "occupies the whole field of regulation of reusable grocery bags, single-use carryout bags, and recycled paper bags, as defined in this chapter, provided by a store, as defined in this chapter" (PRC 42287).

1.1.9.2 2022, SB 1046: Solid waste: precheckout and carryout bags

SB 1046 prohibits, on and after January 1, 2025, a store, as defined, from providing a precheckout bag to a customer if the bag is not either a compostable bag or a recycled paper bag. A "precheckout bag" is defined as a bag provided to a customer before the customer reaches the point of sale, that is designed to protect a purchased item from damaging or contaminating other purchased items in a checkout bag, or to contain an unwrapped food item, such as, but not limited to, loose produce, meat or fish, nuts,

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[11] A "Store" as defined in PRC 42280 (g) is a retail establishment that is any of the below:
"(1) A full-line, self-service retail store with gross annual sales of two million dollars ($2,000,000) or more that sells a line of dry groceries, canned goods, or nonfood items, and some perishable items.
(2) Has at least 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law (Part 1.5 (commencing with Section 7200) of Division 2 of the Revenue and Taxation Code) and has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code.
(3) Is a convenience food store, foodmart, or other entity that is engaged in the retail sale of a limited line of goods, generally including milk, bread, soda, and snack foods, and that holds a Type 20 or Type 21 license issued by the Department of Alcoholic Beverage Control."
(4) Is a convenience food store, foodmart, or other entity that is engaged in the retail sale of goods intended to be consumed off the premises, and that holds a Type 20 or Type 21 license issued by the Department of Alcoholic Beverage Control."

grains, candy, and bakery goods. “Precheckout bag” does not include a bag used to prepackage items prior to their arrival in a store.

1.1.10 Cigarette/Vape Cartridge Regulations

1.1.10.1 2003, SB 1215 – Electronic Waste Recycling Act of 2003: Covered Battery-Embedded Products

SB 1215 expands the definition of “covered electronic device” to include a “covered battery-embedded product,” therefore expanding the scope of the Electronic Waste Recycling Act of 2003 to include covered battery-embedded products. SB 1215 was signed into law to reduce battery fires and injuries to sanitation workers as well as to ensure that batteries are collected for recycling rather than contributing to the waste stream. Products included are those that contain a battery that is not designed to be easily removed by the user. Electronic nicotine delivery systems are excluded from the scope of this Covered Electronic Waste Recycling Program (CalRecycle 2023-SB1215). E-cigarettes containing nicotine are excluded from this bill, but e-cigarettes or vape products containing non-nicotine substances, like cannabis, are not included on the list of excluded products.

2.1.10.2 2022, AB 1894: Integrated cannabis vaporizer: packaging, labeling, advertisement, and marketing

AB 1894 requires that by July 1, 2024, the advertisement and marketing of a cannabis cartridge and an integrated cannabis vaporizer prominently display a specific language directing users to properly dispose of a cannabis cartridge and an integrated cannabis vaporizer as hazardous waste at a household hazardous waste facility or other facility authorized under the hazardous waste control laws under Chapter 6.5 (commencing with Section 25100) of Division 20 of the Health and Safety Code. It also prohibits the package, label, advertisement, and marketing from indicating that the cannabis cartridge or integrated cannabis vaporizer is disposable or implying that it may be thrown in the trash or recycling streams. This law applies only to cannabis products and not tobacco e-cigarettes or vaporizers.

1.2 City of Los Angeles Ordinances

1.2.1 2004, Los Angeles Municipal Code (LAMC) Section 56.02 – Silly String – Hollywood Division During Halloween

In 2004, Los Angeles Mayor James Hahn signed a council-backed ordinance (LAMC Section 56.02) to ban Silly String in Hollywood on Halloween night. The ordinance was introduced and championed by Los Angeles City Council members for Hollywood, Eric Garcetti, and Tom LaBonge in response to Hollywood Boulevard property owners. The ordinance calls for a $1000 fine and/or six months in jail for use, possession, sale, or distribution of Silly String in Hollywood from 12:01 a.m. on October 31 to 12:00 p.m. on November 1.

1.2.2 2009, Ordinance 180751: Preferable Purchasing Ordinance

Ordinance 180751 provided that City departments shall procure Environmentally Preferable Products (including but not limited to, paper products, compost, glass, plastics, solvents and paints, and remanufactured, recyclable or recycled toner cartridges). Various attributes to be considered when making the determination of an environmentally preferable product, include but are not limited to the following: the percentage of recycled content materials it contains, ease of recycling the product, the amount of packaging material, whether the product is compostable, and whether the product is recyclable.

1.2.3 2013, Ordinance 182604: Single-use Carry-out Bag Ordinance

The Los Angeles City Council passed the Single-Use Carryout Bag Ordinance (Ordinance 182604) on June 25, 2013, banning single-use carryout plastic bags[12] at the point of sale in specified retail stores and requiring retailers to provide recyclable paper bag for 10 cents or reusable bags to consumers for sale or at no charge for carryout[13]. In support of the ordinance, the City, as lead agency, prepared the Single-Use Carryout Bag Ordinance Environmental Impact Report (EIR; SCH #2012091053). The EIR evaluated the potential environmental impacts of the ordinance and found that it would have no significant impact and no mitigation measures were required.

The Single Use-Carryout Bag Ordinance applies to specified retail stores in the City, including large retailers (full-line self-serve retail stores with two million dollars, or more, in gross annual sales, and stores of at least 10,000 square feet of retail space that generate sales or use tax), and small retailers (supermarkets, grocery stores, drug stores, convenience food stores, food marts, pharmacies, or other entities engaged in the retail sale of a limited-line of goods that include milk, bread, soda, and snack food, including those stores that sell alcohol).

1.2.4 2019, Ordinance 186028: Plastic straws on request

Ordinance 186028, passed by the Los Angeles City Council on March 1, 2019, prohibits food or beverage facilities in the City from providing or offering disposable plastic drinking straws, including self-serve dispensers, to customers except upon customer request. The ordinance applies to facilities including, but not limited to, coffee shops, fast food restaurants, drive-through locations, street cart vendors, and food trucks. The ordinance went into effect for large food or beverage facilities (those with over 26 employees) on April 22, 2019, and for all other food or beverage facilities on October 1, 2019.

1.2.5 2021, Ordinance 187030: Disposable foodware accessories on demand ordinance

The Disposable Foodware Accessories ordinance (Ordinance 187030) prohibits food or beverage facilities in the City from providing or offering disposable foodware accessories[14] to customers, except

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[12] Per Article 2 to Chapter XIX of the LAMC, a “plastic single-use carryout bag” means any bag provided to a customer at the point of sale which is made predominantly of plastic derived from either petroleum, natural gas, or a biologically based source, such as corn or other plant sources, whether or not such bag is compostable and/or biodegradable.

[13] The ordinance also mandates a 10 cent charge on recycled content paper single-use carryout bags at the point of sale in the specified retail stores.

[14] The disposable foodware accessories covered by the ordinance include:

upon customer request. The ordinance was passed on April 8, 2021, and went into effect for large food or beverage facilities (those with over 26 employees) on November 15, 2021, and for all other food or beverage facilities on April 22, 2022.

1.2.6 2022, Ordinance 187717: Expanded polystyrene ban

The Los Angeles City Council passed the Prohibition of the Distribution or Sale of Expanded Polystyrene Products (Ordinance 187717) on December 6, 2022. The ordinance prohibits the sale or distribution of any EPS products; any food or beverage in an EPS product; and shipping or packaging materials that contain EPS. These EPS products include the following:

- EPS products intended primarily for food or beverage service use including but not limited to, cups, plates, bowls, trays, and clamshells;
- EPS egg cartons;
- EPS coolers and ice chests that are not encased in a more durable material;
- EPS shipping materials including shipping boxes, loose fill packing materials (e.g., packing peanuts), molded packaging materials.

Exempt products are as follows:

- Products such as surfboards, coolers, or craft supplies that are wholly encapsulated or encased in a more durable material;
- Craft supplies;
- Packaging or containers that are used for drugs, medical devices, or biological materials.
- EPS used in the manufacture of safety devices and equipment including but not limited to vehicle child restraint systems, personal floatation devices such as life jackets and life preservers, helmets, and vehicle impact protection systems;
- Construction and building products made from EPS if the products are used in compliance with LAMC Chapter IX: Building Regulations and used in a manner preventing the EPS from being released into the environment;
- Products that are pre-packaged outside of the City using EPS as part of the packaging material (except for egg cartons), as long as the products themselves are not made of EPS or unless a more durable material wholly encapsulates or encases the EPS;

- Disposable or single-use items provided alongside prepared food or beverages that are served in single-use plates, container, or cups, including but not limited to utensils, condiment packets, disposable plastic drinking straws and all other single-use straws, stirrers, splash sticks, cocktail sticks, toothpicks, napkins, wet-wipes, cup lids, cup sleeves, and beverage trays.
- Condiments in packets, cups, or other containers for condiments that are sealed or resealable and intended for single-use for relishes, spices, sauces, confections or seasoning that requires no additional preparation and that is used on a prepared food or beverage, including but not limited to ketchup, mustard, mayonnaise, barbecue sauce, dressings, sauerkraut, salsa, soy sauce, wasabi, ginger, hot sauce, grated cheese, syrup, jam, jelly, butter, salt, sugar, sugar substitutes, cream, creamer, pepper or chili pepper.

- Online sales of products that are shipped from a location outside of the City; and
- EPS packaging products that have been received from sources outside the City may be reused in order to keep the products out of the waste stream.

The ordinance went into effect for large food and beverage facilities and retailers (those with 26 or more employees) on April 23, 2023, and will be required for all food and beverage facilities and retailers on April 23, 2024.

1.2.7 2022, Ordinance 187716: Single-use Carry-out Bag Ban Expansion

The Los Angeles City Council passed the Single-use Carry-out Plastic Bag Ban Expansion (Ordinance 187716) on December 6, 2022. The ordinance expands the City's 2013 Single-Use Carry-out Bag Ordinance to apply to additional types of retail establishments. The ordinance prohibits apparel stores, farmer's market vendors, food or beverage facilities, hardware stores, and open air market vendors from offering or providing a plastic single-use carryout bag to customers. The ordinance has been in effect for apparel stores, farmer's market vendors, food or beverage facilities, hardware stores, and open air market vendors of any size since July 1, 2023.

1.2.8 2022 Zero Waste at City Facilities and Events

The Los Angeles City Council passed the Zero Waste at City Facilities and Events Ordinance (Ordinance 187718) on December 6, 2022, adding Article 27 of Chapter 1, Division 10 of the Los Angeles Administrative Code. The ordinance curtails the production of solid waste during City-sponsored events and at City-owned facilities by reducing food waste, preventing the usage of non-recyclable foodware and other non-recyclable materials, and promoting the use of reusable and/or recyclable or compostable materials. The ordinance applies to all City departments as well as contractors that operate at City facilities and events on City property. The ordinance seeks to further the reduction of single-use plastics by requiring reusable alternatives and mandatory contract terms that further the goals of the City to reduce plastics from the waste stream, beginning with the waste at its own facilities and on its own properties.

Mandatory provisions of the ordinance are summarized below:

- Food Waste Reduction
    - Contractors would be required to donate eligible surplus edible food to a food rescue organization and would not be allowed to dispose of any surplus edible food unless donations are not permitted under applicable laws and regulations.
    - Contractors would be required to place pre-consumer and post-consumer food scraps into designated collection bins as provided by the City or a private waste management services provider for proper recycling. Contractors would be encouraged to utilize all portions of foods that they prepare, such as vegetable and fruit foliage, rather than disposing of these items.
    - Contractors would be required to offer half portions, child portions, and a la carte options and avoid garnishes that are not commonly eaten.

- Reusable Foodware and Foodware Accessories
    - Contractors would be required to use only recyclable or compostable foodware for to-go service.
    - Contractors would be prohibited from providing disposable foodware for dine-in meal service or catered service.
    - For all meal services, Contractors would be required to dispense or serve beverages in reusable or recyclable cups, or in recyclable bottles or in cans made of glass, metal, or recyclable plastic. No single-use or disposable beverage cups would be allowed.
    - Contractors would be required to allow customers to provide their own reusable food containers and offer a discount to customers that provide their own foodware if Contractors charge for their food and beverages.
    - Contractors would not be allowed to provide water in plastic bottles or in disposable cups and would be required to provide hydration or bottle refill stations.
    - The ordinance would prohibit Contractors from using EPS products.
    - Contractors would be required to serve condiments in reusable dispensers and for dine-in meals or catered services, provide only reusable napkins and tablecloths. Contractors would only be allowed to provide disposable napkins for take-out/to-go meals if the napkins are unbleached and contain a minimum of 30% post-consumer recycled content.
- Other Waste Reduction
    - The ordinance would require that Contractors equip any restrooms accessible to customers with electric hand dryers, to the extent feasible, and by no later than 2025. If the City provides composting or other processing of used restroom paper towels, used paper towels shall be deposited into designated collection bins, or delivered to designated sites, for composting consistent with the Rules and Procedures. Hand soap would be provided in refillable containers, and disposable paper toilet seat covers would be prohibited.
    - All informational literature (e.g., brochures, flyers) printed on paper distributed at community events or catered events would be required to contain a minimum of 30% post-consumer recycled content and display text presenting that information.
    - All promotional items given away at community or catered events would have to be functional and not made of plastic or any synthetic fabric.
    - Contractors who are not “stores” as defined by California Public Resources Code section 42280 or any successor provision would be prohibited from providing customers with plastic bags or bags that are made wholly or partially of synthetic fabrics, including recycled PET plastic.
- Additional Provisions

- Contractors must offer a recycling collection program (e.g., recycling bins and food waste bins) identical to the City's curbside residential and City facilities recycling programs as specified in the Rules and Procedures.
- Contractors would be required to display information or signage about zero waste measures as specified in the ordinance, as well as appropriate use signage at the solid waste collection bins.

Appendix B Scoping Summary Report

Scoping Summary Report

Comprehensive Plastics Reduction Program

May 1 – May 30, 2023

Prepared By:

Solid Resources Citywide Recycling

Christine Batikian, Environmental Supervisor II

Table of Contents

List of Tables

Executive Summary

The California Environmental Quality Act (CEQA), an environmental law aimed to protect environmental resources, requires state and local agencies to evaluate the potential impacts of a proposed project or program to a wide spectrum of environmental resource areas. The agency presents their environmental analyses in a CEQA document, such as a Program Environmental Impact Report (PEIR), and identifies feasible mitigation measures to reduce or avoid any potential significant adverse impacts. As part of the CEQA process, an agency is required to release a notice of preparation if an EIR will be prepared, and may consult with any person, agency, or organization that may be concerned with the environmental effects of a proposed project or program through a scoping period. This report summarizes the City of Los Angeles' (City) actions during the scoping period associated with the proposed Comprehensive Plastics Reduction Program (Proposed Program).

The City proposed the Comprehensive Plastics Reduction Program (Proposed Program) as a comprehensive citywide strategy to reduce plastic waste and reduce the environmental and human health impacts of single-use plastics. The first step in the CEQA process for the Proposed Program was the publication of the Notice of Preparation (NOP) on May 1, 2023. This triggered a 30-day scoping period, which ended on May 30, 2023. The NOP notified interested parties that the City, through its Bureau of Sanitation (LA Sanitation and Environment, LASAN), was preparing a PEIR to evaluate environmental impacts of the Proposed Program. The NOP was filed with the State Clearinghouse and the Los Angeles County Clerk as well as distributed and advertised to the public through direct mailings, LASAN website, newspaper advertisements, and media postings.

With the purpose of informing interested parties on the Proposed Program and how to provide input on the environmental issues to be evaluated in the PEIR, two virtual scoping meetings were held on May 10 and May 11, 2023. A total of 30 participants attended the two meetings. All official comments during the scoping period were accepted via three modes – mail, email, and electronic form submission. In total, 39 comments letters were received with 23 letters from individuals, 7 letters from agencies, and 14 letters from non-governmental organizations. The comment letters will be considered during the preparation of the draft PEIR.

All Proposed Program materials, including the NOP, factsheet, and scoping meeting presentation and recording, were translated and available in Spanish to ensure that all City residents were given equal opportunity to participate in the scoping period.

SECTION 1

Public Scoping Process

The City of Los Angeles (City), as the Lead Agency, through its Bureau of Sanitation (LA Sanitation and Environment, LASAN), is preparing a Program Environmental Impact Report (PEIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Comprehensive Plastics Reduction Program (Proposed Program), which is described below. The City seeks to implement a citywide Comprehensive Plastics Reduction Program, which would involve measures to reduce or eliminate the production and use of single-use plastic products ("upstream" measures) and encourage reuse of other items to the extent feasible, and measures to increase the City's ability to manage collecting, reusing, recycling, and composting of alternate materials and support reusable products ("downstream" measures).

Pursuant to the CEQA § 15082, the City conducted a scoping period for the Proposed Program from May 1 to May 30, 2023. The purpose of scoping is to obtain input from the public, agencies, and interested parties on the environmental issues to be evaluated in the PEIR. This report summarizes the scoping process and comments received.

In compliance with CEQA, the scoping period for the project was initiated with the release of the Notice of Preparation (NOP; see Appendix A) on May 1, 2023 in both English and Spanish. The NOP provided a brief description of the Proposed Program, dates and times for the scoping meetings, registration link for the scoping meetings, and information on how to submit comments. The scoping meetings were held virtually via Zoom. To ensure that all City residents were given equal opportunity to participate in the scoping period, all Proposed Program materials, including the NOP, factsheet, and scoping meeting presentation and recording, were translated and available in Spanish. In total, comment letters were received from 24 individuals, 4 agencies, and 11 non-governmental organizations.

1.1 Notification Activities

The following notifications were distributed to inform the public and public agencies of the PEIR/Proposed Program, public scoping meetings, scoping comment period, and how to submit a comment.

1.1.1 Newspaper Advertisements

A display advertisement was placed in Los Angeles Times and the Los Angeles Daily News on May 1, 2023 (see Appendix B).

1.1.2 Notice of Preparation Distribution

1.1.2.1 State Clearinghouse

The NOP was published through the State Clearinghouse, which subsequently notified all of the impacted regulatory and environmental agencies as part of the CEQA process.

1.1.2.2 Los Angeles County Clerk

The NOP was published by the Los Angeles County Clerk on their website: https://apps.lavote.net/ceqa.

1.1.2.3 LASAN Website

The City posted the NOP in both English and Spanish on the following website: https://www.lacitysan.org/ceqa.

1.1.2.4 Direct Mailings

The NOP was mailed (English) or emailed (English and Spanish) to government agencies, non-governmental organizations, trade groups, tribes, neighborhood councils, council district offices, chambers of commerce, business improvement districts, and other interested parties identified by the City.

A total of 101 copies of the NOP were mailed and 547 copies of the NOP were emailed to a wide range of interested parties identified above on May 1, 2023.

1.1.3 Media Engagement

1.1.3.1 Social Media

A post was placed on LASAN's Twitter, Facebook, Instagram, and LinkedIn accounts on May 2, 2023 (see Appendix C).

1.1.3.2 News Media

On May 5, 2023, Paul Cobian, Solid Resource Citywide Recycling Assistant Division Manager, met virtually with Susan Carpenter, journalist from Spectrum News 1, to discuss the PEIR and the City's progress in reducing single-use plastics. Spectrum News 1 published the article titled, "LA wants your ideas for reducing plastic pollution," on May 9, 2023, informing readers about the scoping period associated with the Proposed Program. The article may be accessed using the following link: https://spectrumnews1.com/ca/la-west/environment/2023/05/09/la-wants-your-ideas-for-reducing-plastic-pollution.

1.2 Comment Submission Options

The City provided three options for interested parties to submit scoping comments.

1.2.1 Electronic Submission

The following email address was included in the public scoping notices for interested parties to submit comments: christine.batikian@lacity.org.

The following online comment form (available in Spanish and English) was included in the public scoping notices for interested parties to submit comments (Appendix D): https://forms.gle/2ZWkx9HrwSHSdrMp6

1.2.2 Mail

Interested parties were provided the following address to submit scoping comments:

LASAN – Solid Resources Citywide Recycling Division
Attention: Christine Batikian
1149 S. Broadway
5th Floor, Mail Stop 944
Los Angeles, CA 90015

SECTION 2

Public Scoping Meetings

2.1 Scoping Meeting Details

Two public scoping meetings were held at the following times:

- May 10, 2023 at 11:00 AM
- May 11, 2023 at 6:00 PM

For interested parties unable to attend either of the two scoping meetings, presentation materials (see Appendix E) and recordings of the presentation were made available in both English and Spanish on the LASAN website at: https://www.lacitysan.org/ceqa. The pre-recorded scoping meetings may also be accessed via YouTube using the following links: https://www.youtube.com/watch?v=edCyhkznUy0 (English) and https://www.youtube.com/watch?v=iNzlCIYRC_0 (Spanish).

2.2 Scoping Meeting Format

The scoping meetings were held virtually via Zoom. Program information was presented covering the following topics:

- Welcome
- The Plastics Problem
- Overview of the Proposed Program
- CEQA Process and Timeline
- How to Provide Scoping Comments

First, the meeting was used to describe the role of the City in developing the Proposed Program and in commencing the PEIR. Second, the Proposed Program was described to a level of detail that would support comments by interested parties and agencies. Third, the CEQA process for the PEIR was described, including steps in the process, schedule, and analytical method currently proposed. Time was allotted after the presentation for meeting participants to ask questions and provide their feedback. All parties were requested to submit comments on the Proposed Program PEIR in writing using one of the three methods described in Section 1.2.

2.3 Scoping Meeting Attendance

The number of attendees at each meeting was as follows:

- Meeting #1: 18 attendees
- Meeting #2: 13 attendees

Table 1 lists the individuals that attended the scoping meetings.

Table 1: Scoping Meetings Attendee List

Name	Group Affiliation	Meeting Date
Lexx Truss	Habits of Waste	5/10/2023

Paden Voget	Catalyst Environmental Solutions	5/10/2023
Joseph Dolan	Planet Green Recycle	5/10/2023
Miguel Vazquez		5/10/2023
Solishia Andico	City of Malibu	5/10/2023
Eric Sherman	Planet Green	5/10/2023
Craig Cadwallader	Surfrider Foundation – South Bay Chapter	5/10/2023
Sarah Walsh		5/10/2023
Chloe Brown	Californians Against Waste	5/10/2023
Glenn Bailey	Los Angeles Neighborhood Council Coalition	5/10/2023
Emily Parker	Heal the Bay	5/10/2023
Jeremy Tramer		5/10/2023
Melissa Morris	Oceana	5/10/2023
Amy Clarke	City of Los Angeles – Climate Emergency Mobilization Office	5/10/2023
Erin Rowland	City of Long Beach	5/10/2023
Rodney Redman	Citizen Climate Lobby	5/10/2023
Dr. Clyde T. Williams	Sierra Club	5/10/2023
Kate Krebs	KMK Environmental	5/11/2023
Jennifer Pinkerton	City of Los Angeles – LA Sanitation and Environment	5/11/2023
Ashley Craig		5/11/2023
Carol Patterson		5/11/2023
Jeanette Hanna		5/11/2023
Julia Galaudet		5/11/2023
Tanya Torres	California Sea Grant	5/11/2023
Bryan Cowitz	City of Los Angeles	5/11/2023
Alex Truelove	Biodegradable Products Institute	5/11/2023
Jordon Sisson		5/11/2023
Tina Backstrom	City of Los Angeles – Los Angeles World Airport	5/11/2023
Cecile Buncio	City of Los Angeles – LA Sanitation and Environment	5/11/2023
Manik Mohandas	City of Los Angeles – LA Sanitation and Environment	5/11/2023

Table 2 lists the individuals that presented or were panellists for the scoping meetings.

Table 2: Scoping Meeting Panelist List

Name	Group Affiliation	Meeting Date(s)
Traci Minamide	City of Los Angeles, LA Sanitation and Environment	5/11/2023
Alex Helou	City of Los Angeles, LA Sanitation and Environment	5/11/2023
Dr. Rowena Romano	City of Los Angeles, LA Sanitation and Environment	5/10/2023; 5/11/2023
Paul Cobian	City of Los Angeles, LA Sanitation and Environment	5/10/2023; 5/11/2023
Pamela Perez	City of Los Angeles, LA Sanitation and Environment	5/10/2023; 5/11/2023
Christine Batikian	City of Los Angeles, LA Sanitation and Environment	5/10/2023; 5/11/2023
Marjorie Phan	City of Los Angeles, LA Sanitation and Environment	5/10/2023; 5/11/2023
Dr. Lindsey Garner	Catalyst Environmental Solutions	5/10/2023; 5/11/2023
Dr. Daniel Tormey	Catalyst Environmental Solutions	5/10/2023; 5/11/2023

SECTION 3

Comment Summary

A total of 34 comments were received during the public scoping period (see Appendix F). An additional five comments were received after the close of scoping on May 30. They are included herein and will be taken under consideration during the drafting of the PEIR. Table 3 lists the individuals and groups that provided comments during the scoping period.

Table 3: Public Commenters

Name of Commenter	Group Affiliation	Date	Submittal Type
Michelle Barton		5/1/2023	Online Submission Form
Andrew Craigie	Beyond Plastics	5/1/2023	Email
Kathryn O'Brien		5/2/2023	Online Submission Form
Andrew Green	Native American Heritage Council	5/2/2023	Mail
Linda Gravani	Valley Alliance of Neighborhood Councils	5/3/2023	Email
Yoshiko Tsunehara		5/5/2023	Online Submission Form
Gregory B. Wood		5/6/2023	Online Submission Form
Solishia Andico	City of Malibu	5/8/2023	Email
Jay Ross		5/9/2023	Email
Lena Ayvazian		5/9/2023	Email
Helene Martinez	Food Industry Business Roundtable	5/9/2023	Email
Leila Lee	Office of Mayor Karen Bass	5/9/2023	Email
Karin Davalos	Glassell Park Neighborhood Council	5/10/2023	Email
Laurie Hansen Sheets		5/11/2023	Email
Eric Sherman	Planet Green Cartridges, Inc.	5/11/2023	Email
Julia Galaudet		5/11/2023	Email
Terry Gill	Sealed Air Corporation	5/12/2023	Email
Ivana Castellanos		5/15/2023	Email
Miya Edmonson	California Department of Transportation	5/22/2023	Email
Rebecca Helm		5/27/2023	Email
Lionel Mares		5/28/2023	Online Submission Form
Greg Apodaca		5/29/2023	Online Submission Form
Chrissie Gomez		5/29/2023	Email
Kawsar Vazifdar	Los Angeles County Public Works	5/30/2023	Online Submission Form

Robert Buenrostro		5/30/2023	Online Submission Form
Alfred Sattler		5/30/2023	Online Submission Form
Rick Rivas	American Beverage Association	5/30/2023	Email
Eva Cicoria	Paddle Out Plastic	5/30/2023	Email
Pilar Reynaldo		5/30/2023	Email
Chloe Brown	Californians Against Waste + 30 organizations	5/30/2023	Email
Tim Shestek	American Chemistry Council + 10 organizations	5/30/2023	Email
Sarai Sosa	Green Behind the Scenes	5/30/2023	Email
James P. Toner Jr.	International Bottled Water Association + California Bottled Water Association	5/30/2023	Email
Cheryl Auger	BAN SUP	5/30/2023	Email
Emily Parker	Reusable LA	5/30/2023	Email
Elijah Carder		5/31/2023	Email
Allegra Curiel	Newlight Technologies, Inc.	5/31/2023	Email
Alexander Truelove	Biodegradable Products Institute	5/31/2023	Email
Eric Stevens	California Coastal Commission	6/2/2023	Email

The following subsections summarize the primary issues raised by commenters with respect to environmental review and implementation of the Proposed Program.

3.1 Comments from Individuals

Comments received from individuals throughout the scoping period covered the following topics:

- One commenter requested that the PEIR consider Target 7 of the Global Biodiversity Framework and to be cautious of recommending or approving compostable packaging materials.
- One commenter asked for the consideration of banning single-use disposable vapes and cigarettes with plastic. The commenter also asked to consider receipts being printed only upon customer request.
- One commenter asked for the consideration of impacts to individuals, including financial impact. The commenter also asked for the proposed regulations and the cost effectiveness of the program evaluated to be outlined in the PEIR.
- One commenter emphasized the need to increase plastic recycling rates.
- Several commenters reiterated and provided support for the Californians Against Waste letter. The commenters called for the PEIR to evaluate the ban on the sale and distribution of products packaged using materials including PVC, PVDC, PFAS, oxo-degradable/oxo-biodegradable additives, non-detectable and detectable pigments, and PETG.
- One commenter called for the consideration of reducing single-use plastics from parks and recreation centers. The commenter recommended consideration of placing blue recycle bins/dumpsters at parks, recreation centers, senior citizen centers, child care centers, conducting public education and outreach, and installation of drinking fountains/bottle refilling stations at parks and recreation centers.

- One commenter asked for the consideration of environmental justice principles, particularly for downstream measures (downstream facilities located away from sensitive receptors and minimal usage of thermal processing).
- One commenter called for reducing and recycling measures to be implemented citywide.
- One commenter called for the consideration of reducing plastic in grocery stores by mandating the use of paper/carton packaging as opposed to plastic.
- One commenter requested construction of a dog park in Sunland Park.
- Two commenters asked for recordings of the scoping meeting presentation.
- Two commenters requested to be added to the mailing list for the Proposed Program.
- Two commenters invited LASAN to provide a presentation on the Proposed Program to their neighborhood council.

3.2 Comments from Agencies

3.2.1 California Coastal Commission

The California Coastal Commission requested that the PEIR evaluate the potential impacts of the Proposed Program on the City's coastal zone with respect to the Coastal Act, including water quality, marine resources, sensitive habitat areas, public access, and scenic and visual resources, and consider alternatives and/or mitigation measures that would lessen any significant adverse impact of the Proposed Program on the environment within the coastal zone.

3.2.2 California Department of Transportation (Caltrans)

Caltrans provided guidance on using Vehicle Miles Traveled (VMT) to conduct the transportation analysis and to identify transportation impacts from future development projects associated with the Proposed Program.

3.2.3 Los Angeles County Public Works

Los Angeles County provided support for the program, and in particular supports the PEIR consideration of product stewardship and extended producer responsibility, product bans, and downstream measures.

3.2.4 Native American Heritage Commission (NAHC)

The NAHC provided guidelines for the preparation of the PEIR and California Senate Bill 18 and Assembly Bill 52 tribal consultation requirements.

3.3 Comments from Non-Government Agencies

3.3.1 American Beverage Association (ABA)

The ABA recommended that the PEIR evaluate impacts to all 20 environmental impact categories outlined in the NOP without screening out any categories from full review. The ABA recommended that the City better define the Proposed Program and to hold a series of stakeholder and scoping meetings for that purpose. The ABA called for the evaluation of alternatives in the PEIR.

3.3.2 American Chemistry Council (ACC) + 10 organizations

The ACC called for the consideration of California Senate Bill 54 in the current regulatory landscape for the PEIR as well as the environmental review of alternative materials. They noted that State requirements for minimum recycled content in plastic products could be made more difficult with single-use plastic bans.

3.3.3 Biodegradable Products Institute (BPI)

BPI provided support for the program including development and expansion of facilities and infrastructure to handle compostable material. BPI called for the evaluation of certified compostable materials, products, and packaging in the PEIR.

3.3.4 BAN SUP

BAN SUP called for the expansion of the scope of the PEIR to include measures related to single-use packaging in addition to single-use plastic products, single-use plastic bags, citywide waste exchange programs, source separation and infrastructure for collection, recycling, and reuse of alternative materials, refills and reuse stores/businesses, product labeling, and public education.

3.3.5 Californians Against Waste + 30 organizations (Coalition)

The Coalition called for the PEIR to evaluate the ban on the sale and distribution of products packaged using materials including PVC, PVDC, PFAS, oxo-degradable/oxo-biodegradable additives, non-detectable and detectable pigments, and PETG. The Coalition provided literature on the environmental and public health impacts of these materials.

3.3.6 Green Behind the Scenes

Green Behind the Scenes provided recommendations on the scope of the PEIR related to plastic waste from media productions, including reusable and compostable foodware and foodware accessories for catering, water refilling stations, reuse and recycling set pieces, and ban on plastic water bottles.

3.3.7 International Bottled Water Association (IBWA) & California Bottle Water Association (CBWA)

The IBWA and CBWA called for the consideration of California Senate Bill 54 and Assembly Bill 793 in the current regulatory landscape for the PEIR. They provided two studies of Life Cycle Assessments for plastic packaging compared to alternative packaging for consideration in the PEIR. They noted benefits of plastic water bottles.

3.3.8 Newlight Technologies, Inc. (Newlight)

Newlight called for the evaluation of alternatives, particularly polyhydroxybutyrate (PHB) and those that are biodegradable, in the PEIR. In addition, Newlight called for the evaluation of expanding or creating composting facilities that would process certified compostable products and conducting public education on how to handle compostable products to facilitate more effective composting.

3.3.9 Paddle Out Plastic (POP)

POP provided data on the types of plastics the organization has collected from the Los Angeles Harbor and other local waters, and offered issues for consideration in the PEIR including Extended Producer Responsibility, reuse for onsite dining, and enforcement.

3.3.10 Planet Green Cartridges, Inc.

Planet Green Cartridges, Inc. called for the PEIR to consider the ban of new manufactured single-use clone printer cartridges and provided literature related to the impacts of single-use printer cartridges.

3.3.11 Reusable LA

Reusable LA recommended that the Proposed Program evaluate the phase out of all single-use products and packaging with a consideration of reusable, refillable, and repairable alternatives before the consideration of alternative materials to plastics for single-use items. They also recommended consideration of all actions mentioned in the Bureau of Sanitation report dated November 22, 2021. Reusable LA requested the following environmental impact categories be prioritized in the PEIR: aesthetics, air quality, biological resources, energy, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, and utilities and service systems. Reusable LA also asked that any policy mandating the use of reusable products for dine-in food services establishments be considered separately under a CEQA Categorical Exemption as opposed to being included in the PEIR.

Appendices

Appendix A: Notice of Preparation

CITY OF LOS ANGELES
CALIFORNIA

KAREN BASS
MAYOR

BUREAU OF SANITATION

BARBARA ROMERO
DIRECTOR AND GENERAL MANAGER

TRACI J. MINAMIDE
CHIEF OPERATING OFFICER

SARAI BHAGA
CHIEF FINANCIAL OFFICER

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TIMEYIN DAFETA
HYPERION EXECUTIVE PLANT MANAGER

1149 SOUTH BROADWAY, 9TH FLOOR
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ROWENA ROMANO
DIVISION MANAGER

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EMAIL: SRCRD@lacity.org
www.lacitysan.org

May 1, 2023

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND NOTICE OF PUBLIC SCOPING MEETINGS

TO: California State Clearinghouse; Governor's Office of Planning and Research; California Responsible and Trustee Agencies; Los Angeles County Clerk; Other Interested Public Agencies; and Interested Parties and Organizations

SUBJECT: Notice of Preparation of a Program Environmental Impact Report and Notice of Public Scoping Meetings

PROJECT: Comprehensive Plastics Reduction Program

LEAD AGENCY: City of Los Angeles - Bureau of Sanitation

REVIEW PERIOD: May 1, 2023 through May 30, 2023

The City of Los Angeles (City), as the Lead Agency, through its Bureau of Sanitation (LA Sanitation and Environment, LASAN), is preparing a Program Environmental Impact Report (PEIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Comprehensive Plastics Reduction Program (Proposed Program), which is further described below. The City is requesting identification of the scope and content of environmental issues and information that you or your organization believes should be considered in the PEIR.

PROJECT LOCATION: As shown in Figure 1 below, the Proposed Program would occur throughout the entirety of the City of Los Angeles.

THE PROPOSED PROGRAM: The City seeks to implement a citywide Comprehensive Plastics Reduction Program, which would involve measures to reduce or eliminate the production and use of single-use plastic products ("upstream" measures) and encourage reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment and reducing the aesthetic, environmental, and human health impacts of single-use plastics. These upstream measures may include bans on specific single-use products; product stewardship programs (e.g., certain packaging and/or foodware items); extended producer responsibility programs (e.g., take-back programs for certain textiles); policies to require and/or support the manufacturing of durable, reusable, repairable, and recyclable products (e.g., requirements for recycled content in certain products); and evaluating program efficacy and conducting additional studies (e.g., additional take-back programs and/or pilot programs).

The City anticipates that a decrease in single-use plastics could result in an increase in the use of reusable, compostable, and recyclable materials in the City. Therefore, the program includes elements to increase the City's ability to manage these materials, such as by collecting, reusing, recycling, and composting alternative materials and supporting reusable products ("downstream" measures). These downstream measures may include the construction or expansion of recycling and composting facilities; regional market development to expand the City's ability to recycle and reuse currently unmarketable single-use items; and infrastructure to support the use of reusable items. The Proposed Program would also include public education, outreach, and engagement as well as enforcement.

ISSUES TO BE ADDRESSED IN THE ENVIRONMENTAL IMPACT REPORT: As permitted by State CEQA Guidelines Section 15060(d), the City has not prepared an Initial Study/Environmental Checklist, as it has determined that a PEIR will be needed for the Proposed Program. Based on the program description and the City's understanding of the environmental issues associated with the Proposed Program, it is anticipated that the implementation of the Proposed Program has the potential to result in environmental effects associated with some or all of the following environmental resource areas, which will be addressed in the PEIR:

- Aesthetics
- Agriculture Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gases
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Alternatives to be analyzed in the PEIR are to be defined and analyzed consistent with the requirements of CEQA Guidelines, Section 15126.6. The specific project alternatives to be evaluated in the PEIR may include, but are not limited to, the "No Program" alternative, as required by CEQA.

PUBLIC REVIEW AND COMMENTS: The City is soliciting comments from responsible and trustee agencies as well as interested parties as to the scope and content of the environmental information to be included in the PEIR. In accordance with CEQA, agencies are requested to review the Proposed Program provided in this NOP and to provide comments on environmental issues related to the statutory responsibilities of each responsible or trustee agency.

SUBMITTAL OF WRITTEN COMMENTS: In accordance with CEQA Section 15082, this NOP is being circulated for a 30-day comment period. The City requests that written or typed comments be provided at the earliest possible date, but no later than 5:00 p.m. on Tuesday, May 30, 2023. Comments may be submitted via the following:

E-mail to: Christine.Batikian@lacity.org

Or Mail to: LASAN – Solid Resources Citywide Recycling Division
Attention: Christine Batikian
1149 S. Broadway
5th Floor, Mail Stop 944
Los Angeles, CA 90015

Or Online Submission: Comment form link https://forms.gle/2ZWkx9HrwSHSdrMp6

Please include the following information in your response:

- For all respondents, please provide name and contact information and identify the environmental information and issues that you believe should be addressed in the PEIR.
- For agency respondents, please provide the name of the responsible individual with contact information (mailing address, e-mail, and telephone number). List any potential permit(s) or approval(s) for the project under your agency's authority and any reasonably foreseeable projects, programs, or plans that may have an overlapping influence with the proposed project.
- Comments provided by email should include "Comprehensive Plastics Reduction PEIR" in the subject line and the name and physical address of the commenter in the body of the email.

PLEASE NOTE: The City's practice is to make the entirety of comments received a part of the public record. Therefore names, home addresses, home phone numbers, and email addresses of commenters, if included in the response, will be made part of the record available for public review. Individual commenters may request that the City withhold their name and/or home addresses, etc., but if you wish the City to consider withholding this information you must state this prominently at the beginning of your comments. In the absence of this written request, this information will be made part of the record for public review. The City will always make submissions from organizations or businesses, and from individuals identifying themselves as representatives of, or officials of, organizations or businesses, available for public inspection in their entirety.

DOCUMENT AVAILABILITY: Proposed Program information materials, including this NOP, can be viewed at the City's LASAN website at: www.lacitysan.org/ceqa. Future program documents, including the PEIR, will also be made available at this website.

NOTICE OF SCOPING MEETINGS: The City will conduct two virtual scoping meetings for the purposes of soliciting written comments from interested parties, responsible agencies, agencies with jurisdiction by law, trustee agencies, and involved federal agencies, as to the appropriate scope and content of the PEIR.

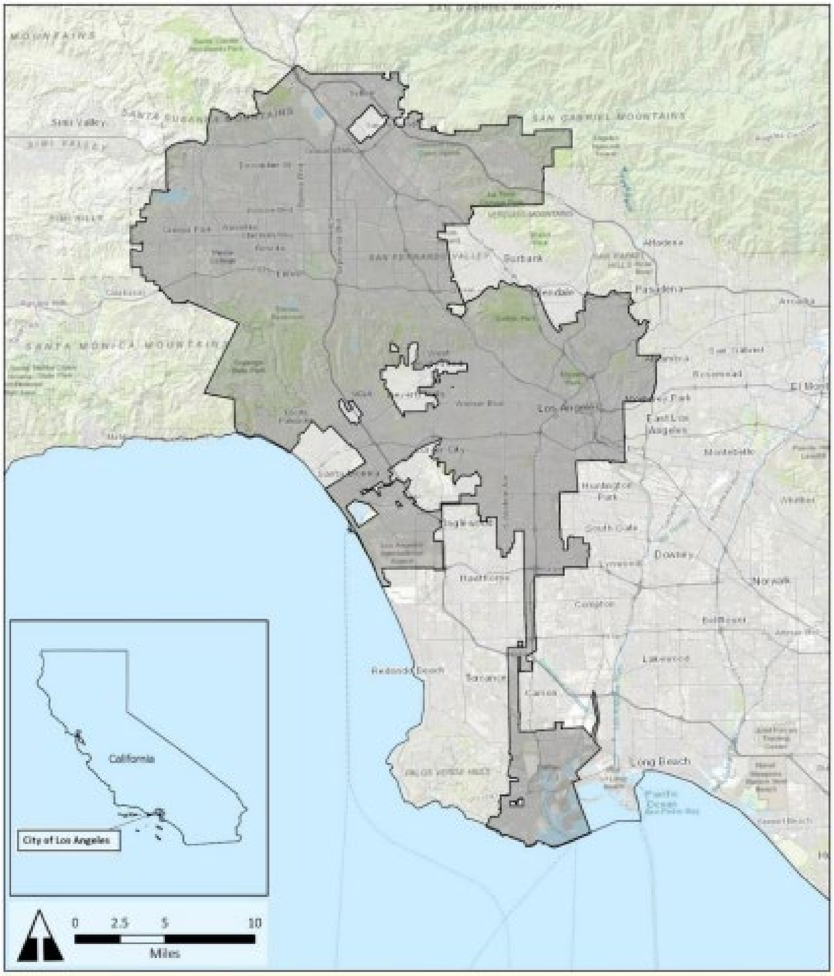
You are welcome to attend one or both meetings on the scope and content of the environmental information. The virtual scoping meetings are scheduled as follows:

Date: May 10, 2023 Time: 11:00 AM	**OR**	Date: May 11, 2023 Time: 6:00 PM

Registration Link: https://plasticsceqala.eventbrite.com

Rowena Romano

Rowena Romano, Division Manager
Solid Resources Citywide Recycling Division
LA Sanitation & Environment



Legend
City of Los Angeles

CITY OF LOS ANGELES
Figure No. 1

CITY OF LOS ANGELES

CALIFORNIA

KAREN BASS
MAYOR

BUREAU OF SANITATION

BARBARA ROMERO
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www.lacitysan.org

1 de mayo de 2023

NOTIFICACIÓN DE LA PREPARACIÓN DE UN INFORME DE IMPACTO AMBIENTAL Y DE LAS REUNIONES PÚBLICAS DE INFORMACIÓN DEL PROYECTO

DIRIGIDO A: California State Clearinghouse; Governor's Office of Planning and Research; California Responsible and Trustee Agencies; Los Angeles County Clerk; Otras Agencias Públicas Interesadas; y Personas y Organizaciones Interesadas

ASUNTO: Notificación de Preparación de un Informe de Impacto Ambiental del Programa y Notificación de Reuniones Públicas de Información del Proyecto

PROYECTO: Programa Integral de Reducción de Plásticos

AGENCIA PRINCIPAL: Ciudad de Los Ángeles – Bureau of Sanitation

PERÍODO DE REVISIÓN: Del 1 de mayo de 2023 al 30 de mayo de 2023

La Ciudad de Los Ángeles (Ciudad), como Agencia Principal, a través del Bureau of Sanitation (LA Sanitation and Environment, LASAN), está preparando un Informe de Impacto Ambiental del Programa (Program Environmental Impact Report, PEIR) de conformidad con la Ley de Calidad Ambiental de California (California Environmental Quality Act, CEQA) para el Programa Integral de Reducción de Plásticos propuesto (Programa Propuesto), que se describe con más detalle a continuación. La Ciudad solicita que se identifique el enfoque y el contenido de las consideraciones medioambientales y la información que usted o su organización creen que debe considerarse en el PEIR.

UBICACIÓN DEL PROYECTO: Como se ilustra en la Figura 1 a continuación, el Programa Propuesto se llevaría a cabo en toda la Ciudad de Los Ángeles.

DESCRIPCIÓN DEL PROYECTO: La Ciudad desea implementar un Programa Integral de Reducción de Plásticos en toda la ciudad, que incluiría medidas para reducir o eliminar la producción y el uso de productos de plástico de un solo uso (medidas "previas") y fomentar la reutilización de otros artículos hasta donde sea factible, reduciendo o eliminando así la entrada de plásticos de un solo uso en el sistema de residuos de la Ciudad y en el medio ambiente y reduciendo los impactos estéticos, medioambientales y sobre la salud humana de los plásticos de un solo uso. Estas medidas pueden incluir prohibiciones de productos específicos de un solo uso; programas de responsabilidad sobre productos (por ejemplo, ciertos envases y/o artículos de alimentación); programas de responsabilidad ampliada del productor (por ejemplo, programas de devolución de ciertos productos textiles); medidas para exigir y/o apoyar la fabricación de productos duraderos, reutilizables, reparables y reciclables (por ejemplo, requisitos de contenido reciclado en ciertos productos); y la evaluación de la eficacia de los programas y la realización de estudios adicionales (por ejemplo, programas adicionales de devolución y/o programas piloto).

La Ciudad anticipa que una disminución de los plásticos de un solo uso podría resultar en un aumento del uso de materiales reutilizables, compostables y reciclables en la ciudad. Por lo tanto, el programa incluye elementos para aumentar la capacidad de la ciudad para gestionar estos materiales, como la recogida, reutilización, reciclaje y compostaje de materiales alternativos y el apoyo a los productos reutilizables (medidas "posteriores"). Estas medidas pueden incluir la construcción o ampliación de instalaciones de reciclado y compostaje, el desarrollo del mercado regional para ampliar la capacidad de la ciudad para reciclar y reutilizar artículos de un solo uso actualmente no comercializables, y la infraestructura para apoyar el uso de artículos reutilizables. El Programa Propuesto también incluiría la educación pública, la promoción y el involucramiento, así como la aplicación de la ley.

ASUNTOS QUE DEBEN ABORDARSE EN EL INFORME DE IMPACTO AMBIENTAL: Conforme a lo permitido por la Sección 15060(d) de las Directrices Estatales de CEQA, la Ciudad no ha preparado un Estudio Inicial/Lista de Verificación Ambiental, ya que ha determinado que se necesitará un PEIR para el Programa Propuesto. Sobre la base de la descripción del programa y la comprensión de la Ciudad de las consideraciones ambientales asociadas con el Programa Propuesto, se anticipa que la implementación del Programa Propuesto tiene el potencial de resultar en efectos ambientales asociados con algunas o todas las siguientes áreas de recursos ambientales, que se abordarán en el PEIR:

- Estética
- Recursos agrícolas
- Calidad del aire
- Recursos biológicos
- Recursos culturales
- Energía
- Geología y suelos
- Gases de efecto invernadero
- Riesgos y materiales peligrosos
- Hidrología y calidad del agua
- Uso y planificación del terreno
- Recursos minerales
- Ruido
- Población y vivienda
- Servicios públicos
- Esparcimiento
- Transportes
- Recursos culturales tribales
- Servicios de utilidad pública y sistemas de servicios
- Incendios forestales

Las alternativas que se analizarán en el PEIR se definirán y analizarán de acuerdo con los requisitos de la sección 15126.6 de las Directrices de la CEQA (CEQA Guidelines, Section 15126.6). Las alternativas específicas del proyecto que se evaluarán en el PEIR pueden incluir, entre otras, la alternativa "Sin programa", tal como exige la CEQA.

REVISIÓN Y COMENTARIOS PÚBLICOS: La Ciudad solicita comentarios de los agentes responsables y fideicomisarios, así como de las personas interesadas, sobre el enfoque y el contenido de la información medioambiental que se incluirá en el PEIR. De conformidad con la CEQA, se solicita a los agentes responsables que revisen el Programa Propuesto incluido en esta NOP y que aporten comentarios sobre cuestiones medioambientales relacionadas con las responsabilidades estatutarias de cada agente responsable o fideicomisario.

ENVÍO DE COMENTARIOS ESCRITOS: De conformidad con la Sección 15082 de la CEQA, este NOP se distribuye para un período de comentarios de 30 días. La Ciudad solicita que los comentarios por escrito o mecanografiados se presenten lo más pronto posible, pero a más tardar a las 5:00 p.m. del martes 30 de mayo de 2023.

Los comentarios pueden enviarse a través de las siguientes formas

Correo Electrónico:	christine.batikian@lacity.org
O Correo postal:	LASAN- Solid Resources Citywide Recycling Division Attn: Christine Batikian 1149 S. Broadway, 5th Floor MS 944 Los Angeles, CA 90015
O Envío en línea:	Enlace al formulario de comentarios https://forms.gle/2ZWkx9HrwSHSdrMp6

Por favor, incluya la siguiente información en su respuesta:

- Para todos los que respondan, indique su nombre e información de contacto e identifique la información y las cuestiones medioambientales que, en su opinión, deberían abordarse en el PEIR.
- En el caso de los representantes de agencias, indique el nombre de la persona responsable y sus datos de contacto (dirección postal, correo electrónico y número de teléfono). Enumere los posibles permisos o aprobaciones del proyecto bajo la autoridad de su agencia y los proyectos, programas o planes razonablemente previsibles que puedan tener una influencia coincidente con el proyecto propuesto.
- Los comentarios que se envíen por correo electrónico deberán incluir "PEIR de reducción integral de plásticos" en el asunto y el nombre y la dirección física del autor del comentario en el cuerpo del mensaje.

POR FAVOR TOME NOTA: La práctica de la Ciudad es hacer que la totalidad de los comentarios recibidos formen parte del registro público. Por lo tanto, los nombres, las direcciones, los números de teléfono y las direcciones de correo electrónico de los autores de los comentarios, si se incluyen en la respuesta, formarán parte del registro disponible para consulta pública. Los autores de comentarios individuales pueden solicitar que la Ciudad no revele su nombre y/o dirección postal, etc., pero si desean que la Ciudad considere la posibilidad de ocultar esta información deben indicarlo de forma prominente al principio de sus comentarios. En ausencia de esta solicitud por escrito, la información se incluirá en el registro para examen público. La Ciudad siempre pondrá a disposición del público la totalidad de las observaciones de las organizaciones o empresas, así como de las personas que se identifiquen como representantes o responsables de las mismas.

DISPONIBILIDAD DE DOCUMENTOS: Los materiales informativos del Programa Propuesto, incluyendo este NOP, pueden verse en el sitio web de LASAN en: www.lacitysan.org/ceqa. Los futuros documentos del programa, incluyendo el PEIR, también estarán disponibles en este sitio web.

NOTIFICACIÓN DE LAS REUNIONES PÚBLICAS DE INFORMACIÓN DEL PROYECTO: La Ciudad realizará dos reuniones virtuales con el fin de solicitar comentarios por escrito de las personas interesadas, las agencias responsables, las agencias con jurisdicción por ley, las agencias fideicomisarias y las agencias federales involucradas, en cuanto al alcance y contenido apropiados del PEIR.

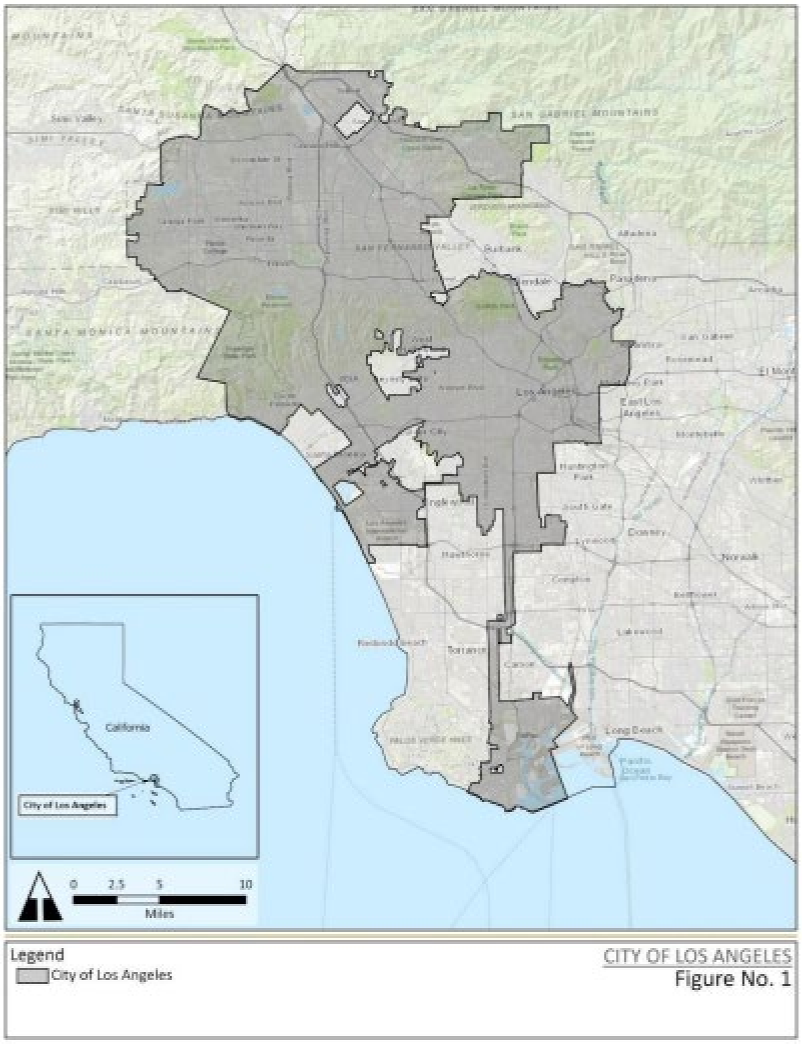
Le invitamos a asistir a una o a las dos reuniones sobre el enfoque y el contenido de la información medioambiental. Las reuniones virtuales están programadas del siguiente modo:

Fecha: 10 de mayo de 2023 Hora: 11:00 AM	**O**	Fecha: 11 de mayo de 2023 Hora: 6:00 PM

Enlace de inscripción: https://plasticsceqala.eventbrite.com

Rowena Romano

Rowena Romano, Division Manager
Solid Resources Citywide Recycling Division
LA Sanitation & Environment


SAN GABRIEL MOUNTAINS
SANTA MONICA MOUNTAINS
SAN FERNANDO VALLEY
Burbank
Pasadena
Los Angeles
East Los Angeles
Huntington Park
South Gate
Downey
Compton
Torrance
Carson
Lakewood
Long Beach
Redondo Beach
California
City of Los Angeles
0 2.5 5 10
Miles
Legend
City of Los Angeles
CITY OF LOS ANGELES
Figure No. 1

Appendix B: Newspaper Advertisements

Daily News – May 1, 2023

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND PUBLIC SCOPING MEETINGS

The City of Los Angeles (City), as the Lead Agency, through its Bureau of Sanitation (LA Sanitation and Environment, LASAN), is preparing a Program Environmental Impact Report (PEIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Comprehensive Plastics Reduction Program (the proposed Program). The proposed Program would encompass two major components: 1) upstream measures to reduce or eliminate the production and use of single-use plastic products and encourage use and reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment; and 2) downstream measures by which to increase the City's ability to manage collecting, reusing, recycling, and composting of alternative materials and support reusable products.

The City is requesting identification of the scope and content of environmental issues and information that you or your organization believes should be considered in the PEIR. The City will hold two scoping meetings for the proposed Program virtually on **May 10, 2023 from 11:00 a.m. to 12:00 p.m. and on May 11, 2023 from 6:00 p.m. to 7:00 p.m.** To register, please visit http://www.lacitysan.org/ceqa and click on the project link for additional information on how to register.

Please send your written/typed comments to LASAN by one of the following delivery methods. In your comments, please include your name, email address, telephone number, mailing address, and "**Comprehensive Plastics Reduction PEIR**" at the top of your comment.

E-mail: christine.batiklan@lacity.org
Google Form: https://forms.gle/2ZWkx9HrwSHSdrMp6
Post: LASAN – Solid Resources Citywide Recycling Division
Attn: Christine Batiklan
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

All comments must be received no later than 5:00 p.m. on May 30, 2023.

Los Angeles Daily News
Published: 5/1/23

Los Angeles Times – May 1, 2023

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT AND PUBLIC SCOPING MEETINGS

The City of Los Angeles (City), as the Lead Agency, through its Bureau

Legal Notices

of Sanitation (LA Sanitation and Environment, LASAN), is preparing a Program Environmental Impact Report (PEIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Comprehensive Plastics Reduction Program (the proposed Program). The proposed Program would encompass two major components: 1) upstream measures to reduce or eliminate the production and use of single-use plastic products and encourage use and reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment; and 2) downstream measures by which to increase the City's ability to manage collecting, reusing, recycling, and composting of alternative materials and support reusable products.

The City is requesting identification of environmental issues and information that you or your organization believes should be considered in the PEIR. The City will hold two scoping meetings for the proposed Program virtually on May 10, 2023 from 11:00 a.m. to 12:00 p.m. and on May 11, 2023 from 6:00 p.m. to 7:00 p.m. To register, please visit http://www.lacitysan.org/ceqa and click on the project link for additional information on how to register.

Please send your written/typed comments to LASAN by one of the following delivery methods. In your comments, please include your name, email

Legal Notices

address, telephone number, mailing address, and "Comprehensive Plastics Reduction PEIR" at the top of your comment.

Google forms: https://forms.gle/2ZWkx9HrwSHSdrMp6
E-mail: christine.batikian@lacity.org
Post: LASAN – Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

All comments must be received no later than 5:00 p.m. on May 30, 2023.

Notice of Petition to Administer Estate of Patricia M. Anderson (23 STPB00042)

A hearing on the petition will be held at the Los Angeles Superior Court, Stanley Mosk Courthouse, 111 N. Hill St., Los Angeles, CA 90012 in Dept. 79, Room 610, on May 12, 2023, 8:30 AM. The petition requests that the decedent's will be admitted to probate and requests authority to administer the estate under the Independent Administration of Estates Act. Petitioners are Juliann Anderson and Eric J. Anderson. Attorney: Juliann Anderson, 17299 Regency Circle, Riverside, CA 92503, (951) 833-1328, Juliann.Anderson@gmail.com.

EMPLOYMENT 1500

Employment

Cashier

Chevron Carwash is now hiring 3rd shift cashiers. Health insurance included. Apply in

Appendix C: Social Media Distribution

Twitter – May 2, 2023

LA Sanitation & Environment ♻️💧🌳 @LACitySAN · May 2

.@LACity released a Notice of Preparation for the proposed Comprehensive Plastics Reduction Program. We would like to hear your thoughts on the proposed program and how the City of LA can reduce plastic waste. Please provide a comment by May 30. lacitysan.org/ceqa

1 3 4 425

Facebook – May 2, 2023

Los Angeles Sanitation & Environment

May 2 ·

City of Los Angeles has released a Notice of Preparation of a Program Environmental Impact Report (#PEIR) for the proposed Comprehensive Plastics Reduction Program. The proposed Program would encompass two major components:

1) upstream measures to reduce or eliminate the production and use of single-use #plastic products and encourage use and reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the #environment; and
2) downstream measures by which to increase the City's ability to manage collecting, #reusing, #recycling, and #composting of alternative materials and support #reusable products.

Proposed Program informational materials can be viewed on the City's LASAN website:
https://www.lacitysan.org/ceqa

The City will be hosting 2 separate virtual public #meetings where you can hear more about this proposed Program, the PEIR process, and additional ways to participate.

Register here:
plasticsceqala.eventbrite.com

#plasticpollution #pollutionsolution #ceqa #losangeles

Instagram – May 2, 2023

lacitysan

59 likes

lacitysan @cityoflosangeles has released a Notice of Preparation of a Program Environmental Impact Report (#PEIR) for the proposed... more

View all 4 comments

May 2

LinkedIn – May 2, 2023

LA Sanitation & Environment
1,724 followers
1mo

City of Los Angeles has released a Notice of Preparation of a Program Environmental Impact Report (#PEIR) for the proposed Comprehensive Plastics Reduction Program. The proposed Program would encompass two major components:

1) upstream measures to reduce or eliminate the production and use of single-use #plastic products and encourage use and reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the #environment; and

2) downstream measures by which to increase the City's ability to manage collecting, #reusing, #recycling, and #composting of alternative materials and support #reusable products.

Proposed Program informational materials can be viewed on the City's LASAN website:
https://lnkd.in/gWzBYmS9

The City will be hosting 2 separate virtual public #meetings where you can hear more about this proposed Program, the PEIR process, and additional ways to participate.

Register here:
https://lnkd.in/gweyM_6r

#plasticpollution #pollutionsolution #ceqa #losangeles #meeting #information

Appendix D: Scoping Comment Form

Comprehensive Plastics Reduction Program - Comment Form

Programa Integral de Reducción de Plásticos - Formulario de Comentarios

The City of Los Angeles (City), acting through LA Sanitation and Environment (LASAN), as the Lead Agency under the California Environmental Quality Act (CEQA), will be coordinating the preparation of a Program Environmental Impact Report (PEIR) for the proposed Comprehensive Plastics Reduction Program (the proposed Program). The proposed Program would encompass two major components: 1) upstream measures to reduce or eliminate the production and use of single-use plastic products and encourage use and reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment; and 2) downstream measures by which to increase the City's ability to manage collecting, reusing, recycling, and composting of alternative materials and support reusable products. Proposed Program information materials can be viewed on the LASAN website at: www.lacitysan.org/ceqa.

LASAN is requesting identification of environmental issues and information that you or your organization believes should be considered in the PEIR.

You may choose to submit your comments via this form.

OR

Written or typed comments may also be submited to LASAN by one of the following delivery methods:

E-mail: christine.batikian@lacity.org

Mail: LASAN– Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

All comments must be received no later than 5:00 p.m. on May 30, 2023.

La Ciudad de Los Ángeles (Ciudad), a través de LA Sanitation and Environment (LASAN), como Agencia Principal de acuerdo con la Ley de Calidad Ambiental de California (CEQA), coordinará la preparación de un Informe de Impacto Ambiental del Programa (PEIR) para el Programa propuesto Integral de Reducción de Plásticos (el Programa propuesto). El Programa propuesto abarcaría dos componentes principales: 1) medidas previas para reducir o eliminar la producción y el uso de productos de plástico de un solo uso y fomentar el uso y la reutilización de otros artículos en la mayor medida posible, reduciendo o eliminando así la entrada de plásticos de un solo uso en el sistema de residuos de la ciudad y en el medio ambiente; y 2) medidas posteriores con las que aumentar la capacidad de la ciudad para gestionar la recogida, la reutilización, el reciclaje y el compostaje de materiales alternativos y apoyar los productos reutilizables. Los materiales informativos del Programa propuesto pueden encontrarse en la página web de LASAN: www.lacitysan.org/ceqa.

LASAN está solicitando la identificación de las consideraciones ambientales y la información que usted o su organización cree que debe ser considerado en el PEIR.

Puede optar por enviar sus comentarios a través de este formulario.

O

Los comentarios por escrito o mecanografiados también pueden enviarse a LASAN por uno de los siguientes métodos de entrega:

***Correo electrónico**: christine.batikian@lacity.org*

***Correo postal**: LASAN- Solid Resources Citywide Recycling Division*
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

Todos los comentarios deben recibirse a más tardar a las 5:00 p.m. del 30 de mayo de 2023.

* Indicates required question

Name / *Nombre* *

Your answer

Email / *Correo Electrónico* *

Your answer

Please provide your comments on the proposed Comprehensive Plastics Reduction Program. / *Por favor, proporcione sus comentarios sobre el Programa propuesto Integral de Reducción de Plásticos.* *

Your answer

Submit

Clear form

Comprehensive Plastics Reduction Program

California Environmental Quality Act (CEQA) Scoping Meeting

May 2023

www.lacitysan.org/ceqa

Presentation Outline

- Logistics
- Meeting Purpose
- Program Overview
- CEQA Process & Schedule
- How to Provide Comments

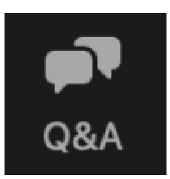
✓ Logistics

How to Participate During the Meeting

- All Participant microphones are muted
- To ask a question or make a comment choose from the following options:

Option 1: Q&A box

- Click Q&A box
- Type question or comment and submit

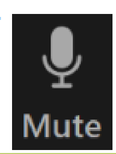


Option 2: Participate out loud

- Click the **"Raise Hand" button** if using Zoom on your computer or smartphone

OR

- Dial ***9** if using the Zoom telephone number
- Once you raise your hand your name will be added to the speaker list
- At the end of the presentation, your name will be called when it is your turn and the host will unmute you
- Click the **"Mute" button** if using Zoom on your computer or smartphone



OR

- Dial ***6** if using the Zoom telephone number

✓ Meeting Purpose

Meeting Purpose

- Present the proposed Comprehensive Plastics Reduction Program (Proposed Program)
- Provide an overview on the environmental analysis
- Provide guidance on how to submit scoping comments

✓ Program Overview

Solid Resources Overview

- Responsible for the collection and removal of all solid waste materials in the City of Los Angeles
- Provides collection services to ~750,000 households, comprised of single-family homes and multi-family complexes (2-4 units), and City facilities

recycLA

- Public-private partnership launched in 2017
- Provides collection services to ~65,000 multi-family complexes (>4 units), condominiums, and commercial businesses

LASAN Solid Resources Overview

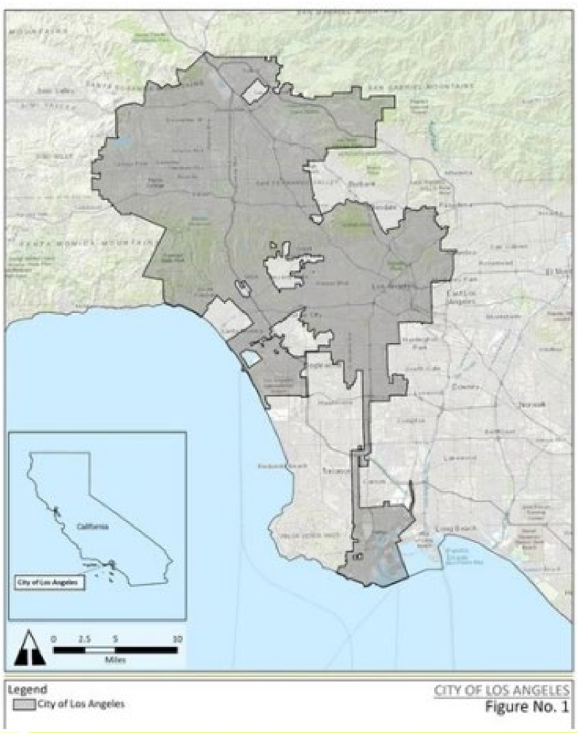
- LASAN's curbside collection services include:
  - **Blue Bin** for recyclables
  - **Green Bin** for organics
  - **Black Bin** for refuse
  - **Brown Bin** for horse manure
- LASAN's additional specialized services include:
  - On call bulky item collection
  - On call seasonal Christmas tree collection
  - On call electronic waste collection
  - Household hazardous waste collection through SAFE Centers

The Plastics Problem

- Less than 10% of plastics are recycled globally
- Over 6 billion metric tons of plastic waste in the earth's environment, including millions of tons ending up in the ocean annually
- UCLA Luskin Study (2020)
  - Plastics are primary source of land litter in California
  - Urban runoff channels plastics to Pacific Ocean
  - Loss of tourism & recreational/aesthetic values
  - Human health impacts
  - Most single-use plastics are not recycled
  - Food residue minimizes recyclability of single-use plastic foodware

How Has the City Responded to the Plastics Problem?

- 2013: Single-use Carryout Bag Ordinance 182604
- 2019: Straws on Request Ordinance 186028
- 2021: Foodware Accessories on Request Ordinance 187030
- 2022: Single-use Carryout Bag Ordinance (Expanded) 187716
- 2022: Expanded Polystyrene Ban Ordinance 187717
- 2022: Zero Waste at City Facilities & Events Ordinance 187718



Proposed Program Location

The Proposed Program would occur throughout the entirety of the City of Los Angeles

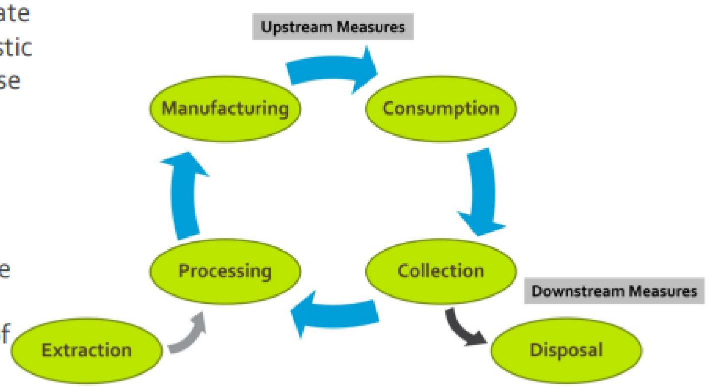
Proposed Program

Create a comprehensive citywide strategy to reduce plastic waste and reduce the environmental and human health impacts of single-use plastics

Proposed Program Overview

The Proposed Program would encompass two (2) major components:

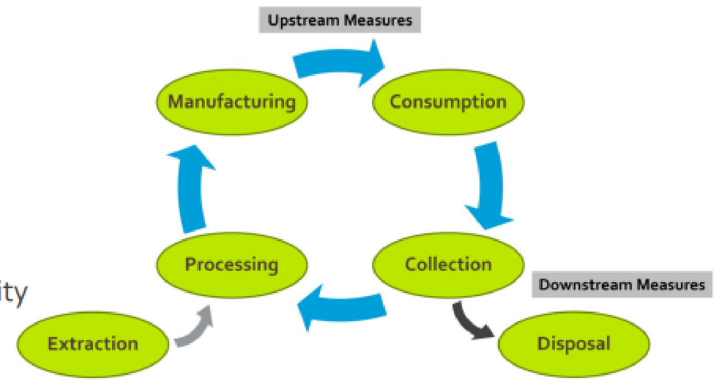
1. Upstream measures – reduce/eliminate production and use of single-use plastic products and encourage use and reuse of other items, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment; and
2. Downstream measures – increase the City's ability to manage collecting, reusing, recycling, and composting of alternative materials and support reusable products



Proposed Program Overview

Upstream Measures

- Plastic bottle policies
- Foodware policies
- Textile policies
- Plastic bag and film policies
- Bioplastics policy
- PFAS policy
- Extended Producer Responsibility
- Outreach and Education
- Other upstream measures

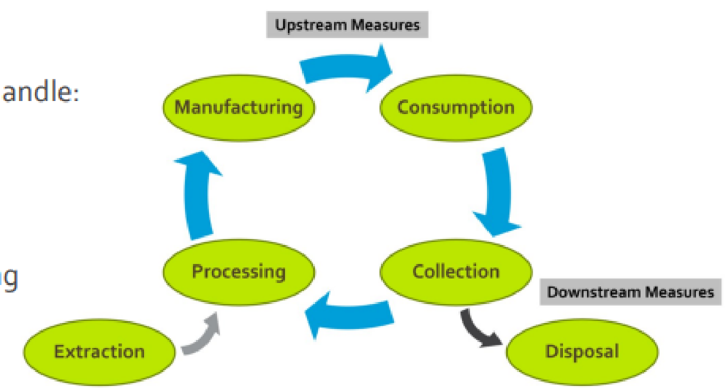


www.lacitysan.org/ceqa

Proposed Program Overview

Downstream Measures

- Bottle refilling stations
- Development or expansion of facilities and infrastructure to handle:
    - Compostable materials
    - Recyclable materials
    - Solid waste
    - Foodware and linen washing
- Other downstream measures



www.lacitysan.org/ceqa

✓ CEQA Process & Schedule

CEQA Overview

- California Environmental Quality Act (CEQA) is a California law requiring public agencies to evaluate potential environmental impacts of a project
- Purpose of CEQA is to provide disclosure
  - Inform decision makers about environmental effects
  - Involve public participation in the planning process
  - Identify and incorporate feasible means of reducing environmental impacts
- The Notice of Preparation (NOP) issued May 1, 2023
  - Announced that a PEIR will be prepared
  - Initiates 30-day public scoping period
  - Copy of the NOP is available at: www.lacitysan.org/ceqa

Environmental Issues to be Analyzed

Proposed Program Elements to be Evaluated

- ENVIRONMENTAL IMPACTS OF PROPOSED POLICIES
- ALTERNATIVES
- CUMULATIVE IMPACTS

CEQA PEIR Process & Schedule

NOP Scoping Period	Draft PEIR Preparation	Draft PEIR Public Review and Comment Period	Draft Final PEIR Preparation	Consideration of PEIR Certification
May 1-30, 2023 ●	June 2023 to April 2024	May 2024 ●	June 2024 to September 2024	October 2024 ●

● Opportunities for public input

✓ Public Comments

Public Comments

Online Submission: https://forms.gle/2ZWkx9HrwSHSdrMp6

Mail: LASAN – Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

Email: Christine.Batikian@lacity.org

Website: www.lacitysan.org/ceqa

Public Scoping Period: May 1 – May 30, 2023

Thank you for participating!

LA Sanitation and Environment
Solid Resources Citywide Recycling Division
Web: www.lacitysan.org/ceqa

Programa Integral de Reducción de Plásticos

Ley de Calidad Ambiental de California (California Environmental Quality Act, CEQA) Presentación del Proyecto Propuesto

Mayo de 2023

Esquema de la Presentación

- ❑ Objetivo de la Presentación
- ❑ Descripción General del Programa
- ❑ Proceso y Calendario
- ❑ Cómo Enviar Comentarios

✓ Objetivo de la Presentación

Objetivo de la Presentación

- Presentar el Programa Integral de Reducción de Plásticos propuesto (Programa propuesto)
- Ofrecer una descripción general del análisis medioambiental
- Ofrecer instrucciones en cómo enviar comentarios sobre el Programa Propuesto.

✓ Descripción General del Programa Propuesto

Resumen de Recursos Sólidos

LASAN

- Es responsable de la recogida y gestion de todos los residuos sólidos de la ciudad de Los Ángeles.
- Proporciona servicios de recogida a unos 750,000 hogares, entre viviendas unifamiliares y multifamiliares (de 2 a 4 unidades), así como a instalaciones municipales.

recycLA

- Asociación público-privada lanzada en 2017
- Proporciona servicios de recogida a ~65,000 complejos multifamiliares (>4 unidades), condominios y empresas comerciales.

Resumen de Recursos Sólidos de LASAN

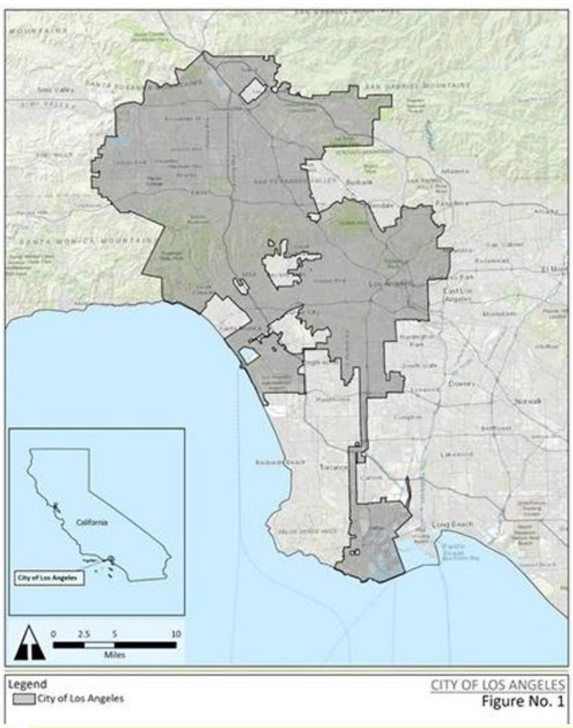
- Los servicios de recogida en acera de LASAN incluyen:
  - **Contenedor azul** para materiales reciclables
  - **Contenedor verde** para material orgánico
  - **Contenedor negro** para basura
  - **Contenedor marrón** para estiércol de caballo
- Los servicios especializados adicionales de LASAN incluyen:
  - Recogida de artículos de gran tamaño a petición
  - Recogida de árboles de Navidad a petición
  - Recogida de residuos electrónicos a petición
  - Recogida de residuos domésticos tóxicos a través de los SAFE Centers

El Problema del Plástico

- Menos del 10% de los plásticos se reciclan en todo el mundo
- Más de 6 billones de toneladas métricas de residuos plásticos en el medio ambiente terrestre, incluyendo millones de toneladas que terminan en el océano anualmente
- Estudio Luskin de la UCLA (2020)
  - Los plásticos son la causa principal de la basura terrestre en California
  - La escorrentía urbana canaliza los plásticos hacia el Océano Pacífico
  - Pérdida de valores turísticos y recreativos/estéticos
  - Impactos en la salud humana
  - La mayoría de los plásticos de un solo uso no se reciclan
  - Los residuos de alimentos minimizan la reciclabilidad de los cubiertos de plástico de un solo uso

¿Cómo ha Respondido la Ciudad al Problema de los Plásticos?

- 2013: Ordenanza sobre Bolsas de Un Solo Uso 182604
- 2019: Ordenanza sobre Popotes a Petición 186028
- 2021: Ordenanza sobre accesorios para vajillas 187030
- 2022: Ordenanza sobre Bolsas de Un Solo Uso (Ampliada) 187716
- 2022: Ordenanza de Prohibición del Poliestireno Expandido 187717
- 2022: Ordenanza de Cero Residuos en Instalaciones y Eventos Municipales 187718



Ubicación Propuesta del Programa

El Programa Propuesto se desarrollaría en toda la Ciudad de Los Ángeles

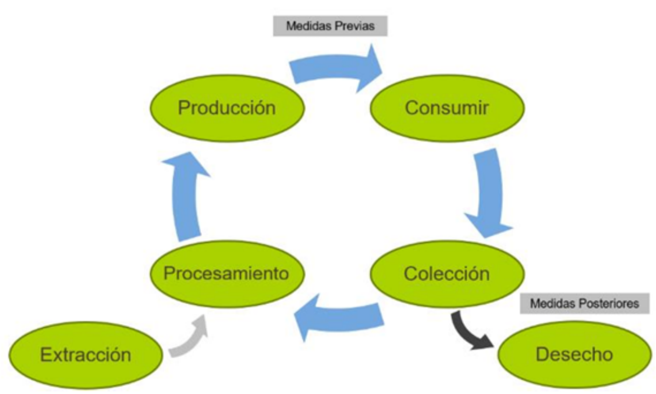
Programa Propuesto

Crear una estrategia integral para reducir los residuos plásticos y reducir el impacto de los plásticos de un solo uso en el medio ambiente y la salud humana.

Programa Propuesto

El Programa propuesto incluiría dos (2) componentes principales:

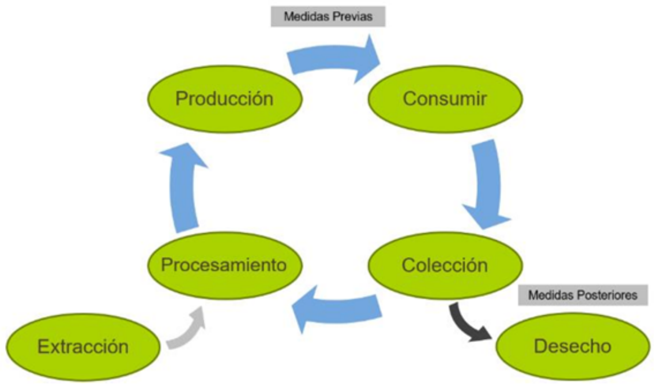
1. Medidas Previas: reducir/eliminar la producción y el uso de productos de plástico de un solo uso y fomentar el uso y la reutilización de otros artículos, reduciendo o eliminando así la entrada de plásticos de un solo uso en el sistema de residuos de la ciudad y en el medio ambiente; y
2. Medidas Posteriores: aumentar la capacidad de la ciudad para gestionar la recogida, reutilización, reciclado y compostaje de materiales alternativos y apoyar los productos reutilizables.



Programa Propuesto

Medidas Previas

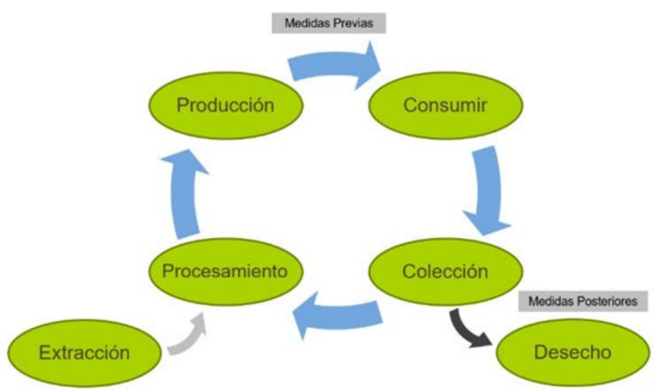
- Medidas sobre las botellas de plástico
- Medidas sobre vajillas
- Medidas sobre textiles
- Medidas sobre bolsas y láminas de plástico
- Medidas sobre bioplásticos
- Medidas en materia de PFAS
- Responsabilidad ampliada del productor
- Alcance y educación
- Otras medidas previas



Programa Propuesto

Medidas Posteriores

- Estaciones de llenado de botellas de agua
- Desarrollo o ampliación de instalaciones e infraestructuras para tratar:
  - Materiales compostables
  - Materiales reciclables
  - Residuos sólidos
  - Lavado de vajilla y mantelería
- Otras medidas posteriores



✓ Proceso y Calendario de CEQA

Resumen de CEQA

- La Ley de Calidad Ambiental de California (CEQA) obliga a las agencias públicas a evaluar las posibles consecuencias ambientales de un proyecto.
- El objetivo de la CEQA es divulgar información
  - Informar a los encargados de tomar decisiones sobre los efectos medioambientales
  - Involucrar la participación pública en el proceso de planificación
  - Identificar e incorporar soluciones factibles para reducir el impacto ambiental.
- El Aviso de Preparación (NOP) se publicó el 1 de mayo de 2023
  - Anuncia que se preparará un informe de impactos ambientales (PEIR)
  - Inicia un periodo de 30 días de consulta pública
  - Copia del NOP disponible en: www.lacitysan.org/ceqa

Asuntos Medioambientales Que Deben Analizarse

Elementos del Programa Propuestos Para Evaluar

- IMPACTOS AMBIENTALES DE LAS MEDIDAS PROPUESTAS
- ALTERNATIVAS
- IMPACTOS CUMULATIVOS

Proceso y Calendario de CEQA

Período de Evaluación NOP	Preparación del PEIR	Periodo de Revisión y de Comentarios Públicos del PEIR	Preparación del PEIR Final	Consideración del PEIR Certificación
1 al 30 de mayo de 2023 ●	junio de 2023 a abril de 2024	mayo 2024 ●	junio de 2024 a sept. de 2024	octubre 2024 ●

● Oportunidades para la participación pública

✓ Comentarios del Público

Comentarios del Público

Envío en Línea : https://forms.gle/2ZWkx9HrwSHSdrMp6

Correo : LASAN – Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

Correo Electrónico : Christine.Batikian@lacity.org

Sitio Web : www.lacitysan.org/ceqa

Periodo de Revisión: 1 de mayo - 30 de mayo de 2023

GRACIAS!

LA Sanitation and Environment
Solid Resources Citywide Recycling Division
Web: www.lacitysan.org/ceqa

Appendix F: Scoping Comments

Christine Batikian <christine.batikian@lacity.org>

Coastal Commission Comment Letter - City of LA Comprehensive Waste Reduction Program Comment Letter

Stevens, Eric@Coastal <eric.stevens@coastal.ca.gov> Fri, Jun 2, 2023 at 10:23 AM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>
Cc: "Doyle, Jennifer@Coastal" <jennifer.doyle@coastal.ca.gov>

Please see attached comment letter. Thanks

Eric Stevens (Pronouns: He/Him/His) – District Supervisor – California Coastal Commission - 562-590-5071

South Coast District Office – 301 E. Ocean Blvd. Ste. 300, Long Beach, CA 90802

***If you need to submit an appeal, an emergency application, or a PRA request please email: SouthCoast@coastal.ca.gov*

City of LA Comprehensive Waste Reduction Program Comment Letter (2).pdf
152K

Comment Letter – City of Los Angeles Comprehensive Waste Reduction Program

As stated in the Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meetings, dated May 1, 2023, the program may include, but is not limited to, "upstream measures" to ban specific single-use products, create product stewardship programs, and support or require policies specific to manufacturing. "Downstream measures" may include but are not limited to the construction or expansion of recycling and composting facilities and infrastructure to support the use of reusable items.

The program EIR will evaluate the potential environmental impacts of the proposed program and identify alternatives, including the "no program" alternative, as required by CEQA. Regarding the scope and content of the environmental information to be including in the program EIR, Commission staff recommend that the program EIR address the potential impacts of the proposed program on the City of Los Angeles' coastal zone with respect to the Coastal Act.

Specifically, the program EIR should evaluate the potential impacts of the proposed program on coastal resources, including but not limited to water quality and marine resources pursuant to Coastal Act Sections 30230 and 30231 and environmentally sensitive habitat areas pursuant to Coastal Act Section 30240. Furthermore, the program EIR should assess the potential impacts of the proposed project on public access in the coastal zone pursuant to Coastal Act Section 30210. In addition, the program EIR should also analyze the potential impacts of the proposed program on the coastal zone's scenic and visual resources pursuant to Coastal Act Section 30251. Finally, Commission staff recommend the City of Los Angeles to consider feasible alternatives and mitigation measures available which would substantially lessen any significant adverse impact of the proposed program on the environment within the coastal zone.

In conclusion, Commission staff comments provided herein are preliminary. They are intended to identify key issues to ensure consistency with the Coastal Act. Commission staff may recommend modifications to these comments or provide additional comments in the future as new information becomes available.

Sincerely,

Eric Stevens
District Supervisor

for
Jennifer Doyle
Coastal Program Analyst

CALIFORNIA COASTAL COMMISSION
SOUTH COAST DISTRICT OFFICE
301 E. OCEAN BLVD., SUITE 300
LONG BEACH, CALIFORNIA 90802-4830
PH (562) 590-5071 FAX (562) 590-5084
WWW.COASTAL.CA.GOV

June 2, 2023

COMMENT LETTER

LASAN – Solid Resources Citywide Recycling Division
Attention: Christine Batikian
1149 S. Broadway
5th Floor, Mail Stop 944
Los Angeles, CA 90015

RE: **City of Los Angeles Comprehensive Waste Reduction Program**

Dear Christine Batikian,

This letter contains Coastal Commission staff's comments on the scope and content of the environmental information to be included in the Program Environmental Impact Report (PEIR) for the City of Los Angeles' Comprehensive Waste Reduction Program.

First and foremost, Commission staff appreciate the City of Los Angeles' efforts to implement a citywide Comprehensive Waste Reduction Program to reduce or eliminate the production and use of single-use plastic products and encourage reuse of other items.

Plastic pollution is a persistent and growing problem worldwide that significantly impacts the health of our oceans and coasts. Roughly 8 million metric tons of plastics are estimated to enter the ocean each year, and the United States is one of the top 20 contributors to plastic pollution.[1] Plastic has been found in a wide range of marine environments including the seafloor, surface water, the water column, and on beaches and shorelines. California communities are estimated to spend more than $428 million annually to clean up and control plastic pollution. Plastic never truly degrades into its chemical components; instead it physically breaks down into smaller and smaller pieces. Plastics under 5 millimeters in size are called microplastics and are found worldwide, even in places considered pristine. Plastics have been found in the digestive tracts of marine organisms ranging from zooplankton to whales, and microplastics have been found in drinking water and food, including shellfish, salt, beer, and honey.[2] In particular, the use of single-use plastics, Styrofoam or other single-use materials result in adverse effects to marine wildlife, since these materials can make their way to the ocean, causing fish, seabirds, sea turtles, and marine mammals to become entangled in or ingest plastic debris, causing suffocation, starvation, and drowning.

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[1] Ocean Protection Council https://www.opc.ca.gov/programs-summary/marine-pollution/plastics/
[2] Ocean Protection Council https://www.opc.ca.gov/programs-summary/marine-pollution/plastics/

Christine Batikian <christine.batikian@lacity.org>

Comprehensive Plastics Reduction PEIR

Allegra Curiel <acuriel@newlight.com> Wed, May 31, 2023 at 10:47 AM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>

Good morning,

Please find attached Newlight Technologies' response to the proposed Comprehensive Plastics Reduction Program.

Best Regards,

Allegra Curiel (She/Her)

Policy Manager, Government Affairs

Newlight Technologies, Inc.

(707) 845-1100

NEWLIGHT

www.newlight.com

Newlight LASAN PEIR.pdf
240K

May 30, 2023

LASAN - Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

Transmittal Via Email: christine.batikian@lacity.org

Re: *Comprehensive Plastics Reduction PEIR*

Dear Ms. Batikian,

Newlight Technologies, Inc. ("Newlight") appreciates this opportunity to provide comment to the City of Los Angeles Sanitation & Environment ("LASAN") on the proposed Comprehensive Plastics Reduction Program ("Program"). Newlight was founded with the hope to bring real solutions to climate change and the plastic pollution crisis, while offering products that work for businesses, and we look forward to being a partner to LASAN during this process.

Newlight is a California-based manufacturer of a material called polyhydroxybutyrate ("PHB"). PHB is a naturally-occurring material made in nature by microorganisms from various carbon substrates, including greenhouse gas (carbon dioxide and/or methane). Newlight's PHB was developed over 15 years as a nature-based solution: utilizing naturally-occurring microorganisms found in California to turn greenhouse gases into a material to help solve for climate change as well as the challenges that synthetic plastics present.

Plastic waste that ends up persisting in the environment has become one of the most challenging environmental issues of our time. As plastic does not biodegrade, it accumulates in natural environments, including the ocean, as pervasive and persistent environmental contaminants. Since PHB is naturally-occurring, and made throughout all of nature's ecosystems, PHB has the unique characteristic that nature recognizes it as food. PHB is naturally consumed by microorganisms in soil and water as a food source, similar to fruit, leaves, or seeds[1]. A thin piece of PHB, as an example, is recognized by natural microorganisms as a nutrient, and has been shown to be degraded at a rate similar to, and in some cases faster than, paper according to third party studies under the conditions prescribed in ASTM D6691. PHB is made in a natural process, and it is also biodegraded by living things as a food source in a variety of disposal settings, including home compost; importantly, PHB does not require elevated compost temperatures to degrade, and will degrade in temperatures found in home compost.

Increasing social and political awareness of the plastic pollution problem has prompted growth in research and technology innovations to help solve this problem. Whether it is consumer demand, corporate mandates, or legislative action, the addressable market demand for a sustainable alternative to legacy plastics is large and growing. These alternatives are starting to come to market and are now being manufactured at a small commercial scale in the United States, including here in Southern California by Newlight.

Newlight brought its first commercial products to market in 2020, and currently manufactures two distinct product lines: foodware and durable goods. Newlight's foodware line consists of straws and

[1] McAdam, Blaithín et al. "Production of Polyhydroxybutyrate (PHB) and Factors Impacting Its Chemical and Mechanical Characteristics." *Polymers* vol. 12,12 2908. 4 Dec. 2020, doi:10.3390/polym12122908

cutlery, which are certified to be compostable by TUV Austria, the Biodegradable Products Institute (BPI), and Compost Manufacturing Alliance (CMA).

PHB is different from other alternative materials and should be treated differently.

Plastic pollution is an issue because of its persistence in the environment. Even with the best waste management systems, it is realistic to assume some material will inadvertently escape. Polylactic acid (PLA) has historically been the most well known plastic alternative material. Unlike PHB, PLA is a synthetic plastic that does not exist in nature. PLA degrades only under very specific conditions, including at elevated temperatures[2]. Under specific, controlled conditions, PLA can degrade in "industrial compost" settings with sufficiently high temperatures and holding times, but if it becomes littered or dumped and ends up in the environment, PLA effectively persists on a timescale similar to incumbent synthetic plastics. One notable distinction between PLA and PHB is that PHB is home compost certified[3], whereas PLA is not. PLA does not solve for materials persisting in the environment because it is a synthetic material, but PHB is a naturally-occurring material that does. PHB does not require specific conditions to degrade, as it is made by nature, and recognized and consumed as a food source by bacteria. PHB is degradable in freshwater[4], soil[5], home composting[6], and industrial compost[7].

Due to backlash against PLA, consumers, governments, and composters have started to reject "compostable" materials and "bioplastics", and since PHB has been called a "bioplastic", various groups have come to mistakenly believe that PHB and PLA are the same. This has become an issue for PHB, as governments, composters, and consumers have all become skeptical of compostable polymers. Governments passing single-use plastic laws have included both PLA and PHB in their bans. Regarding the proposed Program, Newlight strongly encourages the City of Los Angeles to not paint all alternative materials with a broad brush, and treat them all the same under prescriptive policies. While PHB is a compostable polymer, it is natural, home compostable, and does not persist in the environment.

PHB should be treated differently than plastic and other materials that persist in the environment. Certified compostable materials should replace non compostable and non-recyclable materials.

With regard to the proposed Program, the policies formulated should distinguish between materials that persist in the environment, such as PET, HDPE, PLA, etc. from materials that do not, such as PHB. One simple measure is whether a material or product passes TUV Austria's home compostability test—this test is carried out at lower temperatures that better reflect environmental conditions, and is a test that PLA does not pass. The program should incentivize and prioritize products that help solve the very environmental problems that the policy is trying to solve. Switching from a material that persists in the environment to a biodegradable alternative should be a policy priority for the Program. Businesses in Los Angeles will need alternatives once single-use plastics are phased out. Newlight is a local business that has alternatives commercially ready to deploy and expand.

LSAN should facilitate more effective composting and degradation of certified compostable products, in order to move the City towards a circular economy.

Despite composting mandates under SB 1383 (Lara, Chapter 395, Statutes of 2016) not all composting facilities accept or are willing to process certified compostable products. At the same time, SB 54 (Allen, Chapter 75, Statutes of 2022) establishes goals for California to transition to recyclable or

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[2] da Silva, Dana et al. "Biocompatibility, biodegradation and excretion of polylactic acid (PLA) in medical implants and theranostic systems." *Chemical engineering journal (Lausanne, Switzerland : 1996)* vol. 340 (2018): 9-14. doi:10.1016/j.cej.2018.01.010

[3] TUV OK home Compost

[4] TUV OK biodegradable WATER

[5] TUV OK biodegradable SOIL

[6] TUV OK home Compost

[7] TUV OK industrial Compost, BPI Certified, CMA Certified

compostable materials. Both infrastructure and willingness of waste management entities to participate will be required to meet California's ambitious goals. The most meaningful way to support California's waste reduction goals would be requiring the programs and contracts LSAN oversees and implements to accept and process certified compostable products. In addition, both consumers and businesses need to be educated on how to properly source and separate certified compostable products and where and how they can effectively compost those products. Los Angeles will need cross industry collaboration and participation to meet the Program and California's goals.

In conclusion, Newlight looks forward to working with staff and stakeholders on the development and implementation of the Program. We appreciate the work from LSAN staff and leadership and look forward to further engagement. We welcome the opportunity to provide additional information and give further feedback during the process.

Sincerely,

Allegra Curiel
Policy Manager
Newlight Technologies, Inc.
acuriel@newlight.com

Christine Batikian <christine.batikian@lacity.org>

CEQA NOP Comment Letter

Emily Parker <eparker@healthebay.org> Tue, May 30, 2023 at 10:47 PM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>

Good Evening Christine,

Please accept the attached document as public comment on the LASAN Comprehensive Plastics Reduction Program CEQA Notice of Preparation from the Reusable LA Coalition. Please do not hesitate to contact us with any questions or for any additional information.

Thank you and all the best,

Emily

Heal the Bay

EMILY PARKER | COASTAL AND MARINE SCIENTIST
She/Her/Hers (What does this mean?)

Heal the Bay
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RULA LASAN CEQA NOP Comment Letter May 2023.pdf
145K

May 30, 2023

LA Sanitation Solid Resources Citywide Recycling Division
Attn: Christine Batikian
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

RE: CEQA Notice of Preparation - Comprehensive Plastics Reduction Program

Submitted electronically via: Christine.Batikian@lacity.org

Dear Ms. Batikian and Team:

On behalf of Reusable LA, a coalition of organizations that work to reduce plastic pollution and promote reuse policies and programs in Los Angeles, we submit this letter to express our strong support for the proposed Comprehensive Plastics Reduction Program. We commend the City of Los Angeles for taking a proactive stance in addressing the pressing issue of single-use plastics and their detrimental impact on our environment and our communities and thank the LA Department of Sanitation and Environment (LASAN) for their leadership. We respectfully offer comments on the Proposed Program (hereafter referred to as Proposed Program or Program), laid out in the Notice of Preparation (NOP) for a Program Environmental Impact Report (PEIR) pursuant to the California Environmental Quality Act (CEQA).

Reusable LA reiterates our strong support for both this Program and the preparation of a PEIR. The Proposed Program's comprehensive approach to reducing or eliminating single-use plastic products is essential to combat plastic pollution. By implementing upstream measures such as bans on specific items, product stewardship programs, and policies promoting durable, reusable and repairable products, the City of Los Angeles will significantly reduce the input of single-use plastics into our waste stream and environment and the subsequent harm caused by plastics on public health. We'd also like to applaud the Program's emphasis on public education, outreach, and engagement. Raising awareness about the environmental impacts of single-use plastics and promoting sustainable alternatives is crucial for long-term behavioral change within our community.

While the ultimate goal of this PIER process is to identify any possible environmental impacts of the Program, and we recognize the ultimate need for undergoing this process, we emphasize that this Program will have a massive *environmental benefit* and will mitigate the major impacts of plastic waste and pollution on the communities and ecosystems of greater Los Angeles. As detailed in the Proposed Program, plastic pollution is a massive burden on Los Angeles, and the Program includes strong measures to reduce and prevent harmful single-use waste impacts citywide. We anticipate that the forthcoming PEIR process will find that the proposed Program will indeed provide this benefit and that additional direct or indirect impacts will be negligible compared to benefits and that significant alternatives will not be found reasonable. That being said, as invested stakeholders in this process, we offer our guidance on the preparation of the PEIR and the overall Proposed Program.

In light of the above, we would like to offer our feedback on both the language provided in the Proposed Program and on the issue areas that should be addressed in the (PEIR). Our comments are as follows:

- The Program's goal should be to phase out all single-use products, especially single-use plastics, in the City of LA through specific programs and regulatory tools, detailed below.
- To achieve this goal, The Program should prioritize reuse, refill, and repair over all other options.
- The PEIR should prioritize specific environmental issue areas, detailed below.
- The PEIR should NOT include Reuse for Dine-In, but instead declare this policy as a Categorical Exemption from PEIR analysis.

These comments and recommendations are further detailed below:

The Program's goal should be to phase out all single-use products, especially single-use plastics, and prioritize reuse, refill, and repair

As expressly stated in the Program NOP, the intent of the Program is to "reduce or eliminate the production and use of single-use plastic products…and encourage reuse of other items". We strongly believe that the ultimate goal of this program should be not only to reduce, but to phase out and eliminate entirely single-use products and packaging, especially single-use plastics. Countless scientific findings show the negative impacts of single-use plastic on the environment and on communities. Disposable plastic presents significant hurdles for waste disposal, as pollution in the environment, and as an exposure route of toxins to the human body.[1] There is no denying that single-use plastics must be phased out, and the Program must prioritize the achievement of this goal.

To meet this end goal, **the Program must require, to the maximum extent feasible, reusable, refillable, and repairable alternatives to replace single-use products and packaging**. Comprehensive life cycle analyses of reusable products such as foodware show that reusable alternatives result in significantly lower overall environmental impacts than their disposable counterparts.[2] Without prioritizing reuse and refill systems in the phase out of single-use plastics, the Program runs the risk of perpetuating regrettable alternatives.

To reflect this focus on switching to durable, reusable, refillable, and repairable alternatives, we recommend the following changes in language to the Proposed Program as an exercise to demonstrate the express need to prioritize reuse above all other alternatives:

1. "~~encourage~~ require reuse of other items to the maximum extent feasible"
2. "policies to require where and/~~or~~ support the manufacturing and long-term use of durable, reusable, repairable, and recyclable products"

[1] Ilyas, M., Ahmad, W., Khan, H., Yousaf, S., Khan, K. & Nazir, S. (2018). Plastic waste as a significant threat to environment – a systematic literature review. Reviews on Environmental Health, 33(4), 383-406. https://doi.org/10.1515/reveh-2017-0035

[2] Gordon, Miriam, "Reuse Wins: A Vision for a Circular Economy in Single-use Foodware" (Upstream Solutions, 2021), https://upstreamsolutions.org/reuse-wins-report.

At the first introduction of a possible Comprehensive Plastic Reduction Program in the City of Los Angeles, the City Department of Sanitation and Environment (LASAN) produced a report in November 2021 to the Los Angeles City Council on various motions on the reduction of single-use plastics. This report cited dozens of recommended short-term and long-term policies and actions that the city should take "to reduce the entry of plastic waste into the environment, reduce waste generation, eliminate single-use products, and encourage sustainable green procurement." Reusable LA firmly believes this report to be a comprehensive solution to mitigate the city's waste crisis and recommends that **all regulatory tools, policies, and programs proposed in this report should be included, at a bare minimum, in the PEIR for the Proposed Program.**

We would like to highlight the following specific policies and regulatory tools as inarguably essential to the Proposed Program and that should be included in the PEIR:

- Reuse and refill requirements for food and retail facilities
- Communal reuse and refill systems and networks, including foodware and linen washing
- Reusable systems for to-go food and beverages
- Single-Use beverage container policies that prioritize reusable and refillable beverage container alternatives
- Water bottle refill stations
- Comprehensive plastic food packaging bans
- Plastic bag and plastic film policies
- Disposable product fees, such as to-go cup and container charges
- City-wide zero waste facility and event strategies
- Microplastic and microfiber reduction policies, such as new washing machine filtration requirements and textile shedability standards

These examples are not an exhaustive list and we strongly encourage LASAN to refer to the aforementioned November 2021 LASAN report and to develop and implement stakeholder engagement to further compile a suite of comprehensive plastic reduction policies. We strongly support LASAN's plan to conduct enhanced outreach workshops and encourage the LASAN team to use these workshops as an opportunity to further develop the necessary components of the Proposed Program.

Impact Issue Areas to Prioritize in the PEIR

The Proposed Program details a significant number of regulations, projects, programs, and funding pathways for both "upstream" and "downstream" measures to reduce and eliminate plastic pollution in Los Angeles. These varying measures must be evaluated in the PEIR through the lens of the prescribed issue areas presented in the NOP. While the Program proposed is very broad in scope and provides many possibilities, it is important to highlight eight specific issue areas that should be addressed.

According to the NOP outreach materials, the Proposed Program elements that must be addressed in the PEIR are as follows:

Upstream Measures Elements:

- Plastic bottle policies
- Foodware policies
- Textile policies
- Plastic bag and film policies
- Bioplastics policy
- PFAS policy
- Extended Producer Responsibility
- Outreach and Education
- Other upstream measures

Downstream Measures Elements:

- Bottle refilling stations
- Development or expansion of facilities and infrastructure to handle:
  - Compostable materials
  - Recyclable materials
  - Solid waste
  - Foodware and linen washing
- Other downstream measures

Based on our experience and expertise both in CEQA processes, we feel that all of these issue areas must be evaluated equally. Below, we highlight the CEQA categories that are expected to be addressed in the PEIR, and those that are not expected to be addressed.

CEQA Environmental issue impact categories expected to be addressed:

- Aesthetics
- Air Quality
- Biological Resources
- Energy
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Utilities and Service Systems

CEQA Environmental issue impact categories NOT expected to be addressed:

- Agriculture and Forestry Resources
- Cultural Resources
- Geology and Soils
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Wildfire

A comprehensive evaluation of these impact categories will provide the city with sufficient evidence to evaluate the environmental impacts and benefits of the Proposed Program. As stated above, we expect the PEIR to find that these included elements (both those presented by the City and those we have recommended including above) will have far greater environmental benefit than impact.

<u>The PEIR should NOT include Reuse for Dine-In, but instead declare this policy as a Categorical Exemption.</u>

To help insulate the Proposed Program from any possible litigation and to maximize the environmental benefit, we recognize the necessity of the PEIR process. Please note, however, that certain plastic reduction policies will *only* have significant environmental benefits and absolutely no adverse impacts and therefore do not need to be included in this PEIR, rather these policies must be introduced and implemented now. We therefore urge LASAN to **classify Reuse for Dine-in policy as Categorically**

Exempt from CEQA and adopt and implement a Reuse for Dine-in policy for all restaurants in advance of development of the PEIR.

A Reuse for Dine-in policy supports a transition from single-use products to reusable alternatives. As such, LASAN can effectively claim the policy to be categorically exempt from CEQA based on the history of litigation on CEQA in the plastic bag bans. There have been three court cases regarding plastic bag bans[3] and all three supported local government determination that they did not have to prepare an EIR by assigning either a negative declaration or categorical exemption.

The takeaway from these cases is that, because reuse is considered to be a superior environmental policy than single-use. Substantial evidence outlined in the UCLA Luskin School report conducted for the City of Los Angeles that draws this conclusion. Local jurisdictions across California also agree - CEQA analysis is not necessary for reusable foodware policies. To date, 17 California jurisdictions have enacted reuse for onsite dining policies without needing environmental impact reports and have thus far successfully implemented those ordinances.

For these reasons, we urge LASAN to make a CEQA categorical exemption for a Reuse for Dine-in requirement for all food facilities as a part of the Proposed Program and we offer the expert experience of our coalition members to assist the LASAN team in drafting, passing, and implementing this policy effectively to reduce a significant quantity of harmful single-use plastics as quickly as possible.

As advocates who have been working tirelessly on the advancement of plastic pollution reduction in the greater Los Angeles region for over a decade, we are thrilled to see the City making forward movement on this pressing issue. We wholeheartedly support the Proposed Program and thank the LASAN team for their work on the Program and on the development of the coming PEIR. Reusable LA is looking forward to continued conversations with the LASAN team on the Program and participating in the enhanced outreach workshops in the coming months. With any questions or for additional information, please do not hesitate to contact us at eparker@healthebay.org.

Sincerely,

Emily Parker
Co-Chair of Reusable LA
Coastal and Marine Scientist for Heal the Bay

Craig Cadwallader
Policy Expert and Member of Reusable LA
Surfrider South Bay Chapter

Alison Waliszewski
Co-Chair of Reusable LA
Director of Policy for 5 Gyres

Miriam Gordon
Policy Expert and Member of Reusable LA
Reuse Activator for Story of Stuff Project

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[3] Save the Plastic Bag Coalition v. Manhattan Beach, Save the Plastic Bag vs. San Fancisco, and Save the Plastic Bag vs. Marin County.

Christine Batikian <christine.batikian@lacity.org>

Comprehensive Plastics Reduction PEIR

1 message

POP PaddleOutPlastic <paddleoutplastic@gmail.com> Tue, May 30, 2023 at 12:45 PM
To: christine.batikian@lacity.org

PADDLE OUT
PLASTIC

Ms. Batikian,
I kayak weekly in Los Angeles Harbor and other local waters, finding so much single-use plastic in the water that I launched Paddle Out Plastic to not only assist in ridding the water of harmful plastic pollution, but to help raise awareness of what our ever-increasing plastic use is doing right here in LA waters. We are a small group of paddlers in kayaks and on standup paddleboards, yet we have retrieved over **209,000 pieces** of plastic from the water since our launch on World Oceans Day 2019. We sort, count and photograph each collection and log our data with NOAA.

We eagerly support the City of Los Angeles implementation of a citywide Comprehensive Plastic Reduction Program, including both upstream and downstream measures, with emphasis on the former since that will reduce the burden on the latter as well as addressing the harms to people and planet throughout the lifecycle of plastic, not just in the waste stream.

Paddle Out Plastic Data

About 95% of what we retrieve from the water is plastic. Just through the end of 2022, when our total number of items retrieved from the water was 188,026, these are our totals in various categories (all plastic):

Foam pieces: 63,747

Flexible/film fragments: 19,305

Hard plastic fragments: 14,553

Food wrappers, either all plastic or with plastic layers: 26,548

Plastic lids (1/2 of which are bottle caps): 15,746

Product wrappers: 8,215

Plastic bags: 7,263

Plastic straws: 6,660

Plastic bottles and other containers: 5,546

Plastic cups: 4,920

Of course, we retrieve many other plastic items in large quantities, including disposable masks, toys, utensils, balloons, miscellaneous packaging, personal care items, harbor/PORT and fishing-related items.

Issues for Consideration in PEIR

Number of pieces don't tell the whole story nor should the numbers alone be taken as a roadmap to which categories should be addressed with greater urgency. Several item categories do highlight issues we want to bring to your attention in connection with the PEIR:

Fragments. The high number of plastic fragments we find in the water underscores a couple of issues. One is that the categories of plastics retrieved are breaking down out there into unidentifiable, but no less harmful, pieces. Who can say which items cause greater harm: whole plastic bags or fragments (be they foam, flexible plastic, or hard plastic), for example? All plastics must be addressed; they are all persisting in the environment in varying size pieces, including microplastics and nanoplastics.

Foam. Wherever there are alternatives to polystyrene foam they should be mandated, be it foodware, toys, even marine infrastructure. Cheap and convenient cannot be an option when cheap and convenient for businesses and consumers simply means costly and inconvenient (i.e. hard work) for the environment and those of us working to protect it.

The need for enforcement. Plastic straws have been subject to California's "Skip the Stuff" law for quite a while, yet we continue to find many dozens in the water on each morning paddle, adding up to thousands. Why? Well, anybody who ever eats out or takes out knows that a paucity of proprietors of food establishments are following the law. Straws continue to be routinely handed out, sometimes even when I've asked for no straw one appears at my table, in my drink, or in my takeout order. Evidently, there is no enforcement.

Add lids to the foodware list. We commonly see foodware defined as "plates, cups, bowls, utensils, and serving dishes". As you can see from our data, lids are a huge problem, as well. Bottle caps, including single-use plastic water bottles are ubiquitous and just one more reason why we need to get back to drinking fountains and reusable carafes.

Incentivize dining on site. The lid problem is just one reason to encourage/incentivize dining on site over takeout. We experience a host of problems directly related to the extreme increase in takeout food orders, some addressed below.

Reuse: For onsite dining, require non-plastic foodware use (e.g. ceramic, glass, bamboo) to minimize plastics, for human health and environmental health. Consider significant deposits on reuse receptacles for takeout orders to increase the likelihood that reusable plastic food receptacles won't become litter just as happened with "reusable" plastic bags. (Many of the plastic bags we've retrieved from the water are thick plastic and labelled "reusable".) Be careful with requiring recycled content in foodware given scientific findings that recycled plastic leaches toxins perhaps even more than virgin plastic.

Water Adjacent Businesses. Businesses located on or near LA Harbor, LA coast, LA River and/or any other water bodies or channels ought to be viewed as having a greater responsibility as a function of the privilege of their proximity to the water. Of course, litter anywhere may eventually migrate to the water and, of course, litter anywhere has adverse environmental impacts in situ. We have seen, however, that there is no intervening line of defense for plastic litter from eateries on or near the water, in particular in LA Harbor. Thus, if there is thought to phasing in restrictions, consider proximity to water as an important factor.

Packaging. Beyond food packaging, we've got to move away from packaging using plastic, be it foam fabric and peanuts, plastic air pillows and bubblewrap, or large sheets of plastic for wrapping shipping boxes. These are far too common and often in very, very large pieces.

Extended Producer Responsibility. There can be no question that producers ought to be responsible for the environmental impacts of their products. Better yet, products with great adverse environmental impacts which in the past have proven unnecessary and for which there are alternatives, such as most single-use plastics, ought to be prohibited. Responsibility should not fall on do-gooders (some call them/us suckers) to abate their harms. We might suggest that plastic producers be required to embed an identifier in their products to make them traceable back to them, with fines associated, except that the ease with which products break down in the environment makes that less than satisfactory.

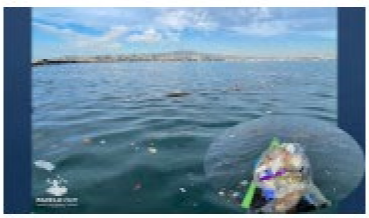
I'm attaching a few photos showing conditions on the water in addition to samples of the trash collected and photographed in one to as many as six 6'x9' frames after each paddle session. Thank you for taking on this complex project. It's important for the well-being of people, wildlife, indeed our entire planet. I would appreciate confirmation of receipt.

Eva Cicoria,
Founder

PADDLE OUT
PLASTIC

10 attachments


Slide13.JPG
287K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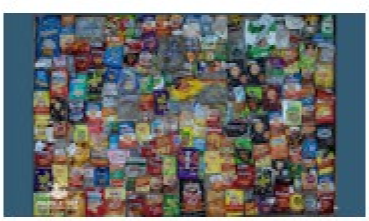
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Christine Batikian <christine.batikian@lacity.org>

IBWA and CBWA Comments on Plastic Waste Reduction Efforts in Los Angeles

James Toner <JToner@bottledwater.org> Tue, May 30, 2023 at 1:52 PM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>

Attached please find comments from the International Bottled Water Association and the California Bottled Water Association regarding the development of a citywide Comprehensive Plastic Reduction Program.

Please contact me should you have any questions.

Sincerely,

James P. Toner, Jr.

Director of Government Relations

International Bottled Water Association (IBWA)

1800 Diagonal Road

Suite 600 – PMB #1125

Alexandria, Virginia 22314

P 703.647.4616

EM jtoner@bottledwater.org

Web www.bottledwater.org

IBWA CWBA Comments LA Plastics Reduction 053023.pdf
143K

IBWA
International Bottled Water Association

CALIFORNIA CBWA BOTTLED WATER ASSOCIATION

May 30, 2023

Christine Batikian
Bureau of Sanitation Division of Solid Resources Citywide Recycling
City of Los Angeles Department of Public Works
1149 S Broadway, 5th Floor, MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction PEIR

Dear Ms. Batikian:

The International Bottled Water Association (IBWA) and the California Bottled Water Association (CBWA) appreciate this opportunity to provide comments on the Notice of Preparation (NOP) for the proposed Comprehensive Plastics Reduction Program.

First, this program comes at a time when California is preparing to enter the rulemaking process addressing SB 54 which passed in 2022 and, in the words of Governor Gavin Newsom, "is the most significant overhaul of California's plastics and packaging recycling policy in history, goes further than any other state on cutting plastics products…" It would seem premature for the City of Los Angeles or any other city, community, or entity in California to move forward on any comprehensive plastic reduction program without first allowing for the impact of state regulations on plastic waste.

SB 54 addresses many of the issues of plastic waste reduction described in the city's NOP. This includes items such as:

- Plastic packaging recycling mandates of 30% by 2028, 40% by 2030, and 65% by 2032
- Plastic source reduction mandate of 25% by 2032 for all manufacturers
- Requiring all plastic packaging to be recyclable or compostable by 2032

We encourage the city to consider the provisions of these planned regulations and how they will impact the entire state when it comes to plastic pollution and reduction. Many of the manufacturers and businesses involved in the passage of SB 54 will be involved in the rulemaking process just as they will be involved in any efforts undertaken by Los Angeles.

Second, as manufacturers of plastic beverage containers, not only are we already subject to the state's California Redemption Value (CRV) that requires a deposit and return of beverage containers in the state, we also are now in the final stages of rules for a state recycled content mandate. With the passage of AB 793 in 2020, producers of plastic beverage containers sold in the state that are part of the CRV are required to meet a recycled content mandate of 15% beginning this year and reaching a 50% mandate by 2030.

If specific products are removed from the plastics recycling stream due to restriction, reductions, or bans, it will increase the difficulty of manufacturers to meet recycled content requirements due to lack of feedstock. Already, the beverage manufacturing industry is facing shortages of recycled content plastic material as other users are purchasing the material at reduced cost and grade. For beverage manufacturers, it is vital that food-grade quality material be made available in order meet these mandates. A plastics reduction program, such the one being suggested, would hinder beverage manufacturers from obtaining much needed material to achieve the state mandate.

Finally, IBWA and CBWA would like to address the issue of plastic usage for our bottled water containers. There are numerous misconceptions about plastic and plastic water bottles that city leadership should be aware of before making any decisions on a reduction program.

IBWA and CBWA oppose plastic bottled water bans, restrictions and reductions as:

- efforts to restrict access to bottled water hinder individuals searching for a healthier beverage alternative.
- bottled water has the lowest environmental footprint of any packaged beverage.
- being strictly regulated by the U.S. Food and Drug Administration (FDA) as a food product makes bottled water a safe choice for consumers.
- the recommendations put citizens at extreme high risk should there be a failure of a public water system.
- the bottled water industry has a strong presence and commitment to California and Los Angeles.

We believe it is important for the Bureau of Sanitation and the City of Los Angeles to know the facts about plastic bottled water containers.

- PET bottled water containers have the lowest environmental footprint of any packaged beverage.
- PET bottled water containers weigh less, emit fewer greenhouse gases, and use less fossil fuels and less water to make than any other packaged beverage container.
- All single-use PET plastic bottled water containers are 100 percent recyclable.
- PET plastic bottled water containers are the most frequently recycled PET beverage container in curbside recycling programs.
- Bottled water containers make up only 3.3 percent of all drink packaging in landfills.
- PET plastic bottles are favored by bottled water drinkers, with 79 precent saying so in a recent survey by The Harris Poll.
- When bottled water is not available, 74 percent of people said they would choose another packaged beverage, not drink from a fountain or tap water.

<u>Bottled Water Has the Smallest Environmental Footprint of All Beverages</u>

Attempts to eliminate the use of plastic bottled water would remove the most environmentally friendly packaging option for beverages. A recent report from the American Chemistry Council (ACC), conducted by Franklin Associates, examined the overall impact of plastics on the environment, compared to other materials. The study looked at energy demand, water consumption, solid waste, global warming potential, eutrophication (nutrient runoff from the land into a body of water impacting oxygen levels) potential, smog formation potential, and ozone depletion potential.

The ACC report concluded that, when comparing materials throughout the entire life cycle of a package, plastics leave a much smaller environmental footprint than alternatives, such as glass, aluminum cans, and paperboard cartons.[1] Perhaps the most significant finding from the ACC report is that alternatives to plastic beverage containers would produce about 60 percent more greenhouse gas emissions – a major contributor to climate change.

The ACC study data is consistent with the Life Cycle Assessment prepared for IBWA by Trayak LLC, a product sustainability consulting and software solutions company that enables companies to design and manufacture their entire portfolio of products using sustainable strategies.

In this assessment, Trayak measured several variables to determine the overall impact of specific packaging types, including PET water bottles, PET soda bottles, glass bottles, aluminum canned water, and beverage cartons. The variables measured include fossil fuel use, human impact, water use, mineral resource use, greenhouse gas emissions, and freshwater eco-toxicity and eutrophication. The research strongly shows that PET water bottles have lower environmental impacts than the other containers, across each of the considered variables.[2]

Much of this benefit is derived from the low material usage compared to the other container types, with the average PET water bottle considered using less than half of the material weight of the other container types. Lower material usage means less impact from material extraction and manufacturing, and ultimately results in less material entering landfills or needing to be recycled.

Bottled water has the smallest environmental footprint of all packaged beverages. All bottled water containers are 100 percent recyclable – even the caps. As an industry, we support strong community recycling initiatives and recognize that a continued focus on increased recycling is important for residents and the environment. In addition, PET bottled water containers are the most recognized and most recycled containers in curbside programs, making up nearly 55 percent of all PET plastic beverage containers collected.[3]

The industry is always looking for ways to strengthen existing recycling programs and help expand recycling efforts ever further. However, even when they are not properly recycled, individual serving size PET plastic bottled water containers make up only 3.3 percent of all drink packaging in U.S. landfills. Soda PET plastic containers make up 13.3 percent, and aluminum cans make up 7.9 percent.

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[1] Life Cycle Impacts of Plastic Packaging Compared to Substitutes in the United States and Canada. April 2018. Available at: https://plastics.americanchemistry.com/Reports-and-Publications/LCA-of-Plastic-Packaging-Compared-to-Substitutes.pdf
[2] Life Cycle Assessment for the IBWA. 2021. Available at: https://votervoice.s3.amazonaws.com/groups/ibwa/attachments/IBWA%20Trayak%20Report%2032321.pdf
[3] National Association for PET Container Resources' 2018 Postconsumer PET Bottle Bale Composition Analysis.

Bottled water also has the lowest water and energy-use ratios of all packaged beverages. On average, it takes only 1.39 liters of water to produce 1 liter of finished bottled water (including the 1 liter of water consumed), which is the lowest water-use ratio of any packaged beverage product. And, on average, only 0.21 mega joules of energy are used to produce 1 liter of bottle of water.[4]

The amount of water used for bottling water in the United States is very small — less than 0.01 percent of the total groundwater withdrawn each year. While that figure may vary slightly by location, the amount of water used for bottled water is only a small fraction of overall water use in any state. To put it in context, the entire U.S. bottled water market was about 15 billion gallons in 2020. In contrast, the city of Los Angeles goes through that amount of tap water in 10 weeks.

In addition, most of the bottled water that comes from a state's water sources is sold in that state. In fact, the vast majority of bottled water companies in the United States use local water sources and distribute their products to nearby towns and states. Bottled water is 100 percent intended for human consumption. However, less than one-half of 1 percent of tap water is drunk by humans.

While bottled water is just one of thousands of consumer items packaged in plastic, the bottled water industry has gone to great lengths to reduce the environmental impact of its packaging, including developing new technologies in product packaging, such as the use of recycled content, light-weighting, reduction of plastic used in caps and shrink-wrapping, and reduction of paper used in labels and shipping cardboard.

Recycled Content Usage and Light-weighting

IBWA member companies are increasing their use of recycled PET (rPET), and many bottled water companies already use bottles made from 50, 75, and, in some cases, 100 percent rPET. Furthermore, the bottled water industry is continually developing additional ways to reduce its environmental footprint from production to distribution to consumption. Those efforts include development of "green" bottling facilities, as well as utilization of more fuel-efficient means of producing and transporting product to market.

Bottled water companies have also reduced the environmental footprint of their plastic containers by continually light-weighting PET bottled water plastic packaging, which has resulted in the average weight drop to 9.25 grams per 16.9 ounce single-use container. That is over 50 percent less PET than the amount it takes to make soda and other drink containers, which need to be thicker due to carbonation and manufacturing processes and weigh, on average, 23.9 grams. Between 2000 and 2014, the average weight of a 16.9 ounce single-use PET bottled water container was reduced by 51 percent, according to the Beverage Marketing Corporation, the leading research company for the beverage industry. This saved 6.2 billion pounds of PET resin during that time period.

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[4] Water and Energy Use Benchmarking Study. Antea Group, prepared for the International Bottled Water Association. November 14, 2018. Available at: https://bottledwater.org/wp-content/uploads/attachments/IBWA_ExecSummary_14Nov2018_0.pdf

Water Is the Healthiest Beverage Choice

For those who want to eliminate or moderate calories, sugar, caffeine, artificial flavors or colors, and other ingredients from their diet or simply wish to opt for a convenient beverage with refreshing taste, reliable quality, and zero calories – choosing water is the right choice no matter the delivery method. Bottled water is a smart decision and a healthy choice when it comes to packaged beverage options. Efforts to eliminate or reduce access to water, via any delivery method, only hinder attempts to encourage people to choose healthier drink options and is not in the public interest.

For over a decade, the majority of the growth in bottled water consumption relative to other beverages has come from people switching to bottled water from other less-healthy packaged drinks (44 percent between 2010 and 2020). One of the simplest changes a person striving to live healthier can make is to switch to drinking water instead of other beverages that are loaded with sugar and calories. According to the National Academy of Medicine (formerly the Institute of Medicine) and the American Journal of Preventative Medicine, two-thirds of American adults are overweight with one-third of those individuals being obese, and over the last 30 years, children's obesity rates have climbed from 5 percent to 17 percent. Drinking zero-calorie beverages, such as water, instead of sugary drinks is regularly cited as a key component of a more healthful lifestyle, and promoting greater consumption of water from all sources, including from bottled water, can only benefit those efforts.

In today's on-the-go society, most of what we drink comes in a package. Restrictions on bottled water only help to promote less healthy options among other packaged beverages, like juices and soda that have *more plastic packaging, more ingredients (many artificial),* and *greater environmental impacts* than bottled water. Research shows that if bottled water isn't available, 74 percent of people will choose another packaged drink – not water from a drinking fountain, filtered tap water, or tap water[5].

In 2020, only 5 percent of the bottled water market was manufactured and sold in glass, cans, or other packaging material[6]. Plastic, of all sizes and types, has been the main delivery container for bottled water for good reasons. It is flexible, lightweight, easy to transport, and is hygienic and shatterproof. Research shows that plastic is the preferred packaging material of not only industry but also consumers. PET packaging uses less water and energy to produce than other packaging types (e.g., aluminum, glass, paperboard containers, and PET soda bottles). Removing a consumer's access to even just one size or type of plastic container greatly increases the likelihood of them choosing a less healthy option with more adverse environmental impacts.

Bottled Water Is Always There When You Need It

The bottled water industry has always been at the forefront of relief efforts during natural disasters and other catastrophic events. Clean, safe water is a critical need for citizens and first responders

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[5] Harris Poll, conducted on behalf of the International Bottled Water Association. January 2020. Available at https://bottledwater.org/nr/consumers-want-bottled-water-to-be-available-wherever-drinks-are-sold-and-if-its-not-most-will-choose-another-packaged-beverage-that-uses-much-more-plastic/
[6] Beverage Marketing Corporation

immediately following a natural disaster or other catastrophic event. Unfortunately, the availability of water from public water systems is often compromised in the aftermath of such an event (e.g., hurricanes, floods, wildfires, and boil alerts). During these times, bottled water is the best option to deliver clean safe drinking water quickly into affected areas.

Removing all access to bottled water during times of need could result in an extremely dangerous situation for citizens in need and have a drastic effect on the state's ability to respond in a timely and efficient manner. The bottled water industry would not be able to provide safe, clean drinking water to Los Angeles citizens when their public water systems are compromised without a viable commercial market. This provides the industry with the capital and resources to respond quickly when needed. The bottled industry cannot, and should not, exist only for disaster responses – something some critics of the bottled water industry desire. We urge committee members to remember that the bottled water industry is called upon every year to provide drinking water during critical times throughout the city and the state.

Bottled Water Is an Economic Force in Los Angeles

Companies in Los Angeles that manufacture, distribute, and sell bottled water employ as many as 1,972 people in the city and generate an additional 5,550 jobs in supplier and ancillary industries. These include jobs in companies supplying goods and services to manufacturers, distributors, and retailers, as well as those that depend on sales to workers in the bottled water industry. Not only does the manufacture and sale of bottled water create good jobs in Los Angeles, but the industry also contributes to the economy as a whole. In fact, the bottled water industry is responsible for as much as $1.85 billion in total economic activity in the city.

On top of these everyday economic numbers, California receives a large sum of dollars from the existing bottle deposit program. That money goes beyond what the state takes from unclaimed deposits and impacts money generated and received by businesses through the handling fee and the non-refundable container fee. With a substantial amount of that money being produced by the purchase and return on single-use plastic beverage containers, the state and businesses tied to the deposit program can expect a significant reduction in monies delivered.

IBWA and several of our members are actively involved with important organizations focused on recycling and waste reduction across the country. Membership in and support of groups like Keep America Beautiful, The Recycling Partnership, and local community groups addressing concerns over litter, waste, and recycling are vital to ensure that consumers are aware of and given every opportunity to dispose of everyday waste. This not only included financial support but also input on program development, education, and in-kind sponsorships. IBWA and all our members are continually seeking additional ways to assist these groups and looking for new organizations in this arena for future involvement.

IBWA and CBWA hope that this information has provided you with better insight into the bottled water industry and the importance of bottled water for the people of Los Angeles. We appreciate this opportunity to offer these comments and are available at any time to discuss information on the industry and the essential products we provide.

Christine Batikian <christine.batikian@lacity.org>

GBTS- Comprehensive Plastics Reduction Program Letter

Sarai Sosa <sarai.v.sosa@gmail.com> Tue, May 30, 2023 at 2:48 PM
To: christine.batikian@lacity.org

Sarai Sosa
🌴🎬Green Behind the Scenes

Comprehensive Plastics Reduction Program Letter.pdf
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05/30/23

RE: LA City's Comprehensive Plastics Reduction Program

Christine Batikian
LASAN - Solid Resources Citywide Recycling Division
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction Program

Dear Ms. Batikian,

On behalf of Green Behind the Scenes, I would like to submit some comments for the Comprehensive Plastics Reduction Program for LA City based on issues we have seen and solutions to mitigate the problems.

During commercial tv productions, 100's of people consume food and beverages at least 3 times a day. Food and snacks are usually delivered in to go containers, ziplock bags and foam containers. Water comes in plastic bottles. Covid has exasperated the plastic issue on set by multiplying its use by enforcing everything be individually wrapped. We need tax credits in order to reduce our

cabon footprint so production companies are incentivized to pay more money to rent or buy these alternatives.

- Encourage the return of reusable plates and cutlery in catering.
- Encourage the use of biodegradable dishware, cups, plates, napkins, and aluminum water cans by craft services and catering vendors.
- Encourage production companies to distribute metal water bottles on sets and have water stations for refilling.
- Encourage recycling and re-purposing of plastic materials, sets walls and set pieces.

Christine Batikian <christine.batikian@lacity.org>

Comprehensive Plastics Reduction PEIR

Chloe Brown <chloe@cawrecycles.org> Tue, May 30, 2023 at 2:51 PM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>

Hello Ms. Batikian,

We would like to submit the attached comment letter for regarding the proposed Comprehensive Plastics Reduction Program. On behalf of Californians Against Waste & the 30 additional organizations, we greatly appreciate your commitment to reviewing our comments and please do not hesitate to reach out with any questions.

Our team can be reached at:

Californians Against Waste

921 11th St, Suite 502

Sacramento, CA 95814

Phone: 916-443-5422

Email: nicklapis@cawrecycles & chloe@cawrecycles.org

Warmly,

Chloe Brown (*she/her*)

Policy Associate

chloe@cawrecycles.org

916.443.5422 (O)| 805-587-7540 (M)

May 30, 2023

Christine Batikian
LASAN - Solid Resources Citywide Recycling Division
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction PEIR

Dear Ms. Batikian,

We, the undersigned organizations, represent diverse interests in protecting the health of both the public and our environment. We appreciate the opportunity to provide comments on the Comprehensive Plastics Reduction Program. We commend the City of Los Angeles and Los Angeles Sanitation and Environment for seeking to implement strong upstream and downstream measures to eliminate the input of single-use plastics into the City's waste stream and surrounding environment.

Our coalition would like to encourage the City to **prohibit the sale and distribution of products packaged using the following materials**:

- Polyvinyl chloride (PVC)
- Polyvinylidene chloride (PVDC)
- Per- and polyfluoroalkyl substances (PFAS)
- Oxo-degradable additives, including oxo-biodegradable additives
- Non-detectable pigments (e.g. carbon black)
- Pigments (other than transparent blue or green) added to polyethylene terephthalate bottles (PET bottles)
- Polyethylene terephthalate glycol (PETG)

The United States Plastics Pact[1], a group of over 100 industry members and stakeholders, identified these materials as problematic and unnecessary[2] as these materials could be avoided through:

> "elimination, reuse or replacement and items that, post-consumption, commonly do not enter the recycling and/or composting systems, or where they do, are detrimental to the recycling or composting system due to their format, composition, or size."[3]

The Plastic Pact "Activators," which include some of the largest corporations in the country such as Mondelez, The Coca-Cola Company, and Walmart[4] set a goal to eliminate these materials and additives by 2025. These items are **currently not reusable or recyclable at scale across the United States and many pose threats to human health**[5].

Problematic Plastics

The problem with these plastic materials and additives is that they inhibit the recycling process and/or are hazardous to human health and the environment.

PVC is both not recycled[6] and toxic, resulting in harmful exposures at every stage of its lifecycle. PVC production involves numerous toxic chemicals, including asbestos, PFAS, ethylene dichloride, and vinyl chloride. PVC often includes harmful additives, such as heavy metals, bisphenols, phthalates, and flame

[1] The U.S. Plastics Pact. (2023, March 3). *Home: U.S. plastics pact.* The U.S. Plastics Pact.
[2] The U.S. Plastics Pact. (2023a, February 15). *U.S. Plastics Pact's problematic and Unnecessary Materials List.* The U.S. Plastics Pact.
[3] The U.S. Plastics Pact. (2023a, February 15). *U.S. Plastics Pact's problematic and Unnecessary Materials List.* The U.S. Plastics Pact.
[4] The U.S. Plastics Pact. (2023b, January 27). *Activators*. The U.S. Plastics Pact.
[5] The U.S. Plastics Pact. (2023a, February 15). *U.S. Plastics Pact's problematic and Unnecessary Materials List.* The U.S. Plastics Pact.
[6] United States Environmental Protection Agency, "Advancing Sustainable Materials Management: 2018 Tables and Figures Assessing Trends in Materials Generation and Management in the United States" (United States Environmental Protection Agency, December 2020)

retardants[7]. Since PVC packaging is unrecyclable, PVC ends up mixed in with other garbage and is either incinerated, which produces carcinogenic and persistent dioxins and furans[8], or sent to landfills, which often releases harmful chemicals into the air and groundwater, both of which disproportionately impact environmental justice communities. **PVDC** is similar to PVC and involves similar hazardous chemicals throughout its lifecycle.

PFAS are highly persistent and toxic chemicals linked to severe health problems, including cancer, hormone disruption, kidney and liver damage, thyroid disease, developmental harm, and immune system disruption, including interference with vaccine efficacy[9] [10] [11]. A report on the first phase of state PFAS testing found these chemicals in drinking water systems serving approximately 16 million Californians[12]. The contamination was found to be more intense in environmental justice communities, putting those vulnerable communities at greater risk of harm from PFAS exposure[13]. This contamination is in part due to PFAS leaching from landfills into soil and groundwater and threatens both public health and water affordability.

Oxo-degradable and oxo-biodegradable additives cause plastics to harmfully degrade in the environment[14] resulting in microplastics in our food, air, and water. Microplastics have been found in human breast milk, placenta, and stool and are linked to harm to fertility, respiratory harm, and an increase in digestive tract cancer risk[15]. Microplastics also end up in the environment, including in drinking water supplies. The State Legislature previously required the State Water Resources Control Board to develop testing methods for plastics in drinking water and to launch a 4-year monitoring program to establish the scope of the state's problem--oxo-degradable and oxo-biodegradable materials add to the problem. Materials that contain these additives are also not desirable to recyclers[16] as the resulting recycled material does not have the same integrity.

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[7] Kala Senathirajah et al., "Polymer Prioritization Framework: A Novel Multi-Criteria Framework for Source Mapping and Characterizing the Environmental Risk of Plastic Polymers," Journal of Hazardous Materials 429 (May 5, 2022).

[8] Shibamoto T, Yasuhara A, Katami T. Dioxin formation from waste incineration. Rev Environ Contam Toxicol. 2007;190:1-41. doi: 10.1007/978-0-387-36903-7_1. PMID: 17432330.

[9] Pesticide and Environmental Toxicology Branch, "Public Health Goals Perfluorooctanoic Acid and Perfluorooctane Sulfonic Acid in Drinking Water" (California Environmental Protection Agency, September 2020).

[10] "Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid (PFOA) or Perfluorooctane Sulfonate (PFOS)," National Institute of Environmental Health Sciences (U.S. Department of Health and Human Services, June 4, 2021)

[11] "Perfluorooctanoic Acid" (International Agency for Research on Cancer (IARC), accessed February 15, 2023).

[12] Kar A, Reade A, Lee S. "Dirty Water: Toxic 'Forever' Pfas Chemicals Are Prevalent in the Drinking Water of Environmental Justice Communities," NRDC (NRDC, August 18, 2021).

[13] Kar A, Reade A, Lee S. "Dirty Water: Toxic 'Forever' Pfas Chemicals Are Prevalent in the Drinking Water of Environmental Justice Communities," NRDC (NRDC, August 18, 2021).

[14] Hazardous Substances Advisory Committee, HSAC review of oxo-degradable plastics (2019). Department for Environment, Food and Rural Affairs Hazardous Substances Advisory Committee.

[15] California State Policy Evidence Consortium (CalSPEC). Microplastics Occurrence, Health Effects, and Mitigation Policies: An Evidence Review for the California State Legislature. January 2023

[16] "APR Cautions about Potential Effects of Degradable Additives on Plastics Recycling," Recycling Today (Recycling Today, April 11, 2022)

Adding **non detectable pigments (e.g., carbon black)** causes otherwise recyclable plastic products to be discarded in landfills. Unfortunately, the near-infrared sensors that recycling centers rely on to sort incoming material, cannot detect the composition of packaging[17] due to how carbon black pigment reflects incoming light. Carbon black is also a carcinogen when inhaled, posing a risk to workers[18].

Pigments added to PET bottles to make them opaque and/or different colors do not have viable end markets, creating no incentive for collection or recycling to already struggling recycling operations. Making recyclable plastics difficult to recycle due to the addition of pigments and other compounds furthers the production of more virgin plastic and more pollution that comes with that increased production. The proliferation of plastic also has significant climate and biodiversity impacts.

PETG has a similar chemical structure to PET but the addition of glycol (the G in PETG) causes PETG to melt at hotter temperatures than PET [19]. As a result, PETG cannot be recycled in the same process as widely available PET. Optical sorters in recycling facilities are also unable to distinguish the difference between the two, leading to costly contamination in PET loads.

Upstream policies like prohibiting the sale and distribution of products packaged in the aforementioned materials will ultimately lead to a more cost-effective circular economy by eliminating plastic materials and additives that are extremely difficult and costly to recycle. Rather than incentivizing the plastic producers and companies to invest millions of dollars to recycle highly unrecyclable materials, prohibiting these materials will shift the market to viable alternatives already on the market. Additionally, including these materials in the Comprehensive Plastics Program will reduce Angelenos' exposure to the toxic chemicals and microplastics resulting from the manufacturing, burning, and break down of these plastic materials and additives. This will also reduce the financial cost to the City addressing the harmful health and environmental outcomes associated with these materials and additives.

We recognize the City is currently implementing multiple ordinances that address other materials included on the Pact's list of problematic plastics: cutlery (Foodware Accessories Ordinance 187030), polystyrene & expanded polystyrene (Expanded Polystyrene Ban Ordinance 187717), stirrers (Foodware Accessories Ordinance 187030), and straws (Straws on Request Ordinance 186028).

We encourage the City to continue leading the way in passing strong plastics reduction ordinances by continuing to target unnecessary and harmful plastic packaging by prohibiting the sale and distribution above referenced materials.

Sincerely,

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[17] Pont Green. (2021, September 1). *Impact of carbon black pigment on the recycling process*. Pont Green.
[18] International Agency for Research on Cancer, ARC Monographs on the Evaluation of Carcinogenic Risks to Humans; Volume 93 (2010). World Health Organization.
[19] "Demystifying Petg - How Does It Differ from PET and Can You Recycle It?" Demystifying PETG - How does it differ from PET and can you recycle it? | Richmond Containers, July 27, 2021

Nancy Buermeyer, Director of Program and Policy
Breast Cancer Prevention Partners

Nick Lapis, Director of Advocacy
Californians Against Waste

Andria Ventura, Legislative and Policy Director
Clean Water Action

Veena Singla, PhD, Senior Scientist
Natural Resources Defense Council

Shaney Jo Darden, Founder
The Keep A Breast Foundation

Shannon Smith, Executive Director
FracTracker Alliance

Emily Jeffers, Senior Attorney
Center for Biological Diversity

Roxana Tynan, Executive Director
Los Angeles Alliance for a New Economy

Newara Brosnan-Faltas,
Southern California Regional Manager
Surfrider Foundation

Craig W. Cadwallader, Policy Coordinator
Surfrider Foundation South Bay Chapter

Martin Bourque, Executive Director
Ecology Center

Judith Enck, President
Beyond Plastics

Laura Anthony, Program Coordinator
Save the Albatross Coalition

Jenn Engstrom, State Director
California Public Interest Research Group (CALPIRG)

Maro Kakoussian, Climate Justice Organizing Manager
Physicians for Social Responsibility - Los Angeles

Cheryl Auger, President
Ban SUP (Single Use Plastic)

Chris Peck, President
Urban Ecology Project

Dianna Cohen, CEO & Co-Founder
Plastic Pollution Coalition

Natasha Sill, Zero Waste - In Store Associate & Advocate / Actor & Writer
My Zero Waste Store

David Diaz, Executive Director
Active San Gabriel Valley

Jessica Craven, Steering Committee co-chair
Feminists in Action Los Angeles

Anita Ghazarian, Environmental Lead, Indivisible Alta-Pasadena

Elizabeth Elder, Vice President
Elder Productions LLC

Stuart Wood PhD, Executive Director
Sustainable Claremont

Anoushka Tamhane, Director
Bay Area Youth Lobbying Initiative

Jackie Nuñez, Founder
The Last Plastic Straw

Russell Greene, Senior Strategic Adviser
Progressives for Democracy in America

Alison Waliszewski, Policy Director
5 Gyres Institute

Jed Pauker, Leader and Co-Founder
Venice Resistance

Linda Rodríguez

Linda Rodriguez, Oceans Plastics Campaigner
Greenpeace US

Jessica Roff, US & Canada Plastics and Petrochemicals Program Manager
Global Alliance for Incinerator Alternatives (GAIA)

**Christine Batikian <christine.batikian@lacity.org>

LA City's Comprehensive Plastics Reduction Program

cheryl auger <augercaa@gmail.com> Tue, May 30, 2023 at 1:38 PM
To: Christine.Batikian@lacity.org
Cc: ANITA GHAZARIAN <anighz@gmail.com>, Amy Woodson <woodson.boulton@gmail.com>

RE: LA City's Comprehensive Plastics Reduction Program

Christine Batikian
LASAN - Solid Resources Citywide Recycling Division
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction Program

Dear Ms. Batikian,

On behalf of BAN SUP (Single Use Plastics), I would like to submit some comments for the Comprehensive Plastics Reduction Program for LA City based on issues we have seen, and examples of what others have done to reduce and manage their waste streams.

- The scope should be extended to include single use packaging in addition to single-use plastic products. Packaging immediately becomes trash the minute a product is unpackaged.
- The scope should be expanded to also focus on removing the single use plastic bag loopholes to prevent retailers from replacing thin plastic bags with thicker plastic bags to only allow the use of reuseable bags in the future. This legislation was passed in RI.
- Create a citywide waste exchange program including packaging and encourage residents and businesses to prioritize use of this system to reduce ocean bound waste. If just 10 to 20 percent of plastic packaging were reused, a report from the World Economic Forum estimates, the amount of plastic waste entering the ocean could be cut in half.
- Eliminate single container waste collection (source separate) and reduce product packaging in LA CIty that is not recyclable or compostable (e.g. materials made from resins 3,4,6&7 which have substitutes e.g. wax, paper, cardboard, reusable containers,etc), and provide grants to establish local infrastructure for:
  - Paper collection and recycling
  - Cardboard collection and recycling

    - Glass container and bottle washing (AB 962 allows for the refill of glass bottles instead of requiring them to be crushed), and
- Incentivize development of end markets for waste materials (paper, cardboard, glass, organic waste, etc) like Colorado has.
- Develop local incentives to support local businesses.
- Incentivize refill stores and other reuse businesses.
- Eliminate the Department of Public Health's usurping the right (AB 619) of California customers to bring their own containers to restaurants or events.
- Develop legislation that prohibits weakening of reduction and reuse laws during unforeseen events.
- Mandate labeling on products and packaging sold in the City to enable better sorting.
- Develop better communications for what is and what is not recyclable. This cover (see attached) is still on residential recycling bins in Pasadena.

Sincerely,

Cheryl Auger, President
Ban SUP (Single Use Plastic)

Ban SUP Comments

--
Cheryl Auger
www.myzerowastestore.com

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5151K

Christine Batikian <christine.batikian@lacity.org>

Comprehensive Plastics Reduction PEIR

Shestek, Tim <Tim_Shestek@americanchemistry.com> Tue, May 30, 2023 at 4:08 PM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>

On behalf of the following organizations, please find attached a comment letter regarding the Comprehensive Plastics Reduction Program.

American Chemistry Council

California Retailers Association

Los Angeles County Business Federation

Valley Industry & Commerce Association

International Bottled Water Association

Western Plastics Association

Foodservice Packaging Institute

California Restaurant Association

Los Angeles Area Chamber of Commerce

Dart Container Corporation

California Manufacturers & Technology Association

Thank you in advance for the opportunity to provide these comments. Should you have any questions, please do not hesitate to contact me at tim_shestek@americanchemistry.com or 916-448-2581.

Sincerely,

Tim Shestek

American Chemistry Council

Tim Shestek | American Chemistry Council

Senior Director, State Affairs

tim_shestek@americanchemistry.com

1121 L St., Suite 609 | Sacramento, CA | 95814

O: 916-448-2581 | C: 916-838-0713

May 30, 2023

Christine Batikian
Bureau of Sanitation Division of Solid Resources Citywide Recycling
City of Los Angeles Department of Public Works
1149 S Broadway, 5th Floor, MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction PEIR

Dear Ms. Batikian:

Our organizations, representing a cross section of California's leading employers, including packaging manufacturers, restaurants, retail/grocery, consumer brand companies, and other members of the supply chain are writing in response to the Notice of Preparation (NOP)[1] for the proposed Comprehensive Plastics Reduction Program (program).

The proposed program comes less than a year after SB 54 (Allen), the world's most aggressive source reduction and recycling mandates on plastic packaging, was passed by the California Legislature. In signing SB 54, Governor Newsom stated this law "is the most significant overhaul of California's plastics and packaging recycling policy in history, goes further than any other state on cutting plastics products at the source and continues to build a circular economy that is necessary to combat climate change."

We strongly encourage the city to evaluate the potential duplication or overlap of the city's proposed program with SB 54 as part of the scope of the NOP. We believe it is premature to seek regulation on materials covered under SB 54 before CalRecycle has even had the chance to formally begin rulemaking and companies are beginning to comply.

Specifically, SB 54 requires:

- All packaging be 100% recyclable or compostable by 2032.
- Plastic packaging be recycled at a rate of 30% by 2028; 40% by 2030, and 65% by 2032.
- Producers achieve a 25% plastics source reduction level by 2032 through a combination of eliminating plastic materials, shifting to reusable/refillable packaging options, and using recycled materials in the manufacture of new packaging.

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[1] Division of Solid Resources Citywide Recycling, "Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meetings," Public notice (Los Angeles, CA: City of Los Angeles, Department of Public Works, Bureau of Sanitation, May 1, 2023), https://www.lacitysan.org/cs/groups/public/documents/document/y250/mdg4/~edisp/cnt088743.pdf.

- Producers and plastic resin manufacturers pay $5 billion over 10 years for environmental mitigation.

Further, the program seems to be premised on the belief that alternatives to plastics are always environmentally preferable. Although plastic has a carbon footprint, it is mistaken to assume that alternative materials would always be more effective.[2] It is important to consider the carbon benefits of using plastics[3] and the role these materials play relative to food/product safety and shelf-life preservation.

We are concerned by any blanket approach that merely substitutes plastics with alternatives, without considering the overall environmental footprint and total lifecycle impact of the alternative materials. Taking this approach in the absence of science-based analysis could lead to increased greenhouse gas (GHG) emissions, increased landfilling, and increased food waste. Each of these environmental impacts must be included in the city's report.

We believe the passage of SB 54 and its years of negotiations between industry, environmental organizations, local governments, and waste haulers/recyclers should be considered before embarking on a new program that attempts to regulate the same materials covered under this law. Compliance with SB 54 will result in millions of dollars in new costs to the business community. A potential patchwork of packaging rules will only add to these compliance costs.

For these reasons we urge the City of Los Angeles to set aside this proposed program and instead devote its resources to working collaboratively with all stakeholders during the SB 54 rulemaking process to ensure the program is successful. Thank you for considering our comments.

Sincerely,

Tim Shestek
American Chemistry Council
tim_shestek@americanchemistry.com

Ryan Allain
California Retailers Association
Ryan@calretailers.com

Sarah Wiltfong
Los Angeles County Business Federation
sarah.wiltfong@bizfed.org

Stuart Waldman
Valley Industry & Commerce Association
stuart@vica.com

James P. Toner
International Bottled Water Association
jtoner@bottledwater.org

Cherish Changala-Miller
Western Plastics Association
cchangala@revolutioncompany.com

---

[2] N. Voulvoulis et al., "Examining Material Evidence: The Carbon Footprint" (Imperial College London, 2020), https://www.americanchemistry.com/better-policy-regulation/plastics/resources/examining-material-evidence-the-carbon-fingerprint.
[3] Voulvoulis et al.

Carol Patterson
Foodservice Packaging Institute
cpatterson@fpi.org

Matt Sutton
California Restaurant Association
msutton@calrest.org

Jackie Romero
Los Angeles Area Chamber of Commerce
jromero@lachamber.com

Jonathan Choi
Dart Container Corporation
jonathan.choi@dart.biz

Rob Spiegel
California Manufacturers & Technology Association
rspiegel@cmta.net

Christine Batikian <christine.batikian@lacity.org>

ABA Comment Letter - Proposed Plastics Reduction Program

Gloria Leon <gloria@leonandwalsh.com> Tue, May 30, 2023 at 9:28 AM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>
Cc: Sarah Walsh <sarah@leonandwalsh.com>, Rick Rivas <rrivas@americanbeverage.org>

Christine,

On behalf of our client, the American Beverage Association, I am submitting the attached comment letter on the City of Los Angeles' proposed Plastics Reduction Program.

Thank you,

Gloria

Gloria Michel Leon

(213) 359-9333

gloria@leonandwalsh.com

Leon & Walsh
PUBLIC AFFAIRS

ABA Final Draft EIR Scoping Letter.pdf
237K

AMERICAN BEVERAGE
DRIVING SOLUTIONS TOGETHER

May 30, 2023

LASAN – Solid Resources Citywide Recycling Division
Attention: Christine Batikian
1149 S. Broadway
5th Floor, Mail Stop 944
Los Angeles, CA 90015

I write to you today to provide comment to the Notice of Preparation of a Program Environmental Impact Report and Notice of Public Scoping Meetings. ("COMPREHENSIVE PLASTICS REDUCTION PROGRAM.")

The member companies of the American Beverage Association (ABA) – the trade association representing America's non-alcoholic beverage industry – have worked closely for several years with state regulators, the legislature, and Governor Newsom's office to reduce the industry's use of new plastic, strengthen regional recycling infrastructure, and accelerate California's transition to a circular economy.

The Comprehensive Plastics Reduction Program is very broad and includes upstream measures to reduce or eliminate the production and use of single-use plastic products and downstream measures, including collecting, reusing, recycling, and composting alternative materials and supporting reusable products. The Comprehensive Plastics Reduction Program is not well defined, but even at the current level of specificity, it is clear the program could have sweeping effects. For this reason, we recommend that the City of Los Angeles (the City) prepare a "full-scope" environmental impact report that analyzes every resource area listed in the May 1, 2023 Notice of Preparation, and not screen out any resource areas from full review.

The program proposes to make significant changes to broad swaths of the economy that could have effects on jobs, the environment, human health, and local businesses. But the breadth and definition of the program makes it difficult for the public to comment and will similarly make it difficult for the City to analyze the environmental impacts of the program meaningfully. We encourage the City to better define the program so that it can meaningfully analyze the environmental impacts during analysis under the California Environmental Quality Act. As part of better defining the program, the City should hold a series of stakeholder and scoping meetings, and convene a formal group of environmental, business, and consumer leaders to advise the City.

The City should also make analyzing a robust set of alternatives a priority. For example, the State of California is implementing a new producer responsibility law (Senate Bill 54) that will require aggressive source reduction and recycling goals to be met statewide. The City should examine the alternative of working with the State to implement Senate Bill 54 to increase recycling statewide.

The fact is our bottles are made with PET – the most valuable and recyclable plastic available. Our member companies carefully design plastic bottles to be recyclable – including the cap and they are highly valuable recycled commodities. In addition to designing strong, lightweight, easy-to-recycle bottles, our member companies have combined efforts to reduce our industry's plastic footprint through the *Every Bottle Back* initiative. They are using less new plastic, while increasing the recycled content in bottles and investing in recycling efforts to get bottles back. Some of our member companies currently offer 100% recycled content in select bottles in California.

Supporting a circular economy advances sustainability, increases demand for recyclables, and attracts new green industries to California. Thoughtful policies and priorities to recapture plastic beverage containers are good for the environment, the City, and the manufacturers who depend on the material as feedstock.

Banning the sale of bottled water ignores the goals of recent legislation signed by Gov. Newsom and being implemented by state agencies (Senate Bill 54) to reduce overall plastic waste by creating a sustainable recycling system for CA that will drive strong end markets for recycled material. As noted on the CalRecycle.org website, plastic minimum content standards "help improve the market for recycled plastic by increasing the demand, thus increasing the scrap value of the material for recycling centers operating in the Beverage Container Recycling Program (BCRP)."

California is a national leader in addressing recycling challenges, increasing beverage container collection, and reducing litter in the waste stream. ABA supports the City's downstream measures to increase recycling infrastructure as well as public education, outreach, engagement, and enforcement.

The framework for implementing positive, proactive measures that increase recycling and reinforce the State's ambitious circular economy goals is being developed and/or already exists at the State level. Creating a separate and unique program shifts resources away from the City's existing priorities and risks unintended consequences that could prove ineffectual.

The member companies of the American Beverage Association look forward to working with LA Sanitation staff throughout the EIR process.

Sincerely,

Rick Rivas
Vice-President, California
American Beverage

Christine Batikian <christine.batikian@lacity.org>

SCH # 2023050007- Comprehensive Plastics Reduction Program

Lin, Alan S@DOT <alan.lin@dot.ca.gov> Mon, May 22, 2023 at 11:59 AM
To: OPR State Clearinghouse <State.Clearinghouse@opr.ca.gov>, "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>

To Whom It May Concern,

Attached please find the Caltrans comment letter!

Thank you for the opportunity to review this comment!

Alan Lin, P.E.

Transportation Engineer, Civil

LDR, Division of Planning

State of California

Department of Transportation

Mail Station 16

100 South Main Street

Los Angeles, CA 90012

213-269-1124 Mobile

LA-2023-04221 Comprehensive Plastics Reduction Program-NOP.pdf
194K

DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 269-1124
FAX (213) 897-1337
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

May 22, 2023

LASAN – Solid Resources Citywide Recycling Division
Ms. Christine Batikian
1149 S. Broadway
5th Floor, Mail Stop 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction Program
SCH # 2023050007
Vic. LA-Citywide
GTS # LA-2023-04221-NOP

Dear Ms. Christine Batikian:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above-referenced NOP. The City seeks to implement a citywide Comprehensive Plastics Reduction Program, which would involve measures to reduce or eliminate the production and use of single-use plastic products ("upstream" measures) and encourage the reuse of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment and reducing the aesthetic, environmental, and human health impacts of single-use plastics.

The mission of Caltrans is to provide a safe and reliable transportation network that serves all people and respects the environment. Senate Bill 743 (2013) has codified into CEQA law and mandated that CEQA review of transportation impacts of proposed development be modified by using Vehicle Miles Traveled (VMT) as the primary metric in identifying transportation impacts for all future development projects. You may reference the Governor's Office of Planning and Research (OPR) for more information:

https://opr.ca.gov/ceqa/#guidelines-updates

As a reminder, VMT is the standard transportation analysis metric in CEQA for land use projects after July 1, 2020, which is the statewide implementation date.

Caltrans is aware of the challenges that the region faces in identifying viable solutions to alleviating congestion on State and Local facilities. With limited room to expand vehicular capacity, this development should incorporate multi-modal and complete streets transportation elements that will actively promote alternatives to car use and better manage existing parking assets. Prioritizing and allocating space to efficient modes of travel such as bicycling and public transit can allow streets to transport more people in a fixed amount of right-of-way.

Caltrans supports the implementation of complete streets and pedestrian safety measures such as road diets and other traffic calming measures. Please note the Federal Highway Administration (FHWA) recognizes the road diet treatment as a proven safety countermeasure, and the cost of a road diet can be significantly reduced if implemented in tandem with routine street resurfacing. Overall, the environmental report should ensure all modes are served well by planning and development activities. This includes reducing single occupancy vehicle trips, ensuring safety, reducing vehicle miles traveled, supporting accessibility, and reducing greenhouse gas emissions.

We encourage the Lead Agency to evaluate the potential of Transportation Demand Management (TDM) strategies and Intelligent Transportation System (ITS) applications in order to better manage the transportation network, as well as transit service and bicycle or pedestrian connectivity improvements. For additional TDM options, please refer to the Federal Highway Administration's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference* (Chapter 8). This reference is available online at:

http://ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf

Also, Caltrans has published the VMT-focused Transportation Impact Study Guide (TISG), dated May 20, 2020 and the Caltrans Interim Land Development and Intergovernmental Review (LD-IGR) Safety Review Practitioners Guidance, prepared in On December 18, 2020. You can review the SB 743 Implementation Resource at the following link:

https://dot.ca.gov/programs/sustainability/sb-743/sb743-resources

All future development projects (construction or expansion of recycling and composting facilities) as a result of this plastic reduction program should prepare VMT analysis. However, if the Lead Agency can estimate future plastics reduction program trips as a result of this program implementation, then a VMT analysis should be prepared in the DEIR.

Caltrans encourages lead agencies to prepare traffic safety impact analysis for this development in the California Environmental Quality Act (CEQA) review process using Caltrans guidelines above on the State facilities so that, through partnerships and collaboration, California can reach zero fatalities and serious injuries by 2050.

If you have any questions, please feel free to contact Mr. Alan Lin the project coordinator at (213) 269-1124 and refer to GTS # LA-2023-04221AL-NOP.

Sincerely,

Miya Edmonson

MIYA EDMONSON
LDR/CEQA Branch Chief

email: State Clearinghouse

Christine Batikian <christine.batikian@lacity.org>

Public Comments Plastic Reduction Program

Eric Sherman <erics@pginkjets.com> Thu, May 11, 2023 at 10:42 AM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>
Cc: Sean <Seanl@pginkjets.com>

Hi Christine Batikian,

To follow-up on my public comments, the need to ban the of sale of new manufactured single-use clone printer cartridges should be included has part of your upstream measures.

For over a decade, overseas manufacturers have been flooding the U.S. market with generic single-use plastic printer cartridges as a way to undermine re-manufactured or OEM printer cartridges. Unlike OEM and remanufactured cartridges, new built clone cartridges cannot be recycled for reuse. These cartridges once used become plastic waste that end up in landfills or clog up the recycle stream putting downward pressure on recyclers and remanufacturers to pay for their disposal. These overseas manufacturers of generic single-use cartridges do not take any responsibility for their cartridges and often deceive consumers they are a recyclable product by using recycling logos, environmental marketing language, or falsely labelling cartridges as a remanufactured product.

Just about every household and business has a printer and it is estimated that over a million printer cartridges end up in U.S. landfill's each day. New manufactured single-use generic cartridges generate greenhouse gasses and use fossil fuels when produced. These cartridges contain ink and toner residue along with plastic and disburse into the environment when landfilled.

As I shared, Los Angeles, especially in the San Fernando Valley, was once the capital of the printer cartridge remanufacturing industry, with hundreds of businesses employing thousands of good paying green jobs. The printer cartridge remanufacturing industry was the solution for reducing cartridge waste. Now, the printer cartridge remanufacturing industry sits on the brink of extinction because new manufactured clone cartridges have been permitted to disrupt what was once a thriving multibillion dollar circular economy.

Without a printer cartridge remanufacturing industry for a downstream measure, more e-waste recyclers will cease or reduce printer cartridge collection do to cost as it is currently considered a solid waste. Most e-waste recyclers are having a difficult time already trying to dispose toner cartridges, as most toners have no value because it is not cost effective to remanufacture due to single use clone cartridges undercutting remanufactured toner cartridges.

We are at a tipping point where the consumer will soon be left with no alternatives, but to throw used printer cartridges in the trash unless there is a ban on the importation and sale of single use generic clone cartridges into the U.S. Attached, please find the LA City Council Resolution to support a ban of single use printer cartridges. Below are links to some of the data I sited in my comments.

1. Bob Gorman, Ink Waste: The Environmental Impact of Printer Cartridges, Bob Gorman (March 30, 2017), https://energycentral.com/c/ec/ink-waste-environmental-impact-printer-cartridges/.
2. https://www.action-intell.com/wp-content/uploads/2017/12/2017_AI_Reman_Ind_White_Paper-FINAL.pdf
3. https://www.action-intell.com/wp-content/uploads/2020/01/2020-AI-Clone-White-Paper.pdf
4. Youtube video of 55 pallets of printer cartridge waste https://youtu.be/7vTSPlhN3hI
5. Images of the amount cartridge waste our facility collects and tries to recycle for reuse https://drive.google.com/drive/folders/1Hz7MsmaVSnwEl1UZDp6FwVHKgfJSFBk3?usp=sharing

Please let me know if you have any questions or need further information. We would welcome anyone from LA Sanitation to come tour our facility and see how our hard working staff remanufacture printer ink cartridges and divert them away from landfills into a new high-quality finished product.

Eric Sherman

RESOLUTION

RULES, ELECTIONS & INTERGOVERNMENTAL RELATIONS

WHEREAS, any official position of the City of Los Angeles with respect to legislation, rules, regulations or policies proposed to or pending before a local, state or federal governmental body or agency must have first been adopted in the form of a Resolution by the City Council with the concurrence of the Mayor; and

WHEREAS, over 375 million plastic ink and toner printer cartridges are thrown away each year sending over 150 million pounds of plastic waste to landfills; and

WHEREAS, this number is growing rapidly due to the increase flow of aftermarket, new built, single-use printer cartridges imported from foreign manufacturers; and

WHEREAS, printer cartridges are classified as a consumable product, which consumers use repeatedly until spent, discard it, and purchase another to continue operating their printer; and

WHEREAS, imported, aftermarket, new built, single-use printer cartridges cannot be recycled or remanufactured for reuse due to the materials and manufacturing process used in their production; and

WHEREAS, when these imported single-use printer cartridges are removed from printers, they are not classified as e-waste but rather just waste with no value for recyclers or remanufactures; and

WHEREAS, imported single-use printer cartridges use 40% more energy to produce, 54% more fossil fuels when consumed, and generate a 55% larger carbon footprint than recycled or remanufactured printer cartridges; and

WHEREAS, imported single-use printer cartridges generate 16 times more paper waste from reprints due to their inconsistent print quality; and

WHEREAS, single-use printer cartridges can take between 450 and 1,000 years to decompose in a landfill while leaching toxins into the soil and groundwater;

NOW, THEREFORE, BE IT RESOLVED, with the concurrence of the Mayor, that by the adoption of this Resolution, the City of Los Angeles hereby includes in its 2021-2022 State and Federal Legislative Programs SUPPORT for any legislation and/or administrative action that would ban the import and sale of aftermarket, single-use, new built printer cartridges since they are harmful to the environment and cannot be recycled or remanufactured.

ORIGINAL

PRESENTED BY:
JOHN S. LEE
Councilmember, 12th District

SECONDED BY:

kat

SEP 29 2021

HOLLY L. WOLCOTT
CITY CLERK

PETTY F. SANTOS
EXECUTIVE OFFICER

City of Los Angeles
CALIFORNIA

ERIC GARCETTI
MAYOR

OFFICE OF THE
CITY CLERK

Council and Public Services Division
200 N. SPRING STREET, ROOM 395
LOS ANGELES, CA 90012
GENERAL INFORMATION - (213) 978-1133
FAX: (213)978-1040

PATRICE Y. LATTIMORE
DIVISION MANAGER
CLERK.LACITY.ORG

March 23, 2022

OFFICIAL ACTION OF THE LOS ANGELES CITY COUNCIL

Council File No.: 21-0002-S173

Council Meeting Date: March 23, 2022

Agenda Item No.: 9

Agenda Description: RULES, ELECTIONS, AND INTERGOVERNMENTAL RELATIONS COMMITTEE REPORT and RESOLUTION relative to including in the City's 2021-2022 State and Federal Legislative Program, its position for any legislation and/or administrative action that would ban the import and sale of aftermarket, single-use, new built printer cartridges since they are harmful to the environment and cannot be recycled or remanufactured.

Council Action: RULES, ELECTIONS, AND INTERGOVERNMENTAL RELATIONS COMMITTEE REPORT AND RESOLUTION - ADOPTED FORTHWITH

Council Vote:

YES	Blumenfield	YES	Bonin	YES	Buscaino
ABSENT	Cedillo	ABSENT	de León	YES	Harris-Dawson
ABSENT	Koretz	ABSENT	Krekorian	YES	Lee
YES	Martinez	YES	O'Farrell	YES	Price
YES	Raman	YES	Rodriguez	YES	Wesson, Jr.

Holly Jane Wolcott
HOLLY L. WOLCOTT
CITY CLERK

Pursuant to Charter/Los Angeles Administrative Code Section(s): 231(h)

FILE SENT TO MAYOR	03/23/2022
LAST DAY FOR MAYOR TO ACT	04/04/2022

APPROVED

E. Garcetti

3/29/2022
DATE SIGNED

Adopted Report(s)Title
Report from Rules, Elections, and Intergovernmental Relations Committee_03-08-22
Resolution (Lee - O'Farrell) dated 9-29-21

Timestamp	Name / Nombre	Email / Correo Electrónico	Please provide your comments on the proposed Comprehensive Plastics Reduction Program. / Por favor, proporcione sus comentarios sobre el Programa propuesto Integral de Reducción de Plásticos.
5/1/2023 10:43:35	Michelle Barton	michelle.barton@lacity.org	If rolled out strategically, the Comprehensive Plastics Reduction Program could have huge benefits for biodiversity and healthy soils in Los Angeles. Plastics and microplastics are an increasing source of concern for conservation biologists as they are polluting our terrestrial and aquatic ecosystems. The recent Global Biodiversity Framework agreed upon at UN Biodiversity COP-15 has a target focused on pollution: "TARGET 7: Reduce pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution." I encourage you to return to the language in this target as you proceed with this work. Clearly, avoiding or limiting plastics upstream is an important step in protecting our biodiversity, ecosystems, and soils. I encourage you to use caution if recommending/approving compostable packaging materials as many community composters see compostable packaging as contamination/waste, which could lead to downstream issues and ultimately result in the materials going to landfill. I'm more than happy to be involved/provide feedback on biodiversity and soils issues as this EIR takes shape. Thanks!
5/2/2023 9:47:51	Kathryn O'Brien	runningstream48@yahoo.com	Would love to see a dog park in Sunland Park
5/5/2023 8:13:14	Yoshiko Tsunehara	yoshchan@ucla.edu	I strongly support the single use plastics reduction program and hope to see it move forward as swiftly as possible. I urge you to include banning single-use disposable vapes and cigarettes with plastic in them. I also hope you will work on changing rules for receipts, so that receipts are only printed on request (they should not be printed at all unless asked for - many businesses just print them then ask if you actually want it handed to you).
5/6/2023 15:36:05	Gregory B. Wood	gregwood@woodipdr.com	Many efforts sound good on paper but in implementation have serious negative impacts of individuals. What seems to be missing is a study on the burden this will place on individuals in inconvenient, ability to comply, cost to comply and the like. What freedoms would be taken from the public by these regulations? Part of any evaluation should include an identification of the proposed regs and the practical day-to-day burden, financial impact, effective cost of such a program to individuals. A second area of study should include the value of any benefit, whether the problem sought to be solved is in fact a significant problem and whether the cost of addressing the presumed problem is really worth the cost. Nothing is free. Realistic evaluation of these factors should be included before any regulation is adopted or implemented.
5/28/2023 20:40:10	Lionel Mares	lionelm85@outlook.com	Plastics are not being recycled as they should be. Plastic is ending up on landfills and on the ocean. It must stop. We must recycle all plastics.
5/29/2023 12:12:35	Greg Apodaca	ApodacaC2.0@gmail.com	Ms. Barbara Romero, A few years ago I quit my job with the City of L.A. to work full time to help overcome existential climate emergency challenges. While we have made much progress in shifting from fossil fuels to renewable sources of energy, fossil fuel companies will not go away quietly. As you know they are planning to make up for lost gas and oil sales profits by doubling down on the sale of plastics. This is not acceptable. Plastic waste has spoiled our oceans and waterways and they have infiltrated the food chain where they now threaten the lives or people and animals; they threaten your loved ones and mine. You are in a position to help reduce plastics use by helping prohibit the sale and distribution of products packaged using the following materials: PVC, PVDC, PFAS, PETG, AND PET BOTTLES, among others. Thanks and please consider me an ally in saving the planet for humanity. Let me know how I can support your good works.
5/30/2023 10:38:52	Kawsar Vazifdar, Los An	SUPOrdinance@pw.lacounty.gov	• Los Angeles County Public Works (Public Works) appreciates the City of Los Angeles LA Sanitation and Environment (LASAN) efforts to implement a citywide Comprehensive Plastics Reduction Program. Please add the email SUPOrdinance@pw.lacounty.gov to your direct stakeholder list so that our team may receive notifications about program development including the Program Environmental Impact Report (PEIR). • Public Works would be pleased to participate in program development and provide resources and guidance from the County's development and implementation of the Reduction of Waste from Single-Use Articles and Expanded Polystyrene Products Ordinance, which was adopted by the Board of Supervisors in April 2022, and other County policies to prevent, reduce, and otherwise divert plastic waste from landfill disposal. Public Works has developed a website for the ordinance which may be found here: http://pw.lacounty.gov/epd/eps/index.cfm. We plan to update the website later this year with additional resources for local jurisdictions seeking to develop similar ordinances. • Public Works appreciates LASAN considering incorporating product stewardship and extended producer responsibility, in addition to product bans, into the program. Public Works also appreciates that the City will examine the downstream impacts of reusable, compostable, and recyclable materials such as changes to collection programs, the construction or expansion of processing facilities, regional market development, and infrastructure to support reusable items. Public Works is eager to support LASAN in conducting this critical analysis which should help reinforce and facilitate efforts by the County and other jurisdictions in the region in enhancing their waste management policies, programs, and infrastructure.
5/30/2023 10:41:40	Robert Buenrostro	robert.buenrostro@lacity.org	In looking at ways to reduce the use of single use plastics in the city, I focused on the park system and how we could help. I'd like to suggest the following: 1. Place blue recycle cans throughout the park in strategic locations. 2. Place a 3yd blue recycle dumpster in our larger parks. 3. Place recycle trash bins inside every recreation center, senior citizen center, child care center, and facility building. 4. Place flyers in our parks encouraging the public to recycle and to use re-usable containers for their food and beverages. 5. Install more drinking fountains in parks and recreation centers, gyms and other buildings with bottle fillers. 6. Public outreach by Recreation and Parks, Sanitation, Council, and Mayor's Office.
5/30/2023 16:17:59	Alfred Sattler	alsattler@igc.org	My personal comment on the NOP for the PEIR for the proposed Comprehensive Plastics Reduction Program: This has the potential to be an excellent program. It is necessary to keep in mind Environmental Justice principles. Any downstream facilities, including collection and recycling facilities, must be located such that they do not have an impact on sensitive receptors, including residences and schools. If any thermal processing/destruction methods are used, they should only be used on that small fraction of the plastic that cannot be recycled, composted, or otherwise be beneficially re-formed or reused. Any thermal processing/destruction processes must have excellent scrubber systems, and not receive any subsidies or credits.

Christine Batikian <christine.batikian@lacity.org>

Ban Toxins from LAs Comprehensive Plastics Reduction Program!

1 message

Elijah Carder <ecadvising@gmail.com>
To: Christine.Batikian@lacity.org
Cc: cheryl auger <Rethink.SUP@gmail.com>

Wed, May 31, 2023 at 12:29 AM

Hello Ms. Batikian,

I support the position letter on the Comprehensive Plastics Reduction PEIR submitted by CAW and thirty organizations:

Christine Batikian
LASAN - Solid Resources Citywide Recycling Division
1149 S. Broadway, 5th Floor MS 944
Los Angeles, CA 90015

RE: Comprehensive Plastics Reduction PEIR

Dear Ms. Batikian,

We, the undersigned organizations, represent diverse interests in protecting the health of both the public and our environment. We appreciate the opportunity to provide comments on the Comprehensive Plastics Reduction Program. We commend the City of Los Angeles and Los Angeles Sanitation and Environment for seeking to implement strong upstream and downstream measures to eliminate the input of single-use plastics into the City's waste stream and surrounding environment.

Our coalition would like to encourage the City to **prohibit the sale and distribution of products packaged using the following materials**:

- Polyvinyl chloride (PVC)
- Polyvinylidene chloride (PVDC)
- Per- and polyfluoroalkyl substances (PFAS)
- Oxo-degradable additives, including oxo-biodegradable additives
- Non-detectable pigments (e.g. carbon black)
- Pigments (other than transparent blue or green) added to polyethylene terephthalate bottles (PET bottles)
- Polyethylene terephthalate glycol (PETG)

The United States Plastics Pact, a group of over 100 industry members and stakeholders, identified these materials as problematic and unnecessary as these materials could be avoided through:

> "elimination, reuse or replacement and items that, post-consumption, commonly do not enter the recycling and/or composting systems, or where they do, are detrimental to the recycling or composting system due to their format, composition, or size."

The Plastic Pact "Activators," which include some of the largest corporations in the country such as Mondelez, The Coca-Cola Company, and Walmart set a goal to eliminate these materials and additives by 2025. These items are **currently not reusable or recyclable at scale across the United States and many pose threats to human health**.

Problematic Plastics

The problem with these plastic materials and additives is that they inhibit the recycling process and/or are hazardous to human health and the environment.

PVC is both not recycled and toxic, resulting in harmful exposures at every stage of its lifecycle. PVC production involves numerous toxic chemicals, including asbestos, PFAS, ethylene dichloride, and vinyl chloride. PVC often includes harmful additives, such as heavy metals, bisphenols, phthalates, and flame retardants. Since PVC packaging is unrecyclable, PVC ends up mixed in with other garbage and is either incinerated, which produces carcinogenic and persistent dioxins and furans, or sent to landfills, which often releases harmful chemicals into the air and groundwater, both of which disproportionately impact environmental justice communities. **PVDC** is similar to PVC and involves similar hazardous chemicals throughout its lifecycle.

PFAS are highly persistent and toxic chemicals linked to severe health problems, including cancer, hormone disruption, kidney and liver damage, thyroid disease, developmental harm, and immune system disruption, including interference with vaccine efficacy . A report on the first phase of state PFAS testing found these chemicals in drinking water systems serving approximately 16 million Californians. The contamination was found to be more intense in environmental justice communities, putting those vulnerable communities at greater risk of harm from PFAS exposure. This contamination is in part due to PFAS leaching from landfills into soil and groundwater and threatens both public health and water affordability.

Oxo-degradable and oxo-biodegradable additives cause plastics to harmfully degrade in the environment resulting in microplastics in our food, air, and water. Microplastics have been found in human breast milk, placenta, and stool and are linked to harm to fertility, respiratory harm, and an increase in digestive tract cancer risk. Microplastics also end up in the environment, including in drinking water supplies. The State Legislature previously required the State Water Resources Control Board to develop testing methods for plastics in drinking water and to launch a 4-year monitoring program to establish the scope of the state's problem--oxo-degradable and oxo-biodegradable materials add to the problem. Materials that contain these additives are also not desirable to recyclers as the resulting recycled material does not have the same integrity.

Adding **non detectable pigments (e.g., carbon black)** causes otherwise recyclable plastic products to be discarded in landfills. Unfortunately, the near-infrared sensors that recycling centers rely on to sort incoming material, cannot detect the composition of packaging due to how carbon black pigment reflects incoming light. Carbon black is also a carcinogen when inhaled, posing a risk to workers.

Pigments added to PET bottles to make them opaque and/or different colors do not have viable end markets, creating no incentive for collection or recycling to already struggling recycling operations. Making recyclable plastics difficult to recycle due to the addition of pigments and other compounds furthers the production of more virgin plastic and more pollution that comes with that increased production. The proliferation of plastic also has significant climate and biodiversity impacts.

PETG has a similar chemical structure to PET but the addition of glycol (the G in PETG) causes PETG to melt at hotter temperatures than PET . As a result, PETG cannot be recycled in the same process as widely available PET. Optical sorters in recycling facilities are also unable to distinguish the difference between the two, leading to costly contamination in PET loads.

Upstream policies like prohibiting the sale and distribution of products packaged in the aforementioned materials will ultimately lead to a more cost-effective circular economy by eliminating plastic materials and additives that are extremely difficult and costly to recycle. Rather than incentivizing the plastic producers and companies to invest millions of dollars to recycle highly unrecyclable materials, prohibiting these materials will shift the market to viable alternatives already on the market. Additionally, including these materials in the Comprehensive Plastics Program will reduce Angelenos' exposure to the toxic chemicals and microplastics resulting from the manufacturing, burning, and break down of these plastic materials and additives. This will also reduce the financial cost to the City addressing the harmful health and environmental outcomes associated with these materials and additives.

We recognize the City is currently implementing multiple ordinances that address other materials included on the Pact's list of problematic plastics: cutlery (Foodware Accessories Ordinance 187030), polystyrene & expanded polystyrene (Expanded Polystyrene Ban Ordinance 187717), stirrers (Foodware Accessories Ordinance 187030), and straws (Straws on Request Ordinance 186028).

We encourage the City to continue leading the way in passing strong plastics reduction ordinances by continuing to target unnecessary and harmful plastic packaging by prohibiting the sale and distribution above referenced materials.

Thank you for your time and consideration.

Sincerely,

Elijah Carder
Concerned Citizen
927 Terrace 49
Los Angeles, CA 90042

--
Elijah Carder
LOVE LIFE: LIVE LIFE TO THE FULLEST!

Mobile Phone 310-739-0748

Christine Batikian <christine.batikian@lacity.org>

Re: LA City Comprehensive Plastics Reduction PEIR

1 message

Alexander Truelove <alexander@bpiworld.org> Wed, May 31, 2023 at 3:14 PM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>

Hi Christine,

I recently returned from leave to see I missed yesterday's deadline to comment on the outline! If you'll still consider it, we'd like to respond with the following (below). Otherwise, we'll look forward to the next opportunity to comment.

Thank you,

...

Thank you for the opportunity to comment on the proposed Comprehensive Plastic Reduction PEIR. The Biodegradable Products Institute (BPI) is North America's leading certifier of compostable materials, products, and packaging, with hundreds of member companies worldwide. As a science-driven organization, BPI supports a shift to the circular economy by promoting the production, use, and appropriate end of lives for materials and products that are designed to fully biodegrade in specific biologically active environments.

BPI's certification program has verified thousands of items using ASTM standards as a baseline, plus additional requirements to ensure product safety and keep organic waste out of landfills.
As your outline mentions, food residue minimizes recyclability of single-use plastic foodware, however it BPI only certifies consumer packaging and products that are food and organic waste-associated in order to ensure composters recieve more of the material they need

We support the proposal including the development and expansion of facilities and infrastructure to handle compostable material, provided it includes certified products. In 2022, BPI advocated for the inclusion of funding for compost infrastructure in Senate bill 54, the California statewide EPR bill, and while we expect EPR fees from certified compostable products to help composters that accept them, we know more support is needed as products and packaging make up only a small part of the organics waste stream.

We are, however, concerned by the many unsubstantiated claims made on LA Sanitation's website that might affect the development of this PEIR, addressed below:

Claim #1
"Although marketed as "compostable" or "biodegradable",
While "biodegradable" and "compostable" may appear to be synonymous terms, they are not. Compostable products adhere to specific third-party standards, time frames, and disposal methods that aren't captured by "biodegradable" claims. This is particularly important when the terms are used to describe the end-of-life attributes of products and packaging.

The term "biodegradable" is highly problematic and even illegal in California to use in sales and marketing language for single-use products as the term is often used to describe non-compostable products intentionally made to look like certified compostables. These products are commonly referred to as "lookalikes" and are a leading cause of contamination at compost facilities.

Claim #2
"These [compostable plastic] items do not actually break down in the amount of time the commercial facilities compost the material."

There is currently no evidence we know of to suggest that certified compostable products don't break down in well-managed composting facilities that generate mature and stable compost, as shown by a series of studies where plastics collected after the composting process were identified. These "overs" studies (that BPI freely offers to composters) cover a range of composting processes commonly used throughout the U.S. today and have indicated that persistent plastics were conventional plastics products, not compostable.

Claim #3
"Although these bags are "certified" under various certifications such as ASTMD6400 or BPI, the testing conditions for this certification do not actually match what many real commercial composting facilities operate at."

Neither ASTM D6400 or BPI are 'certifications.' Rather, ASTM D6400 refers to a standard specification that BPI, an independent third-party certifier, ensures that products adhere to. The tests included within ASTM specifications are designed to isolate compostable products and measure both disintegration *and* biodegradation.

More importantly, no standard for 'real' compost operating conditions exists in the United States. Controls including time, temperature, C:N ratio, and moisture can be highly variable and may explain why field tests yield uneven disintegration results even within the same facility.

Again, BPI-certified compostable products have been shown to consistently break down in well-managed composting facilities, and we'd be happy to provide more specific evidence, especially to the extent it can help design a comprehensive program.

Alex Truelove
(he/him/his)
Legislation & Advocacy Manager

1-888-274-5646 Ext. 26
alexander@bpiworld.org
bpiworld.org

Christine Batikian <christine.batikian@lacity.org>

Ban Toxins from LAs Comprehensive Plastics Reduction Program

1 message

Pilar Reynaldo <maripilim@gmail.com> Tue, May 30, 2023 at 12:02 PM
To: christine.batikian@lacity.org

Ms Batikian,

Our future will be bleak if we do not take action on banning plastic immediately! . I appreciate the opportunity to provide comments on the Comprehensive Plastics Reduction Program. I recommend the City of Los Angeles and Los Angeles Sanitation implement strong upstream and downstream measures to eliminate the input of single-use plastics into the City's waste stream and surrounding environment.

I would like to encourage the City to **prohibit the sale and distribution of products packaged using the following materials**:

- Polyvinyl chloride (PVC)
- Polyvinylidene chloride (PVDC)
- Per- and polyfluoroalkyl substances (PFAS)
- Oxo-degradable additives, including oxo-biodegradable additives
- Non-detectable pigments (e.g. carbon black)
- Pigments (other than transparent blue or green) added to polyethylene terephthalate bottles (PET bottles)
- Polyethylene terephthalate glycol (PETG)

The United States Plastics Pact, a group of over 100 industry members and stakeholders, identified these materials as problematic and unnecessary as these materials could be avoided through:

> "elimination, reuse or replacement and items that, post-consumption, commonly do not enter the recycling and/or composting systems, or where they do, are detrimental to the recycling or composting system due to their format, composition, or size."

The Plastic Pact "Activators," which include some of the largest corporations in the country such as Mondelez, The Coca-Cola Company, and Walmart set a goal to eliminate these materials and additives by 2025. These items are **currently not reusable or recyclable at scale across the United States and many pose threats to human health**.

Problematic Plastics

The problem with these plastic materials and additives is that they inhibit the recycling process and/or are hazardous to human health and the environment.

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Oxo-degradable and oxo-biodegradable additives cause plastics to harmfully degrade in the environment resulting in microplastics in our food, air, and water. Microplastics have been found in human breast milk, placenta, and stool and are linked to harm to fertility, respiratory harm, and an increase in digestive tract cancer risk. Microplastics also end up in the environment, including in drinking water supplies. The State Legislature previously required the State Water Resources Control Board to develop testing methods for plastics in drinking water and to launch a 4-year monitoring program to establish the scope of the state's problem--oxo-degradable and oxo-biodegradable materials add to the problem. Materials that contain these additives are also not desirable to recyclers as the resulting recycled material does not have the same integrity.

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Pigments added to PET bottles to make them opaque and/or different colors do not have viable end markets, creating no incentive for collection or recycling to already struggling recycling operations. Making recyclable plastics difficult to recycle due to the addition of pigments and other compounds furthers the production of more virgin plastic and more pollution that comes with that increased production. The proliferation of plastic also has significant climate and biodiversity impacts.

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I encourage the City to continue leading the way in passing strong plastics reduction ordinances by continuing to target unnecessary and harmful plastic packaging by prohibiting the sale and distribution above referenced materials.

Sincerely,

Pilar Reynaldo
Concerned citizen.

Plastics Reduction Program

1 message

Chrissie Gomez <rngomez56@gmail.com> Mon, May 29, 2023 at 6:10 PM
To: Christine.Batikian@lacity.org

Hello. I am writing to support the Plastics Reduction Program. Reducing and recycling should be implemented citywide. I see from walking, hiking and scuba diving how much is wasted on single use plastic. When I order takeout I try and get the restaurants to not automatically put the plastic in my order. I hope this program goes into effect as soon as possible.

Chrissie Gomez
Valley Glen resident

Christine Batikian <christine.batikian@lacity.org>

Comprehensive Plastics Reduction Program

1 message

Rebecca Helm <rebeccabhelm@gmail.com> Sat, May 27, 2023 at 1:29 PM
To: christine.batikian@lacity.org

Hello Ms Batikian

First, thank you for all you do us and our city!

I'm a citizen of this amazing city who really wants to reduce the use of plastics especially ones that harm us and our environment and all the plants and animals and our water and earth that we and our children need to live.

I'm asking you to prohibit the sale and distribution of products packaged using the following materials:

- Polyvinyl chloride (PVC)
- Polyvinylidene chloride (PVDC)
- Per- and polyfluoroalkyl substances (PFAS)
- Oxo-degradable additives, including oxo-biodegradable additives
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We encourage the City to continue leading the way in passing strong plastics reduction ordinances by continuing to target unnecessary and harmful plastic packaging by prohibiting the sale and distribution above referenced materials.

Thank you for all you do!

Rebecca Helm

Christine Batikian <christine.batikian@lacity.org>

Re: Plastic Waste Reduction in the City of LA

3 messages

Ivana Castellanos <icastellanos@psr-la.org> Mon, May 15, 2023 at 10:20 AM
To: Christine Batikian <christine.batikian@lacity.org>

Good morning,
Are there recordings available from the public meetings?

Thanks,
Ivana

Christine Batikian <christine.batikian@lacity.org>

Please include me on the email list for packaging proposals

Grill, Terry <terry.grill@sealedair.com> Fri, May 12, 2023 at 10:13 AM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>

Christine:
I work for Sealed Air Corporation, and we supply plastic meat trays, vacuum packaging and air filled plastic film used for void fill and cushioning. For some reason we were not aware of legislation severely affecting our product sales and use in the county. Can you please add my name to the appropriate emails lists?

Thanks,
Terry Grill
909.641.1162

Christine Batikian <christine.batikian@lacity.org>

LA San for ordinances

3 messages

Laurie Hansen Sheets <lhansen@strategicpartnersgroup.org> Thu, May 11, 2023 at 2:44 PM
To: "christine.batikian@lacity.org" <christine.batikian@lacity.org>

HI Christine - I have been on City of LA lists for a long long time to get updates on things like the single use plastics ordinances.

Somehow I have gotten off the lists.

Any chance you could put me back on? I hav tried to sign up on the webpage and somehow it is not working.

Thank you. Please let me know if this is doable.

Laurie Hansen Sheets
Strategic Partners Group
Houston Magnani & Associates
Lhansen@strategicpartnersgroup.org
916-761-2829

> ---------- Forwarded message ---------
> From: **Julia Galaudet** <jagalalcsw@gmail.com>
> Date: Thu, May 11, 2023, 7:02 PM
> Subject: Wanting to rewatch tonight's meeting
> To: <sanZoomWebinar@lacity.org>
>
> There were some interesting facts shared by the first presenter regarding single use plastics.
> I'd like to relisten to what she said. Is the recording available yet?
>
> Could you direct me on how to find the recording. Thanks so much!

Christine Batikian <christine.batikian@lacity.org>

Re: Notice: Comprehensive Plastics Reduction Program

Karin Davalos <karinvpgpnc@gmail.com> Wed, May 10, 2023 at 9:11 AM
To: Christine Batikian <christine.batikian@lacity.org>, Karin Davalos <karinvpgpnc@gmail.com>

Christine, are you interested in coming and presenting at the Glassell Park Neighborhood Council Board meeting? It is going to be in person on 5/16/2023.

Best,

Karin

Christine Batikian <christine.batikian@lacity.org>

Fwd: Plastic Waste

1 message

Lena Ayvazian <lenaayvazian@canogaparknc.org> Tue, May 9, 2023 at 3:59 PM
To: christine.batikian@lacity.org

Hi Ms. Batikian,

If possible, to direct our grocery manufactures to paper/carton distribution vs plastic. Example, all OJ, lemonade, ice tea, etc in cardboard/paper packaging vs plastic.

Honestly, it's time for Cities to say, you want our business, comply.

Thank you
Lena Ayvazian

Christine Batikian <christine.batikian@lacity.org>

Fwd: Plastic Waste Reduction in the City of LA

2 messages

Jay Ross <jayr@westlasawtelle.org> Tue, May 9, 2023 at 10:35 AM
To: Christine.Batikian@lacity.org

I fully support as much elimination of plastic as possible.

Ignore the businesses who whine that that they'll go out of business, and plastic manufacturers. For centuries, businesses thrived with paper, wood and renewable materials.
If businesses can't succeed without plastic, they should go out of business and be replaced by businesses who can survive.
Companies who manufacture plastics but refuse to pay for their costs should go out of business too, if the only way they can survive is by harming us and the environment.
Any jobs in plastics will be replaced by jobs in renewable materials like paper, wood, and reusable products.

Jay Ross
West LA 90064

member of WLASC but speaking as an individual.

Christine Batikian <christine.batikian@lacity.org>

Re: Plastic Waste Reduction in the City of LA

h hmartinez <hmartinez@fibr.info> Tue, May 9, 2023 at 1:52 PM
To: Christine Batikian <christine.batikian@lacity.org>

THANK YOU Christine,

shared with FIBR Members.

Regards to all at LASANN. PLEASE Keep it coming our way!

Kind regards,
Helene

Christine Batikian <christine.batikian@lacity.org>

Re: Plastic Waste Reduction in the City of LA

Leila Lee <leila.lee@lacity.org> Tue, May 9, 2023 at 9:28 PM
To: Christine Batikian <christine.batikian@lacity.org>

Hi Christine,

Is this for all or businesses specifically?

Christine Batikian <christine.batikian@lacity.org>

LA Comprehensive Plastics Reduction Program

Solishia Andico <sandico@malibucity.org> Mon, May 8, 2023 at 10:35 AM
To: "Christine.Batikian@lacity.org" <Christine.Batikian@lacity.org>

Hello Christine,

I wanted to reach out as I am interested in learning more about the LA Comprehensive Plastics Reduction Program and will be attending the Wednesday meeting at 11am.

I am the new environmental sustainability analyst at the City of Malibu. I am eager to learn more about LA's plastic reduction program and see what we can implement at Malibu.

It is lovely meeting you!

Thanks,

Solishia

Christine Batikian <christine.batikian@lacity.org>

Re: Notice: Comprehensive Plastics Reduction Program

Linda Gravani <vanc34.chair@gmail.com> Wed, May 3, 2023 at 7:49 AM
To: Christine Batikian <christine.batikian@lacity.org>

Christine,
Would you be available on Thursday May 11, 2023 to
attend a zoom meeting for VANC?
I would like to get the word out to the 34 Valley Neighborhood
Council leaders.
Please advise,
Thanks,
L

Linda Gravani, Chair
VANC - Valley Alliance of Neighborhood Councils
President - Lake Balboa Neighborhood Council
818-481-0714- Cell
www.VANC34.org - Under Construction

Christine Batikian <christine.batikian@lacity.org>

Re: Notice: Comprehensive Plastics Reduction Program

1 message

Beyond Plastics <beyondplastics@bennington.edu> Mon, May 1, 2023 at 9:21 AM
To: Christine Batikian <christine.batikian@lacity.org>

Thanks so much for passing along Christine- I will share with our team to make sure they are aware.
All the best,
Andrew

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

May 2, 2023

Christine Batikian
City of Los Angeles
1149 S Broadway, 5th Floor, Mail Stop 944
Los Angeles, CA 90015

Re: 2023050007, Comprehensive Plastics Reduction Program, Los Angeles County

Dear Ms. Batikian:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    - **a.** The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    - **b.** Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (https://ohp.parks.ca.gov/?page_id=30331) for an archaeological records search. The records search will determine:
    - **a.** If part or all of the APE has been previously surveyed for cultural resources.
    - **b.** If any known cultural resources have already been recorded on or adjacent to the APE.
    - **c.** If the probability is low, moderate, or high that cultural resources are located in the APE.
    - **d.** If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    - **a.** The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    - **b.** The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:

a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.

b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.

a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.

b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.

c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

Appendix C Air Quality, GHG, HRA, and Energy Analyses

Air Quality, Greenhouse Gas, HRA, and Energy Analyses for a Program EIR

City of Los Angeles Sanitation & Environment

1149 S. Broadway 9th Floor,
Los Angeles, CA 90015

September 2023

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September 2023

Table of Contents

Table of Appendices

List of Tables

Air Quality, Greenhouse Gas, HRA, and Energy Analyses for a Program EIR

1.0 INTRODUCTION

Catalyst Environmental (CE), as a subcontractor to Larry Walker Associates (LWA), is preparing a California Environmental Quality Act (CEQA) Program Environmental Impact Report (PEIR) for Los Angeles Sanitation & Environment (LASAN) to evaluate the impacts of single-use plastics, textiles, and related materials with regard to the amount of plastic and textile wastes going into landfills, depositing on beaches, accumulating on land, and otherwise being problematic. This technical report includes California Emissions Estimator Model® (CalEEMod) emissions estimates, criteria pollutant, greenhouse gas (GHG), and energy analyses associated with the construction and operation of eight different types of proposed material processing facilities in the City of Los Angeles. The CalEEMod output file formats are included as Appendix A.

1.1 Project Description

The City of Los Angeles (City) is part of a worldwide movement to re-evaluate attitudes toward consumption, disposal, product stewardship, and infrastructure to reduce plastic waste and promote sustainability. The City is a leader in protecting its natural environment and the health and safety of its residents. Since 2013 the City, through LASAN, has demonstrated its commitment to zero waste and the reduction of single-use plastics through the following six ordinances:

- Zero Waste City Facilities and Events on City Property: Ordinance 18718 (2022);
- Expanded Polystyrene Ban: Ordinance 187717 (2022);
- Expanded Single-Use Carryout Bag Ban: Ordinance 187716 (2022);
- Disposable Foodware Accessories on Request: Ordinance 187030 (2021);
- Plastic Straws on Request: Ordinance 186028 (2019); and
- Single-Use Carryout Bag Ban: Ordinance 182604 (2013).

The City proposes to expand on these measures by implementing a city-wide Comprehensive Plastics Reduction Program (Program or CPRP) and is preparing this PEIR under CEQA to support its decision-making process. The City is evaluating numerous measures to reduce or eliminate the production and use of single-use plastic products and encourage reuse or recycling of other items to the extent feasible, thereby reducing or eliminating the input of single-use plastics into the City's waste stream and the environment. These are known as upstream measures because they keep single-use plastics from entering the use and disposal streams. These upstream measures may include bans on specific single-use products; product stewardship programs; Extended Producer Responsibility programs; policies to require and/or support the manufacturing of durable, reusable, repairable, and recyclable products; and the formation of working groups to evaluate program efficacy and conduct additional studies. The Program's upstream elements include the following broad categories:

- Plastic Bottle Policies;
- Foodware Policies;

- Textile Policies;
- Perfluoroalkyl and polyfluoroalkyl substances (PFAS) Ban;
- Additional Product Bans;
- Formation of Working Groups and Additional Studies; and
- Outreach and Education.

For those plastics that cannot be addressed through upstream measures, and to manage the increase in recycling and the use of recyclable and compostable alternative materials anticipated from the Program, the City is also evaluating downstream measures by which to increase the City's ability to manage these materials and divert them from landfill disposal. Downstream measures include collecting, reusing, recycling, and composting alternative materials and supporting reusable products. Downstream measures may include the construction or expansion of recycling and composting facilities; regional market development to expand the City's ability to recycle and reuse currently unmarketable single-use items; and infrastructure to support reusable items. The Program would also include public education, outreach, and engagement as well as enforcement. Upstream and downstream measures would work together to create a zero waste loop in the City.

1.2 Relationship to L.A.'s Green New Deal

The eight different types of proposed material processing facilities listed below and described in Section 2 support and are consistent with *L.A.'s Green New Deal Sustainable City pLAn 2019* (pLAn). The pLAn highlights four principal targets (City 2019):

1. Increase landfill diversion rate to 90% by 2025; 95% by 2035; and 100% by 2050;
2. Reduce municipal solid waste generation per capita by at least 15% by 2030, including phasing out single-use plastics by 2028;
3. Eliminate organic waste going to landfill by 2028; and
4. Increase proportion of waste products and recyclables productively reused and/or repurposed within L.A. County to at least 25% by 2025; and 50% by 2035.

Several pLAn targets and sub-targets directly or indirectly correlate with the eight different types of materials processing technologies, whether anaerobic digestion, aerobic composting/mulching, materials recovery, resources recovery, construction and demolition waste recycling, mixed materials processing, advanced thermal recycling, or non-combustion thermal technology. These correlations include (City 2019):

- Target 1 includes sub-targets to: Require take-out foodware be made with compostable material; Increase C&D waste recycling requirements to at least 80%; Pilot sector-specific recycling programs; Optimize recycLA services; Update the Solid Waste Integrated Resources Plan; and Diversify recycling markets to ensure recycling remains a viable landfill diversion strategy.
- Target 2 includes sub-targets to: Ban expanded polystyrene citywide; Launch an educational awareness campaign on source reduction; Reduce contamination in green and blue bins; and Increase use of existing waste programs through public education.

- Target 3 includes sub-targets to: Launch citywide residential food scraps collection; Expand the City's anaerobic digestion capacity; and Develop a composting comprehensive plan to expand community and regional composting infrastructure.
- Target 4 includes sub-targets to: Develop a resource recovery hub pilot; Promote use of incentives in L.A.'s Recycling Market Development Zone; and Explore additional incentives for recycled-content product manufacturers.

Further, as shown Section 4.1.5, all of the proposed facility types and associated vehicle traffic would meet the South Coast Air Quality Management District's CEQA interim industrial facility GHG mass emissions significance threshold of 10,000 metric tons per year of carbon dioxide equivalents (CO_2e). Thus, the climate change impacts of the program would be consistent with CEQA guidelines and with *L.A.'s Green New Deal Sustainable City pLAn 2019*.

2.0 DESCRIPTION OF DOWNSTREAM FACILITIES

As the City implements the various upstream measures to reduce the production and use of single-use products within the City, it is anticipated that use of alternative reusable, compostable, and recyclable materials to plastics would increase throughout the City. Therefore, while the City anticipates a decrease in single-use materials entering the City's waste stream and requiring disposal in landfills, it also anticipates that it would need to increase its capacity to manage compostable and recyclable replacement materials. The City may also seek to develop new facilities to manage trash/waste to avoid landfill disposal; expand or upgrade existing facilities to increase and/or improve processing capabilities; and/or develop new facilities to enable the repair and reuse of materials. Therefore, the City may have the need to develop, expand, or upgrade the following new facilities and infrastructure:

- Facilities to handle recyclable materials (i.e., "blue bin facilities");
- Facilities to handle compostable materials (i.e., "green bin facilities"); and
- Facilities to handle trash/waste disposal (i.e., "black bin facilities");

The City may also coordinate with other local jurisdictions, agencies, and businesses to establish new and/or improved recycling and composting capabilities for currently unrecyclable single-use items (e.g., plastic films) and establish regional consistency for composting and recycling. At this stage of the Program, specific locations for these facilities have not been identified.

2.1 Green Bin Facilities

Green bin facilities are those that process items that are allowed in the City's green bins, including yard trimmings, food scraps, and other compostable materials (i.e., food-stained paper; paper egg cartons, napkins, towels, plates, and to-go boxes; pizza boxes; and wooden and 100% fiber-based utensils).

2.1.1 Anaerobic Digestion Facilities

Anaerobic digestion converts organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. These facilities process food scraps, food-soiled paper, and other organics. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility. A typical anaerobic digestion facility would process 200-500 tons of waste per day. A new facility would have a footprint of approximately 5 to 10 acres.

2.1.2 Aerobic Composting and Mulching Facilities

An aerobic composting facility collects, grinds, mixes, piles and supplies sufficient moisture and air to organic materials to speed natural decay. The finished product of a composting operation is compost, which is suitable for incorporating into topsoil and for growing plants. Compost technologies include the following:

- Windrow – compostable material is piled in long rows and regularly turned to enhance aerobic activity and control temperature and moisture;
- In-vessel – compostable material is placed in enclosed reactors (metal tanks, concrete bunkers or plastic tubes or "ag bags") where airflow and temperature can be controlled through perforated pipes buried in the material; and
- Aerated static pile – compostable material is placed in piles on perforated pipes under removable covers, and fans are used to push or pull air through the pipes to control the composting process.

Yard trimmings can be processed into mulch at a chip-and-grind/mulching facility. This type of facility typically includes minimal processing (chipping, grinding, and possibly screening) of the feedstock to produce a mulch product or to prepare wood as fuel for biomass power plants.

A typical composting and mulching facility processes 100-1,000 tons of material per day. A new facility would have a footprint of approximately 15 to 60 acres.

2.2 Blue Bin Facilities

"Blue bin facilities" are those that process source-separated recyclable and reusable materials, including materials recovered from LASAN's blue bin program and source-separated commercial recycling. Items allowable in the City's blue bins include glass, aluminum/tin foil, cardboard boxes, and plastics 1, 2 and 5. Other facilities for source-separated materials are also included in this category, including Resource Recovery Centers for self-hauled materials and construction and demolition debris processing facilities.

2.2.1 Clean Materials Recovery Facility (MRF)

Clean MRFs receive and process source-separated recyclables from residential blue bin programs and commercial recycling programs. Clean MRFs sort, bale, and ship material by commodity type to markets. Clean MRFs typically recover traditional recyclable materials, including newspaper, cardboard, mixed paper, aluminum cans, bi-metal cans, plastic bottles, mixed plastics and glass containers. Typical contaminants include food scraps, auto parts, yard trimmings, wood, dirt, glass shards, and garbage.

A typical Clean MRF would process 50-600 tons of recyclable material per day. A new facility would have a footprint of approximately five to ten acres.

2.2.2 Resource Recovery Centers/Parks

Resource Recovery Centers are small centers for drop-off of hard to recycle items, including mattresses, large blocks of expanded polystyrene (EPS) foam, and textiles.

Resource Recovery Parks (neighborhood take-back centers) are places where materials can be dropped off for donation or buyback and co-locates reuse, recycling and composting, processing, manufacturing, and distribution activities. They are often located in industrially zoned areas.

A typical Resource Recovery Center processes 10-200 tons of material per day. A new facility would have a footprint of approximately 2 acres.

2.2.3 Construction and Demolition Facility

A Construction and Demolition (C&D) Facility receives and processes construction and demolition debris, including asphalt, concrete, Portland cement, brick, lumber, wallboard, roofing material, ceramic tile, plastic pipe, and associated packaging. Typical commodities produced include gypsum, clean wood, ferrous metal, aluminum, and inert material (including engineered fill).

A typical Construction and Demolition Facility processes 50-500 tons of material per day. A new facility would have a footprint of approximately ten acres.

2.3 Black Bin Facilities

Black bin facilities are those that process residual waste from residential black bins, commercial solid waste sources, or residual waste from processing facilities. Black bin facilities process materials that are not recyclable or compostable in the City (i.e., garbage/trash).

2.3.1 Mixed Material Processing

A mixed material processing facility (also known as a dirty MRF) sorts and separates recyclable material from residual waste from residential and commercial sources. These facilities can also be adapted to sort or remove different materials to prepare residual waste for composting, advanced thermal recycling, and other Alternative Technologies. Desired loads include residual waste from residential and commercial generators, and undesirable loads include concentrated amounts of construction and demolition materials or concentrated amounts of wet materials, such as restaurant food.

A typical mixed material processing facility processes 200-400 tons of waste per day. A new facility would have a footprint of approximately 5-7 acres.

2.3.2 Advanced Thermal Recycling

Advanced thermal recycling uses complete combustion of organic carbon-based materials in an oxygen-rich environment, producing an exhaust gas composed primarily of carbon dioxide and water with inorganic materials converted to bottom ash and fly ash. Advanced thermal recycling facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. The hot exhaust gases flow through a boiler, where steam is produced for driving a steam turbine-generator, producing electricity. Exhaust air is treated with advanced pollution control technologies that remove air pollutants to meet clean air emissions standards, and cooled exhaust gas flows through emissions control systems before being exhausted through stacks into the atmosphere. Byproducts include the recovery of ferrous and non-ferrous metals from the bottom ash. The fly ash and bottom ash can be separated, and the bottom ash can be reused as landfill cover, processed for road base, or other beneficial uses.

A typical advanced thermal recycling facility processes 500-2,000 tons of waste per day. A new facility would have a footprint of approximately 5 to 15 acres.

2.3.3 Non-Combustion Thermal Technologies

Non-combustion thermal technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. These facilities use an external heat source to heat waste to high temperatures in a low oxygen environment. This causes the waste to decompose and produce synthesis gas (syngas). Synthesis gas consists primarily of hydrogen, carbon monoxide, and carbon dioxide, which, for example, can be used as fuel for an internal combustion engine-generator. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials. Ideal feedstock for these facilities includes mixed paper, plastics, and other dry organics.

Gasification is used at the commercial scale for coal, and plasma arc technology is used at the commercial scale to treat hazardous and radioactive wastes. These technologies are still emerging as methods to treat residual waste.

A typical non-combustion thermal technology facility processes 100-500 tons of waste per day. A new facility would have a footprint of approximately 2-7 acres.

3.0 ASSUMPTIONS

The following lists sources of information used in developing the emission estimates for the proposed Project using CalEEMod. Not all CalEEMod defaults are listed, but some defaults which have a particularly important impact on the project are listed.

3.1 Equipment

3.1.1 Construction

CalEEMod defaults were used for offroad construction equipment type, count, fuel type, engine tier, hours of operation, load factor, and fleet average age. The equipment used during project construction was assumed to be the same for the construction of each facility type and is summarized in Table 3-1.

Table 3-1: Project Construction Equipment Summary

Construction Phase	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day
Grading	Excavators	Diesel	Average	1	8
	Graders	Diesel	Average	1	8
	Rubber Tired Dozers	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	3	8
Building Construction	Cranes	Diesel	Average	1	7
	Forklifts	Diesel	Average	3	8
	Generator Sets	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	3	7
	Welders	Diesel	Average	1	8
Paving	Pavers	Diesel	Average	2	8
	Paving Equipment	Diesel	Average	2	8
	Rollers	Diesel	Average	2	8
Architectural Coating	Air Compressors	Diesel	Average	1	6
Trenching	Excavators	Diesel	Average	2	8
	Other General Industrial Equipment	Diesel	Average	1	8
	Tractors/Loaders/Backhoes	Diesel	Average	1	8

Note:

The average engine tier is the fleetwide average engine tier statewide for the calendar year.

3.1.1 Operation

The types of offroad and stationary equipment used during project operation was defined by CE and is summarized in Table 3-2. Yorke assumed the number of operational equipment is scaled based on the average between the incoming and outgoing material predicted for each facility:

- An average of 0 – 300 tons per day (tpd) would equivalate to one set of operational offroad equipment;
- An average of 301 – 600 tpd would equivalate to two sets of operational offroad equipment; and
- An average of 601-900 tpd would equivalate to three sets of operational offroad equipment.

Only one emergency generator and/or fire pump were assumed to be present at each facility, if specified by CE. As applicable, diesel emergency engines were assumed to normally operate up to 1 hour per day and up to 50 hours per year for planned routine maintenance and testing. Yorke assumed typical ratings for these engines, 200 horsepower (hp) for generators, and 50 hp for fire pumps.

For the advanced thermal recycling technology, a 1 million British Thermal Unit (BTU) per hour gas-fired boiler/process heater was included as a stationary source, operating 24 hours per day. For the non-combustion thermal technology facility, a 1 million BTU per hour synthesis gas fired internal combustion engine-generator (ICE) was included as a stationary source, also operating 24 hours per day. These stationary sources, and the emergency engines, would be subject to applicable South Coast Air Quality Management District rules and regulations, as outlined in Section 3.3.

CE also identified operational offroad equipment such as on-site diesel fueled "grinders / shredders / screens" and "roll-off vehicles" that Yorke classified in CalEEMod as "other general industrial equipment" and "other materials handling equipment," respectively, because CalEEMod does not specifically list material processing "grinders / shredders / screens" or "roll-off vehicles" as offroad equipment types. For emissions estimation purposes, it was assumed that facilities would operate 6 days per week, 8 hours per day (closed Sundays). All future operational offroad equipment was assumed to be equipped with Tier 4 Final engines.

Table 3-2: Operational Equipment Summary

Facility Type	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day
Anaerobic Digestion	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1
Aerobic Composting and Mulching	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2	8
	Forklifts	Diesel	Tier 4 Final	2	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	2	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	2	8
Clean Materials Recovery	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Emergency Generator	Diesel	Average	1	1
Resource Recovery	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
Construction and Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Emergency Generator	Diesel	Average	1	1
Mixed Material Processing	Tractors/Loaders/Backhoes	Diesel	Average	1	8
	Forklifts	Diesel	Average	1	8
	Other Material Handling Equipment	Diesel	Average	1	8
	Emergency Generator	Diesel	Average	1	1
Advanced Thermal Recycling	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3	8
	Forklifts	Diesel	Tier 4 Final	3	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	3	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	3	8
	Boiler/Heater	Natural Gas	Rule Compliant	1	24
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1
Non-Combustion Thermal Technologies	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1	8
	Forklifts	Diesel	Tier 4 Final	1	8
	Other Material Handling Equipment	Diesel	Tier 4 Final	1	8
	Other General Industrial Equipment	Diesel	Tier 4 Final	1	8
	Internal Combustion Engine	Syngas (Biogas)	Rule Compliant	1	24
	Emergency Generator	Diesel	Average	1	1
	Fire Pump	Diesel	Average	1	1

3.2 Fleet Mix

3.2.1 Construction

CalEEMod defaults were used for trip types, trips per day, trip length, and fleet mix for project construction.

For construction, as applicable to the types of proposed facilities, CalEEMod aggregates mobile sources into three broad categories (typical fuel types assumed, diesel or gasoline):

- Offroad equipment [diesel (Tiers 1-4)];
- Vendor [medium-heavy and heavy-heavy duty diesel trucks (MHDT, HHDT)]; and
- Worker [light duty gasoline automobiles and trucks (LDA, LDT1, LDT2)].

The project construction onroad fleet mix is summarized in Table 3-3.

Table 3-3: Project Construction Onroad Fleet Mix Summary

Facility Type	Construction Phase	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Anaerobic Digestion	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	76	18.5	LDA, LDT1, LDT2
		Vendor	30	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	16	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Aerobic Composting and Mulching	Grading	Worker	20	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	1	18.5	LDA, LDT1, LDT2
		Vendor	1	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	1	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Clean Materials Recovery	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	76	18.5	LDA, LDT1, LDT2
		Vendor	30	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	16	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Resource Recovery	Grading	Worker	10	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	22	18.5	LDA, LDT1, LDT2
		Vendor	9	10.2	HHDT, MHDT
	Paving	Worker	13	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	5	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Construction and Demolition	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	76	18.5	LDA, LDT1, LDT2
		Vendor	30	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	16	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Mixed Material Processing	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	66	18.5	LDA, LDT1, LDT2
		Vendor	26	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	14	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Advanced Thermal Recycling	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	110	18.5	LDA, LDT1, LDT2
		Vendor	43	10.2	HHDT, MHDT
	Paving	Worker	15	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	22	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2
Non-Combustion Thermal Technologies	Grading	Worker	15	18.5	LDA, LDT1, LDT2
	Building Construction	Worker	55	18.5	LDA, LDT1, LDT2
		Vendor	22	10.2	HHDT, MHDT
	Paving	Worker	20	18.5	LDA, LDT1, LDT2
	Architectural Coating	Worker	11	18.5	LDA, LDT1, LDT2
	Trenching	Worker	10	18.5	LDA, LDT1, LDT2

3.2.2 Operation

CalEEMod defaults were used for trip types and trip lengths for project operation. CE defined the total truck and employee trips per day occurring at each type of facility during project operation, which was used to calculate the facility-specific operational fleet mix.

For operation of the various types of facilities, CalEEMod aggregates mobile sources into two broad categories (typical fuel types assumed, diesel or gasoline):

- Heavy Mobile [medium-heavy and heavy-heavy duty predominately diesel trucks (MHDT, HHDT)]; and
- Light Mobile [light duty gasoline automobiles and trucks (LDA, LDT1, LDT2)].

The project operation trip and fleet information is summarized in Table 3-4.

Table 3-4: Project Operation Fleet Mix Summary

Facility Type	Truck Trips per Day (HDT Mix)	Employee Trips per day (LD Mix)	Total Trips per day	Trips per day					HHDT	MHDT	LDA	LDT1	LDT2
				HHDT	MHDT	LDA	LDT1	LDT2					
Anaerobic Digestion	110	28	138	55	55	7	14	7	40%	40%	5%	10%	5%
Aerobic Composting and Mulching	206	28	234	103	103	7	14	7	44%	44%	3%	6%	3%
Clean Materials Recovery	124	80	204	62	62	20	40	20	30%	30%	10%	20%	10%
Resource Recovery Centers/Parks	212	30	242	106	106	7.5	15	7.5	44%	44%	3%	6%	3%
Construction and Demolition	122	90	212	61	61	22.5	45	22.5	29%	29%	11%	20%	11%
Mixed Material Processing	120	100	220	60	60	25	50	25	27%	27%	11%	24%	11%
Advanced Thermal Recycling	356	44	400	178	178	11	22	11	45%	45%	3%	4%	3%
Non-Combustion Thermal Technologies	78	44	122	39	39	11	22	11	32%	32%	9%	18%	9%

3.3 Project Features/BMPs

The control measures selected in CalEEMod were selected because these measures are needed to comply with South Coast Air Quality Management District (SCAQMD) rules, regulations, and guidelines. These measures only affect the particulate matter (PM), and volatile organic compound (VOC) emissions of the construction phase, and VOC and GHG emissions of the operational phase. In context, PM comprises 10-micron and 2.5-micron size bins, identified as PM_{10} and $PM_{2.5}$, respectively.

CalEEMod outputs present the emissions results as unmitigated and mitigated when additional controls are selected in the model. These Best Management Practices (BMPs) will be employed to minimize fugitive dust from the Project, and watering and sweeping is reflected in the "mitigated" PM_{10} and $PM_{2.5}$ emissions shown in CalEEMod output file (Appendix A). Although labeled as "mitigated" emissions, these controls are BMPs required by SCAQMD Rule 403 and hence do not require a mitigation measure to be implemented. Table 3-5 shows the measures that are applied to project construction.

Similarly, the BMPs for the operational phase of the Project are project features and therefore the Project does not require a mitigation measure to be implemented. Table 3-6 shows the measures that are applied to project operation.

Table 3-5: Project Construction Control Features Summary

Source	Control Measure	Amount/Reduction
Construction	Water Exposed Surfaces	3x daily; 74% PM Reduction
	Water Unpaved Construction Roads	55% PM Reduction
	Sweep Paved Roads	9% PM Reduction
	Use Low-VOC Paints for Construction	VOC Emission Factor: 50 g/L

Table 3-6: Project Operation Control Features Summary

Source	Control Measure	Amount/Reduction
Area (Operations)	Use Low-VOC Cleaning Supplies	–
	Use Low-VOC Paints	VOC Emission Factor: 50 g/L
Water	Low-flow Bathroom Faucet	30%
	Low-flow Kitchen Faucet	11%
	Low-flow Toilet	13%
	Low-flow Shower	11%
	low-flow urinal	12%

In addition to the control features shown in Table 3-6, the Project will comply with the applicable SCAQMD rules, including but not limited to:

- ***Rule 404, Particulate Matter - Concentration****:* Rule 404 sets concentration limits for PM_{10} emissions based on process exhaust gas volumetric flow rate.
- ***Rule 407, Liquid Gas & Air Contaminants***: Rule 407 sets concentration limits for carbon monoxide (CO) and sulfur compounds calculated as sulfur dioxide (SO_2) that any person is discharging into the atmosphere from any equipment.

- ***Rule 409, Combustion Contaminants***: Rule 409 sets concentration limits for any equipment combustion contaminants being discharged into the atmosphere.
- ***Rule 431.1, Sulfur Content of Gaseous Fuels***: The purpose of Rule 431.1 is to reduce sulfur oxides (SO_x) emissions from the burning of gaseous fuels in stationary equipment requiring a permit to operate by the SCAQMD.
- ***Rule 474, Fuel Burning Equipment – Oxides of Nitrogen:*** Rule 474 sets concentration limits for oxides of nitrogen (NO_x) discharged into the atmosphere from non-mobile fuel burning and steam generating equipment.
- ***Rule 1110.2, Emissions from Gaseous- and Liquid-Fueled Engines***: The purpose of Rule 1110.2 is to reduce NO_x, VOCs, and CO from engines rated over 50 brake horsepower (bhp)
- ***Rule 1146.2, Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters***: The purpose of Rule 1146.2 is to reduce NO_x emissions from natural gas-fired water heaters, boilers, and process heaters that have a rated heat input capacity less than or equal to 2,000,000 British Thermal Units (BTU) per hour.

4.0 AIR QUALITY AND GREENHOUSE GAS IMPACTS ANALYSES

In order to evaluate potential Air Quality and Greenhouse Gas impacts of a proposed project, quantitative significance criteria established by the local air quality agency, such as the SCAQMD, may be relied upon to make significance determinations based on mass emissions of criteria pollutants and GHGs, as presented in this report. As shown below, approval of the project would not result in any significant effects relating to air quality or greenhouse gases.

4.1 Project Emissions Estimation

The construction and operation analysis were performed using CalEEMod version 2022.1.1.18, the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and GHG emissions associated with both construction and operations of land use projects under CEQA. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model – published by the California Air Resources Board (CARB) – include the Pavley standards and Low Carbon Fuel standards. The model also identifies project design features, regulatory measures, and control measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SCAQMD, the Bay Area Air Quality Management District (BAAQMD), the San Joaquin Valley Air Pollution Control District (SJVAPCD), and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction and operational emissions quantification, which forms the basis for the impact analysis.

Based on information received from CE, land use data used for CalEEMod input is presented in Table 4-1. The SCAQMD quantitative significance thresholds shown in Table 4-2 were used to evaluate project emissions impacts (SCAQMD 2023).

Table 4-1: Land Use Data for CalEEMod Input

Facility Type	Land Use Subtype	Building Size (ft^2)	Project Lot Site (acres)	Project Lot Site (ft^2)
Anaerobic Digestion	General Heavy Industry	180,000	7	304,920
Aerobic Composting	General Heavy Industry	1,600	30	1,306,800
Clean Materials Recovery	General Heavy Industry	180,000	7	304,920
Resource Recovery	General Heavy Industry	52,000	2	87,120
Construction and Demolition	General Heavy Industry	180,000	10	435,600
Mixed Materials Processing	General Heavy Industry	155,000	6	261,360
Advanced Thermal Recycling	General Heavy Industry	260,000	10	435,600
Non-Combustion Thermal Technologies Facility	General Heavy Industry	130,000	5	217,800

Sources: CE 2023, CalEEMod version 2022.1.1.18.

Notes:

Electric utility: Los Angeles Department of Water & Power

Gas utility: Southern California Gas Company

Table 4-2: SCAQMD CEQA Thresholds of Significance

Pollutant	Project Construction (lbs/day)	Project Operation (lbs/day)
ROG (VOC)	75	55
NO_X	100	55
CO	550	550
SO_X	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
24-hour $PM_{2.5}$ Increment	10.4 $\mu g/m^3$	2.5 $\mu g/m^3$
24-hour PM_{10} Increment	10.4 $\mu g/m^3$	2.5 $\mu g/m^3$
Annual PM_{10} Increment	1.0 $\mu g/m^3$ annual average	
1-hour NO_2 Increment	0.18 ppm (state)	
Annual NO_2 Increment	0.03 ppm (state) & 0.0534 ppm (federal)	
1-hour SO_2 Increment	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile)	
24-hour SO_2 Increment	0.04 ppm (state)	
24-hour Sulfate Increment	25 ug/m^3 (state)	
1-hour CO Increment	20 ppm (state) & 35 ppm (federal)	
8-hour CO Increment	9.0 ppm (state/federal)	
Toxic Air Contaminants (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥10 in 1 million	
	Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million)	
	Chronic & Acute Hazard Index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
Greenhouse Gases	10,000 MT/yr CO_2e for industrial facilities	
	3,000 MT/yr CO_2e for land use projects (draft proposal)	

Source: SCAQMD 2023, 2008b.

Notes:

ROG = reactive organic gas (equivalent to VOC), NO_x = oxides of nitrogen, CO = carbon monoxide, SO_x = oxides of sulfur, PM_{10} = particulate matter with a diameter of 10 micrometers or smaller, $PM_{2.5}$ = particulate matter with a diameter of 2.5 micrometers or smaller, NO_2, = nitrogen dioxide, SO_2 = sulfur dioxide, $\mu g/m^3$ = micrograms per cubic meter, ppm = parts per million, MT/yr CO_2e = metric tons of carbon dioxide equivalents per year

4.1.1 Criteria Pollutants from Project Construction

A project's construction phase produces many types of emissions, generally PM_{10} (including $PM_{2.5}$) in fugitive dust and diesel engine exhaust are the pollutants of greatest concern. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}, as well as affecting PM_{10} compliance with ambient air quality standards on a regional basis. The use of diesel-powered construction equipment emits ozone precursors oxides of nitrogen (NO_x) and reactive organic gases (ROG), and diesel particulate matter (DPM); however, the use of diesel-powered equipment would be minimal. Use of architectural coatings and other materials associated with finishing buildings may also emit ROG and toxic air contaminants (TACs). CEQA significance thresholds address the impacts of construction activity emissions on local and regional air quality. Thresholds are also provided for other potential impacts related to project construction, such as TACs.

The SCAQMD's approach to CEQA analyses of fugitive dust impacts is to require implementation of effective and comprehensive dust control measures rather than to require detailed quantification of emissions. PM_{10} emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are several feasible control measures that can be reasonably implemented to significantly reduce fugitive dust emissions from construction. For larger projects, the SCAQMD has determined that compliance with an approved fugitive dust control plan comprising BMPs, primarily through frequent water application, constitutes sufficient control to reduce PM_{10} impacts to a level considered less than significant.

4.1.2 Criteria Pollutants from Project Operation

The term "project operations" refers to the full range of activities that can or may generate criteria pollutant, GHG, and TAC emissions when the project is functioning in its intended use. For projects, such as office parks, shopping centers, apartment buildings, residential subdivisions, and other indirect sources, motor vehicles traveling to and from the project represents the primary source of air pollutant emissions. For industrial projects, emissions from permitted stationary sources were estimated for the applicable facility types. The on-site mobile and stationary sources are summarized in Table 3-2. For Advanced Thermal Recycling, emissions from boiler/heaters equipment were included, and for Non-Combustion Thermal Technologies, emissions from a biogas (syngas) engine generator that may be associated with pyrolysis were included. CEQA significance thresholds address the impacts of operational emission sources on local and regional air quality.

4.1.3 Localized Significance Threshold Analysis

The SCAQMD's Localized Significance Threshold (LST) methodology (2008a) was used to analyze the neighborhood scale impacts of NO_x, CO, PM_{10}, and $PM_{2.5}$ associated with project-specific mass emissions. Introduced in 2003, the LST methodology was revised in 2008 to include the $PM_{2.5}$ significance threshold methodology and update the LST mass rate lookup tables for the new 1-hour NO_2 standard.

For determining localized air quality impacts from small projects in a defined geographic source-receptor area (SRA), the LST methodology provides mass emission rate lookup tables for 1-acre, 2-acre, and 5-acre parcels by SRA. The tabulated LSTs represent the maximum mass emissions from a project that will not cause or contribute to an exceedance of state or national ambient air quality standards (CAAQS or NAAQS) for the above pollutants and were developed based on ambient concentrations of these pollutants for each SRA in the South Coast Air Basin (SCAQMD 2008a).

For most land use projects, the highest daily emission rates occur during the site preparation and grading phases of construction; where applicable, these maximum daily emissions are used in the LST analysis. Since land use operational emissions – mainly from associated traffic – are dispersed over a wide area, localized impacts from project operation are substantially lower than during project construction. However, an Operational LST analysis was also performed. Localized mobile source emissions for project operation were calculated for a one-mile radius of the project site.

The LST of source-receptor area Zone 12 – South Central LA were used to evaluate the localized air quality impacts since this source-receptor area has the most stringent thresholds of the areas that are being considered for the Project sites. The 2-acre screening lookup tables were used to evaluate NO_x, CO, PM_{10}, and $PM_{2.5}$ impacts on nearby receptors. The impact evaluation was performed using the closest distance within SCAQMD LST tables of 25 meters (82 feet) for construction and operations (SCAQMD 2008a).

4.1.4 Greenhouse Gas Emissions from Construction and Operation

Greenhouse gases – primarily carbon dioxide (CO_2), methane (CH_4), and nitrous (N_2O) oxide, collectively reported as carbon dioxide equivalents (CO_2e) – are directly emitted from stationary source combustion of natural gas in equipment such as water heaters, boilers, process heaters, and furnaces. GHGs are also emitted from mobile sources such as on-road vehicles and off-road construction equipment burning fuels such as gasoline, diesel, biodiesel, propane, or natural gas (compressed or liquefied). Indirect GHG emissions result from electric power generated elsewhere (i.e., power plants) used to operate process equipment, lighting, and utilities at a facility. Also, included in GHG quantification is electric power used to pump the water supply (e.g., aqueducts, wells, pipelines) and disposal and decomposition of municipal waste in landfills. (CARB 2022a)

California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. The 2022 standards improved upon the 2019 standards for new construction of, and additions and alterations to, residential, commercial, and industrial buildings designed for human occupancy. The 2022 standards went into effect on January 1, 2023 [California Energy Code (CEC) 2022].

Since the Title 24 standards require energy conservation features in new construction (e.g., high-efficiency lighting, high-efficiency heating, ventilating, and air-conditioning (HVAC) systems, thermal insulation, double-glazed windows, water conserving plumbing fixtures, etc.), they indirectly regulate and reduce GHG emissions in buildings designed for human occupancy and nonresidential use (e.g., offices).

Using CalEEMod, direct on-site and off-site GHG emissions were estimated for construction and operation, and indirect offsite GHG emissions were estimated to account for electric power used by the proposed Projects, water conveyance, and solid waste disposal. The SCAQMD adopted an interim industrial facility mass emissions threshold of 10,000 metric tons (MT) CO_2e per year (SCAQMD 2023) and has proposed a residential building mass emissions threshold of 3,000 metric tons (MT) CO_2e per year. However, these thresholds have not been updated since 2008. (SCAQMD 2008b)

4.1.5 Results of Criteria and Greenhouse Gas Emissions Analyses

Table 4-3 shows criteria construction emissions and evaluates emissions against SCAQMD significance thresholds and LST at the nearest receptors.

Table 4-4 shows criteria operational emissions and evaluates emissions against SCAQMD significance thresholds and LST at the nearest receptors. Operational efficiency measures incorporate typical code-required energy and water conservation features. Off-site mobile-source emissions are included in these emissions estimates, along with construction emissions amortized over 30 years. As shown in Table 4-3 and 4-4, daily mass emissions of criteria pollutants and GHGs from construction and operation are below applicable SCAQMD significance thresholds and LST. In addition, as detailed in Section 1.2, construction and operation of downstream facilities directly and indirectly correlate with several pLAn targets, including diverting waste from landfills, expanding anaerobic digestion capacity, and expanding composting infrastructure. Thus, construction and operation of downstream facilities support the goals of the applicable local GHG reduction policies.

PROJECTED IMPACT: Less Than Significant (LTS)

Table 4-3: Construction Emissions Summary and Significance Evaluation

Facility Type	ROG (VOC) (lb/day)	NO_x (lb/day)	CO (lb/day)	SO_x (lb/day)	Total PM_{10} (lb/day)	Total $PM_{2.5}$ (lb/day)
Anaerobic Digestion	41.9	18.3	20.0	0.03	3.8	2.2
Aerobic Composting and Mulching	3.6	34.4	31.7	0.06	5.3	2.8
Clean Materials Recovery	41.9	18.3	20.0	0.03	3.8	2.2
Resource Recovery Center/Parks	12.2	15.9	16.2	0.02	3.6	2.1
Construction and Demolition	41.9	18.3	20.0	0.03	3.8	2.2
Mixed Material Processing	36.1	18.3	20.0	0.03	3.8	2.2
Advanced Thermal Recycling	60.5	18.3	22.2	0.03	3.8	2.2
Non-Combustion Thermal Technologies	30.3	18.3	20.0	0.03	3.8	2.2
CEQA Significance Threshold Evaluation	75	100	550	150	150	55
CEQA Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**
Localized Significance Threshold Evaluation	–	65	346	–	7	4
LST Pass/Fail	**–**	**Pass**	**Pass**	**–**	**Pass**	**Pass**

Sources: SCAQMD 2023, CalEEMod version 2022.1.1.18

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10} / $PM_{2.5}$ comprises fugitive dust plus engine exhaust

Source-receptor area – Zone 12 South Central LA County

Facilities are evaluated at an LST corresponding to a 2-acre active area, 25 meters to receptor

Table 4-4: Operational Emissions Summary and Significance Evaluation

Facility Type	ROG (VOC) (lb/day)	NO_X (lb/day)	CO (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)		$PM_{2.5}$ (lb/day)		CO_2e (MT/yr)
					Total Emissions	Localized Emissions	Total Emissions	Localized Emissions	
Anaerobic Digestion	5.8	7.8	19.6	0.1	1.3	0.3	0.5	0.2	1,870
Aerobic Composting and Mulching	0.5	9.3	17.4	0.1	1.9	0.2	0.6	0.1	2,621
Clean Materials Recovery	5.9	7.9	21.5	0.1	1.8	0.4	0.6	0.2	1,973
Resource Recovery Center/Parks	1.9	8.5	12.9	0.1	2.0	0.3	0.6	0.1	1,409
Construction and Demolition	5.9	7.9	21.7	0.1	1.8	0.4	0.6	0.2	2,129
Mixed Material Processing	5.5	9.7	19.8	0.1	1.9	0.4	0.7	0.2	1,788
Advanced Thermal Recycling	8.7	19.6	48.1	0.2	3.8	0.6	1.5	0.4	4,190
Non-Combustion Thermal Technologies	4.9	6.5	18.1	0.1	1.4	0.3	0.7	0.2	1,856
CEQA Significance Threshold Evaluation	55	55	550	150	150		55		10,000
CEQA Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**		**Pass**		**Pass**
Localized Significance Threshold Evaluation	—	65	346	—	—	2	—	1	—
LST Pass/Fail	—	**Pass**	**Pass**	—	—	**Pass**	—	**Pass**	—

Sources: SCAQMD 2023, 2008a, CalEEMod version 2022.1.1.18.

Notes:

lbs/day are winter or summer maxima for planned land use

Total PM_{10}/$PM_{2.5}$ comprises fugitive dust plus engine exhaust

Source-receptor area – Zone 12 South Central LA County

Facilities are evaluated at an LST corresponding to a 2-acre active area, 25 meters to receptor

Operational PM10 /PM2.5 includes 1 mile around project site for mobile source fugitive dust plus engine exhaust

GHG emissions comprises annual operational emissions plus construction emissions amortized over 30 years

5.0 PROGRAMMATIC HRA

5.1 Programmatic HRA Air Dispersion Modeling

From the eight facility types reviewed in this assessment, the Advanced Thermal Recycling facility case study (scenario 7) was identified as the scenario with the most truck trips per day, and thus the greatest potential for DPM emissions (CARB 2022b). Therefore, a mobile source health risk assessment (HRA) was conducted using an Advanced Thermal Recycling facility as a conservative assessment for all eight scenarios.

This HRA was conducted in accordance with SCAQMD Modeling Guidance for American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (SCAQMD 2006), Risk Assessment Procedures (SCAQMD 2017), and the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual (OEHHA 2015).

The air dispersion model used for this HRA is AERMOD (EPA 2022). AERMOD is a steady-state plume dispersion model that incorporates air dispersion calculations based on planetary boundary layer turbulence structure and scaling concepts. AERMOD includes the treatment of both surface and elevated sources and simple and complex terrain. AERMOD, like most dispersion models, uses mathematical algorithms to characterize the atmospheric processes that disperse pollutants emitted by a source. Using emission rates, exhaust parameters, terrain characteristics, and meteorological inputs, AERMOD calculates downwind pollutant concentrations at specified receptor locations. For this facility, the results from the AERMOD runs were imported into an HRA program for further processing and analysis. AERMOD is recommended by both the EPA and SCAQMD for stationary source air dispersion modeling projects. The air dispersion modeling methodology was based extensively on the SCAQMD's HRA guidelines (SCAQMD 2017). This methodology is described below.

The Lakes Environmental Software implementation/user interface, AERMOD View™, Version 11.2.0, was used for this project. This version of AERMOD View™ implements Version 22112 of AERMOD.

AERMOD was run with source emission rates in pounds per hour (lb/hr) to calculate the ground level concentration of DPM per receptor. The non-default option of flat terrain and the SCAQMD-default option of urban processing in AERMOD were selected. Per SCAQMD modeling guidance, AERMOD used the Los Angeles County population of 9,818,605.

Three years of AERMOD-ready preprocessed meteorological data files for 2012-2016 were obtained from SCAQMD for the KCQT USC meteorological station (SCAQMD 2016). This scenario represents a case study location of the maximum potential risk in any of the facility types and can be used to provide the upper bound of health risk impacts in a programmatic sense.

The AERMOD input file is available in Appendix C, and the full suite of electronic modeling files are available upon request. These files include the AERMOD meteorological files, dispersion model input and output files, summary file, and the individual source 1-hour and period plot files containing the ground level concentrations.

5.1.1 Source Characterization

Each emissions source associated with the Advanced Thermal Recycling case study was parameterized separately in AERMOD.

DPM emissions from the diesel powered off-road equipment (i.e., loaders, forklifts, roll-off vehicles, and grinders / shredders / screens) and diesel powered stationary sources (i.e., emergency engines, fire pumps) were modeled as a 9x9 grid of surface-based volume sources in the middle of the site, where a building would be expected for processing activities. DPM emissions from on-road trucks were parameterized in AERMOD as a ¼-mile (400-meter) line-volume source. It was set sufficiently long to capture the maximum downwind concentration from the trucks plus facility regardless of wind direction. The line-volume source represents a series of separated volume sources with parameters based on truck dimensions and the algorithms in the EPA's Haul Road Workgroup for volume sources (EPA 2012).

Source parameters for each source are detailed in Tables 5-1 and 5-2; the sources are shown in Figure 5-1.

Table 5-1: Source Parameters – Onroad Mobile Vehicles

Source ID	Source Type	Plume Height (m)	Plume Width (m)	Release Height (m)	Total Length (m)	Emission Rate (lb/hr)
TRUCKS	Line Volume	6.987	8.59	3.49	519.2	4.27E-3

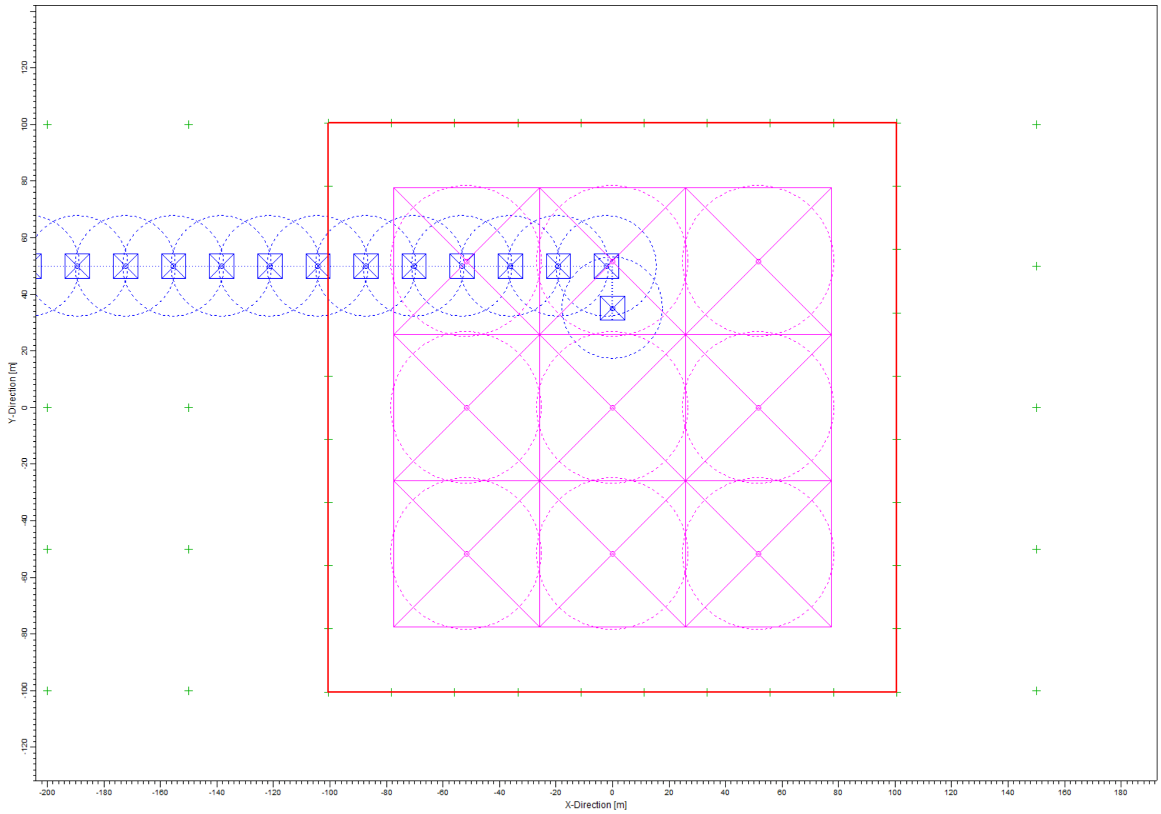
Table 5-2: Source Parameters – Off-Road Mobile and Stationary Equipment

Source ID	Source Type	Release Height (m)	Length of Side (m)	Initial Lateral Dimension (m)	Initial Vertical Dimension (m)	Emission Rate (lb/hr) (each)[1]
OFFROAD (1-9)	Volume	6.096	51.7	12.02	2.84	2.09E-4

Notes:

[1] Shows the emission rate for each of nine volume sources. All sources combined total 1.88E-3 pounds per hour.

Figure 5-1: Programmatic HRA Source Setup



Notes:

Site-wide off-road and stationary equipment volume source shown in pink.

Truck travel line volume source shown in blue.

Fence line (site boundary) is shown in red.

Receptor locations shown in green.

5.1.2 Variable Emission Scalars

AERMOD was run with actual emission rates for each source to calculate the ground level concentration of TACs from each source for a period (annual) averaging time per receptor.

The facility's incoming and out-going on-road trucks would be expected to operate from 8:00 am to 4:00 pm, 6 days a week, and therefore were modeled using emission scalars. The off-road equipment and stationary sources are expected to operate at any time during the day and were modeled in AERMOD using continuous emissions for every hour of the meteorological data, no emission scalars applied.

To account for the operating schedule in AERMOD, emission scalars were employed from hours 9 to 16. Per the Lakes AERMOD user's guide, for variable hourly emissions, "the hour displayed is for the end of the hour period. For example, the 9 am hour row will be for hour ending at 9 am (8:00:01 am to 9:00:00 am)."

Since the facility's on-road trucks operate 8 hours a day, Monday – Saturday, the mobile source period ground level concentrations were estimated by setting the emission scalar hour of day (HROFDY) to 3.5 (= (24 x 7) / (8 x 6)) for hours 9 through 16 (Monday – Saturday) in AERMOD. The remaining hours had HROFDY values of 0.

5.1.3 Receptor Locations

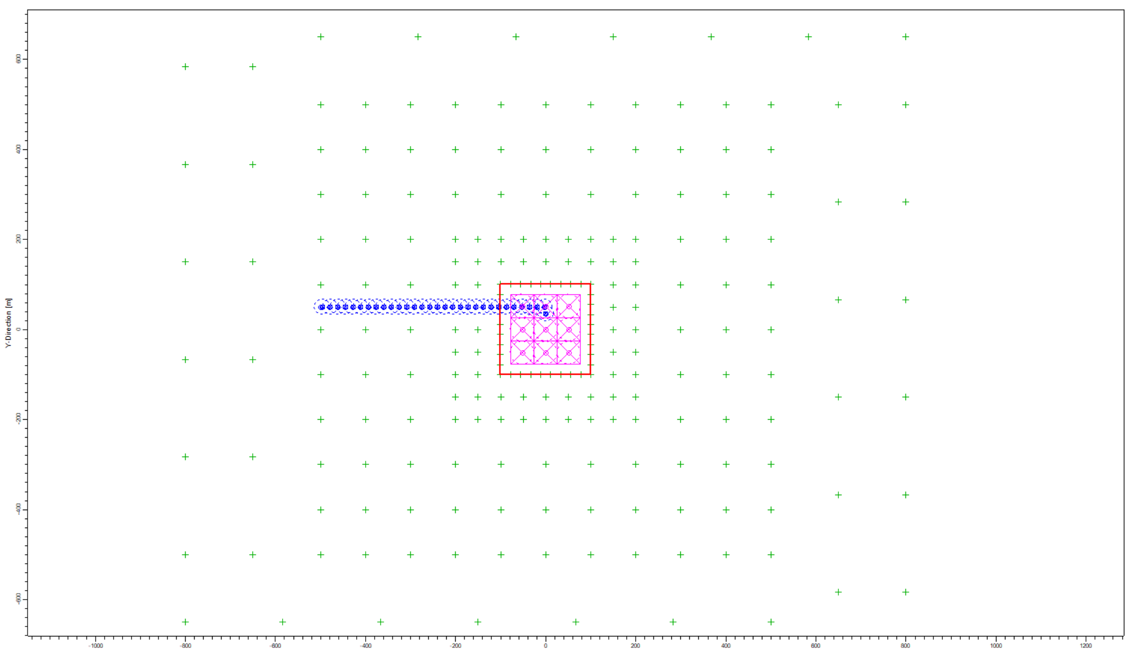
Grid receptors representing nearby residents, sensitive receptors, and off-site workers were located (1 meter = 3.28084 feet):

- Every 25 meters along the facility boundary;
- At 50-meter spacing from the facility boundary out to 100 meters; and
- At 100-meter spacing within 100 meters and 400 meters of the facility boundary; and
- At 150-meter spacing within 400 meters and 700 meters of the facility boundary.

Since AERMOD does not correctly predict concentrations for receptors within volume source exclusion zones, receptors located within the facility boundary or within the truck volume source exclusion zone were excluded.

Figure 5-1 above shows the geometry of the facility, sources, and receptor locations. Figure 5-2 illustrates the large-scale source geometry showing the site-wide volume source, truck line volume source, fenceline, and receptor locations.

Figure 5-2: Programmatic HRA Receptor Model Setup



5.2 Health Risk Assessment Calculations

The programmatic HRA health risk calculations were performed using the HARP2 Air Dispersion Modeling and Risk Tool [ADMRT, version 22118] (CARB 2022c). The period-averaged ground level concentrations that were determined for each source using AERMOD were imported into HARP2 and were then used to estimate the long-term cancer health risk from DPM to an individual.

A description of the health risk indices and associated calculations conducted in HARP2 is provided below. Since DPM is the only TAC in this programmatic HRA, and only carcinogenic toxicity values are documented for DPM, only cancer risk assessments were conducted.

5.2.1 Cancer Risk

Cancer risk is the estimated probability of a maximally exposed individual potentially contracting cancer as a result of exposure to TACs over a period of time. Cancer risk at all receptors was estimated over a 30-year period, representing an individual's high-end residency time.

Residential receptor cancer risk estimates were calculated using the California Air Resources Board's (CARB's) Risk Management Policy (RMP), "RMP Using the Derived Method," and off-site workplace cancer risk estimates used the "OEHHA Derived" calculation method. The RMP uses high-end breathing rates (95th percentile) for children from the 3rd trimester through age 2 and 80th percentile breathing rates for all other ages for residential exposures (CARB/CAPCOA 2015). The "OEHHA Derived" method uses high-end exposure parameters for the top two exposure pathways and mean exposure parameters for the remaining pathways for cancer risk estimates. The "RMP Using the Derived Method" combines the two approaches.

5.2.2 Projected Cancer Risk with 2045 Zero-Emission Mobile Sources

In support of the City of Los Angeles Sustainability goals of 100% fleet electrification, LASAN is looking to electrify its fleet of solid waste collection vehicles by 2035. To illustrate the relative health impacts associated with a decrease in mobile source emissions, a residential receptor cancer risk prediction was also calculated based on the mobile source truck emissions linearly decreasing to zero. For a conservative analysis, consistent with the *2022 Scoping Plan for Achieving Carbon Neutrality* (CARB 2022a), an assumption that the fleet would not be fully converted until 2045 is used herein.

Table 5-3 provides details on mobile source emission reductions. In this case, a Tier 2 Exposure Duration of 5 years was selected in HARP2 starting at the 3rd trimester and sequentially re-run five times in 5-year increments. The 5-year cancer risks were then summed to yield the 2025-2055 30-year cancer risk. A similar scaling was conducted for worker receptors, but for a 25-year duration with a 16-year-old start age. Table 5-4 provides a listing of the HARP2 options that were selected for the analysis.

Table 5-3: 2045 Zero-Emission Mobile Source Scaling

Age Group	Corresponding Years	Mobile Source Emissions
Residential Receptors		
3rd Trimester – 5 years old	2025 -2030	100%
5 – 10 years old	2030 – 2035	75%
10 – 15 years old	2035 – 2040	50%
15 – 20 years old	2040 – 2045	25%
20 – 25 years old	2045 – 2050	0%
25 – 30 years old	2050 – 2055	0%
Worker Receptors		
16 – 21 years old	2025 -2030	100%
21 – 26 years old	2030 – 2035	75%
26 – 31 years old	2035 – 2040	50%
31 – 36 years old	2040 – 2045	25%
36 – 41 years old	2045 – 2050	0%

Table 5-4: HARP2 Model Options

Parameter	Assumptions				Comments
Multi-Pathway					
Inhalation	Res	☒	Work	☒	–
Soil	Res	☒	Work	☒	–
Dermal	Res	☒	Work	☒	"Warm" climate
Mother's Milk	Res	☒	Work	☐	–
Drinking Water	Res	☐	Work	☐	–
Fish	Res	☐	Work	☐	–
Homegrown Produce	Res	☒	Work	☐	Default for "Households that Garden"
Beef/Dairy	Res	☐	Work	☐	–
Pigs, Chickens, and/or Eggs	Res	☐	Work	☐	
Deposition Velocity	0.02 m/s				
Cancer Risk Assumptions					
Exposure Duration	30 years				Cancer risk also calculated using Tier 2 exposure duration (see Table 5-3)
Fraction of Time at Home	3rd Trimester to 16 years: Off 16 years to 30 years: On				SCAQMD Default
Analysis Option	RMP Using the Derived Method				–
Worker Risk Assumptions					
Exposure Duration	25 years				Cancer risk also calculated using Tier 2 exposure duration (see Table 5-3)
Analysis Option	OEHHA Derived Method				–
Inhalation Rate Basis	8-hr breathing rates, moderate intensity				–

5.3 Programmatic HRA Results

The programmatic HRA examined a case study LASAN waste processing facility that indicated the largest amount of truck trips per day and subsequently the largest amount of TAC emissions, and it was predicted that all health risk factors were less than the CEQA significance thresholds (summarized in Table 4-2) at all modeled receptors. The results of the programmatic HRA are summarized in Table 5-5.

The highest cancer risks were predicted at the site fenceline and rapidly decreased with distance. The maximum cancer risk was predicted to occur on the fenceline between the site and truck sources. This location would be inaccessible or in the road, and thus is an extremely conservative receptor location. The nearest residential receptor was assumed to be at the end of the mobile source line (400 meters from the fenceline) and the nearest worker receptor was assumed to be located at the fenceline. All health risk values were predicted to be less than the CEQA significance thresholds.

Table 5-5: Summary of Programmatic HRA Results

Parameter	Receptor	UTM Easting Coordinate (m)[2]	UTM Northing Coordinate (m)[2]	Estimated Risk Value	CEQA Significance Threshold[1]	Significance Threshold Evaluation
Residential Cancer Risk	146	-500	100	6.84	10 in one million	**Pass**
Residential Cancer Risk with Zero Emission Mobile Source Scaling	146	-500	100	5.72		**Pass**
Worker Cancer Risk	216	-100.5	78.17	2.88		**Pass**
Worker Cancer Risk with Zero Emission Mobile Source Scaling	216	-100.5	78.17	1.92		**Pass**

[1] Source: SCAQMD 2023.

[2] UTM coordinates are relative to the center of the facility.

6.0 ENERGY IMPACT ANALYSIS

Industrial project energy consumption primarily comprises: 1) mobile source fuels (i.e., diesel, gasoline) used for construction; 2) area and mobile source fuels used for operation; and 3) building utilities (natural gas and electric power).

6.1 Project Construction Fuel Consumption

The fuel consumption from the mobiles sources used for construction was calculated from the results of the CalEEMod modeling procedure. CalEEMod calculates mass emissions of GHGs, including non-biogenic CO_2, from offroad and onroad mobile sources associated with project construction. CO_2 emissions from mobile source fuel combustion during project construction are included in the CO_2 emissions shown in Table 4-3. For construction of the proposed facilities, CalEEMod aggregates mobile source CO_2 emissions into three broad categories (typical fuel types assumed):

- Offroad equipment [diesel (Tiers 1-4)];
- Vendor [medium-heavy and heavy-heavy duty diesel trucks (MHDT, HHDT)]; and
- Worker [light duty gasoline automobiles and trucks (LDA, LDT1, LDT2)].

For each category, diesel and gasoline fuel consumption can be estimated (back calculated) using 2020 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels:

- Diesel Fuel Oil No. 2: 10.21 kg CO_2 per gallon [22.51 lbs CO_2 per gallon]; and
- Motor Gasoline: 8.78 kg CO_2 per gallon [19.36 lbs CO_2 per gallon].

Using the CalEEMod annual emissions results (MT CO_2) for each of the four mobile source categories (offroad, vendor, worker) and the corresponding CO_2 emission factors. Table 6-1 shows estimated fuel consumption during project construction.

Table 6-1: Construction Mobile Source Energy Use – CalEEMod Basis

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons)
Anaerobic Digestion	Offroad	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
			Diesel	4,620
Aerobic Composting and Mulching	Offroad	Fleet Average	Diesel	40,260
	Worker	LDA, LDT1, LDT2	Gasoline	1,500
	Vendor	MHDT, HHDT	Diesel	40
Clean Materials Recovery	Offroad	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
			Diesel	4,620
Resource Recovery Center/Parks	Offroad	Fleet Average	Diesel	20,280
	Worker	LDA, LDT1, LDT2	Gasoline	2,690
	Vendor	MHDT, HHDT	Gasoline	150
			Diesel	1,330
Construction and Demolition	Offroad	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	7,700
	Vendor	MHDT, HHDT	Gasoline	530
			Diesel	4,620
Mixed Material Processing	Offroad	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	6,790
	Vendor	MHDT, HHDT	Gasoline	460
			Diesel	3,980
Advanced Thermal Recycling	Offroad	Fleet Average	Diesel	25,710
	Worker	LDA, LDT1, LDT2	Gasoline	10,620
	Vendor	MHDT, HHDT	Gasoline	770
			Diesel	6,670
Non-Combustion Thermal Technologies	Offroad	Fleet Average	Diesel	25,640
	Worker	LDA, LDT1, LDT2	Gasoline	5,910
	Vendor	MHDT, HHDT	Gasoline	380
			Diesel	3,340

Sources: CalEEMod version 2022.1.1.18, TCR 2022 (40 CFR 98 Subpart C), EMFAC 2021.

Notes:

For Onroad HDT Mix: 9% Gasoline, 91% Diesel (EMFAC 2021); applies to Vendor

6.2 Project Operation Fuel Consumption

Similar to construction, CalEEMod calculates mass emissions of non-biogenic CO_2 from area, stationary, and mobile sources associated with project operation. CO_2 emissions from fuel combustion during project operation are included in the CO_2 emissions shown in Table 4-4. For operation, CalEEMod aggregates area and mobile source CO_2 emissions into three broad categories (typical fuel types assumed):

- Offroad utility equipment [diesel];
- Heavy Mobile [medium-heavy and heavy-heavy duty predominately diesel trucks (MHDT, HHDT)]; and
- Light Mobile [light duty gasoline automobiles and trucks (LDA, LDT1, LDT2)].

For each category, diesel and gasoline fuel consumption can be estimated (back calculated) using 2020 Climate Registry (40 CFR 98 Subpart C) emission factors for those fuels.

Using the CalEEMod annual emissions results (MT CO_2) for the area and mobile source categories and the corresponding CO_2 emission factors. Table 6-2 shows estimated fuel consumption during project operation.

Table 6-2: Operational Area and Mobile Source Energy Use – CalEEMod Basis

Facility Type	Mobile Sources	Types	Fuels	Fuel Consumption (gallons/yr)
Anaerobic Digestion	Offroad	Tier 4	Diesel	10,550
	Onroad	MHDT, HHDT	Diesel	46,580
		LDA, LDT1, LDT2	Gasoline	990
	Stationary	Emergency	Diesel	380
Aerobic Composting and Mulching	Offroad	Tier 4	Diesel	21,100
	Onroad	MHDT, HHDT	Diesel	85,300
		LDA, LDT1, LDT2	Gasoline	1,100
	Stationary	Emergency	Diesel	NA
Clean Materials Recovery	Offroad	Tier 4	Diesel	10,550
	Onroad	MHDT, HHDT	Diesel	55,350
		LDA, LDT1, LDT2	Gasoline	2,400
	Stationary	Emergency	Diesel	260
Resource Recovery Center/Parks	Offroad	Tier 4	Diesel	9,120
	Onroad	MHDT, HHDT	Diesel	88,220
		LDA, LDT1, LDT2	Gasoline	1,140
	Stationary	Emergency	Diesel	NA
Construction and Demolition	Offroad	Tier 4	Diesel	10,550
	Onroad	MHDT, HHDT	Diesel	56,110
		LDA, LDT1, LDT2	Gasoline	2,580
	Stationary	Emergency	Diesel	260
Mixed Material Processing	Offroad	Tier 4	Diesel	9,120
	Onroad	MHDT, HHDT	Diesel	55,460
		LDA, LDT1, LDT2	Gasoline	2,760
	Stationary	Emergency	Diesel	260
Advanced Thermal Recycling	Offroad	Tier 4	Diesel	31,650
	Onroad	MHDT, HHDT	Diesel	148,540
		LDA, LDT1, LDT2	Gasoline	1,570
	Stationary	Emergency	Diesel	380
Non-Combustion Thermal Technologies	Offroad	Tier 4	Diesel	10,550
	Onroad	MHDT, HHDT	Diesel	34,710
		LDA, LDT1, LDT2	Gasoline	1,330
	Stationary	Emergency	Diesel	380

Sources: CalEEMod version 2022.1.1.18, TCR 2022 (40 CFR 98 Subpart C), EMFAC 2021.

Notes:

For Onroad HDT Mix: 9% Gasoline, 91% Diesel (EMFAC 2021); adjusted for onroad fleet mix

6.3 Project Operation Utilities Consumption

Based on CalEEMod for the defined land use, Table 6-3 shows estimated natural gas and electric power usage for the proposed project. Natural gas usage for the external combustion heater/boiler operating at the Advanced Thermal Recycling facility and the internal combustion engine-generator operating at the Non-Combustion Thermal Technologies facility are calculated separately and added to the CalEEMod figures for those two facilities. These calculations are included in Appendix B.

Table 6-3: Operational Utility Energy Use – CalEEMod Basis

Facility Type	Parcel Size (acres)	Building Size (ft^2)	Electric Power (MWh/yr)	Natural Gas (mmBtu/yr)
Anaerobic Digestion	7	180,000	1,744	6,361
Aerobic Composting and Mulching	30	1,600	15	57
Clean Materials Recovery	7	180,000	1,744	6,361
Resource Recovery Centers/Parks	2	52,000	504	1,837
Construction and Demolition	10	180,000	1,744	6,361
Mixed Material Processing	6	155,000	1,501	5,477
Advanced Thermal Recycling	10	260,000	2,518	17,947
Non-Combustion Thermal Technologies	5	130,000	1,259	13,354

Source: CalEEMod 2022.1.1.18.

Utilities: LADWP, SoCalGas

6.4 Analysis of Energy Significance Criteria

Impacts to energy resources would be considered significant if any of the following criteria are met. Would the project:

a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

   No. The proposed energy use will not be done in a wasteful and/or inefficient manner. Project construction will be performed by contractors with an economic incentive to minimize costs, one element of which is fuel conservation.

   The purpose of the proposed Project is to evaluate the impacts of single-use plastics, textiles, and related materials with regard to the amount of plastic and textile wastes going into landfills, depositing on beaches, accumulating on land, and therefore will result in reduction of waste. The Anaerobic Digestion Facility converts organic waste to energy using bacteria to break down waste to produce biogas, which consists primarily of methane and carbon dioxide. With a proper feedstock, these reactions can reduce the volume of waste by 70%, provide energy, and residuals can be sent to a compost facility. Advanced Thermal Recycling Facilities use residual waste from residential or commercial generators, or other solid waste facilities, to produce energy. Non-Combustion Thermal Technologies (including plasma arc gasification, gasification, and pyrolysis) treat waste producing a synthesis gas that can be used to produce electricity or can be converted into a transportation fuel. With a proper feedstock, this process can reduce the volume of waste by 80% and produces more energy than is required for processing the materials.

PROJECTED IMPACT: Less Than Significant (LTS)

b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

No. The proposed Project would not conflict with or obstruct any adopted energy conservation plans or state or local plans for renewable energy or energy efficiency. The California Building Energy Efficiency Standards (24 California Code of Regulations, Parts 6 and 11) are designed to reduce unnecessary energy consumption in newly constructed and existing buildings, such as residential and commercial structures. The Building Energy Efficiency Standards are not applicable for a structure or warehouse for industrial process equipment not designed or intended for human habitation. Further, consistent with the 2045 carbon neutrality goal (CARB 2022a), it is projected that zero-carbon emission electric and hydrogen equipment and vehicles will gradually replace traditional liquid-fueled mobile sources in urban fleet applications where overnight recharging and refueling can be done at designated facilities. Thus, the proposed Project would not conflict with Title 24 or obstruct its implementation on applicable land use development projects in California.

PROJECTED IMPACT: Less Than Significant (LTS)

7.0 AIR QUALITY AND GHG REFERENCES

7.1 Emissions Estimation

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South Coast Air Quality Management District (SCAQMD). 2006. South Coast AQMD Modeling Guidance for AERMOD. Website (http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance) accessed September 11, 2023.

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APPENDIX A – CALEEMOD OUTPUTS

Anaerobic Digestion v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Anaerobic Digestion v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	305	1000sqft	7.00	180,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Mit.	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422

Mit.	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331
Mit.	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386
Mit.	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.32	7.66	19.6	0.05	0.26	1.07	1.33	0.26	0.28	0.54	339	10,781	11,120	34.9	0.84	56.1	12,299
Mit.	5.80	7.66	19.6	0.05	0.26	1.07	1.33	0.26	0.28	0.54	326	10,696	11,022	33.6	0.81	56.1	12,158
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.03	7.76	11.7	0.05	0.25	1.07	1.32	0.25	0.28	0.53	339	10,741	11,080	34.9	0.84	47.1	12,250
Mit.	4.51	7.76	11.7	0.05	0.25	1.07	1.32	0.25	0.28	0.53	326	10,655	10,981	33.6	0.81	47.1	12,109
% Reduced	10%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.56	6.03	13.9	0.04	0.19	0.91	1.10	0.19	0.24	0.43	339	9,865	10,204	34.9	0.77	50.3	11,356
Mit.	5.05	6.03	13.9	0.04	0.19	0.91	1.10	0.19	0.24	0.43	326	9,780	10,106	33.5	0.74	50.3	11,215
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.02	1.10	2.54	0.01	0.04	0.17	0.20	0.03	0.04	0.08	56.1	1,633	1,689	5.77	0.13	8.32	1,880
Mit.	0.92	1.10	2.54	0.01	0.04	0.17	0.20	0.03	0.04	0.08	54.0	1,619	1,673	5.55	0.12	8.32	1,857
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Area	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492

Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	6.32	7.66	19.6	0.05	0.26	1.07	1.33	0.26	0.28	0.54	339	10,781	11,120	34.9	0.84	56.1	12,299
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551
Area	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	5.03	7.76	11.7	0.05	0.25	1.07	1.32	0.25	0.28	0.53	339	10,741	11,080	34.9	0.84	47.1	12,250
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.17	3.43	2.44	0.03	0.03	0.91	0.94	0.03	0.24	0.27	—	2,925	2,925	0.12	0.39	3.43	3,049
Area	5.19	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7

Total	5.56	6.03	13.9	0.04	0.19	0.91	1.10	0.19	0.24	0.43	339	9,865	10,204	34.9	0.77	50.3	11,356
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505
Area	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887
Water	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247
Waste	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	1.02	1.10	2.54	0.01	0.04	0.17	0.20	0.03	0.04	0.08	56.1	1,633	1,689	5.77	0.13	8.32	1,880

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Area	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	5.80	7.66	19.6	0.05	0.26	1.07	1.33	0.26	0.28	0.54	326	10,696	11,022	33.6	0.81	56.1	12,158

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551
Area	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	4.51	7.76	11.7	0.05	0.25	1.07	1.32	0.25	0.28	0.53	326	10,655	10,981	33.6	0.81	47.1	12,109
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.17	3.43	2.44	0.03	0.03	0.91	0.94	0.03	0.24	0.27	—	2,925	2,925	0.12	0.39	3.43	3,049
Area	4.67	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7
Total	5.05	6.03	13.9	0.04	0.19	0.91	1.10	0.19	0.24	0.43	326	9,780	10,106	33.5	0.74	50.3	11,215
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505
Area	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887

Water	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224
Waste	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	0.92	1.10	2.54	0.01	0.04	0.17	0.20	0.03	0.04	0.08	54.0	1,619	1,673	5.55	0.12	8.32	1,857

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	83.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	4.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.83	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	41.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Total	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551
Total	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505
Total	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Total	0.20	3.82	2.92	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,419	3,419	0.14	0.46	9.26	3,568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551
Total	0.19	3.98	2.83	0.03	0.04	1.07	1.10	0.04	0.28	0.32	—	3,411	3,411	0.14	0.46	0.24	3,551
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505
Total	0.03	0.63	0.45	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	—	484	484	0.02	0.07	0.57	505

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

Total	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Total	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Total	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Total	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247
Total	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Total	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Total	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224
Total	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Total	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713

Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Total	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916

Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00

Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergen Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—

Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—

Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	270,000	90,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	138	138	0.00	43,175	1,292	1,292	0.00	404,108

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	138	138	0.00	43,175	1,292	1,292	0.00	404,108

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	270,000	90,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	70,512,750	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	63,849,295	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	378	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	378	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50
Fire Pump	Diesel	1.00	1.00	50.0	50.0	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—
CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5

Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—

Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8
Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0

No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Aerobic Composting v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Aerobic Composting v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	1,307	1000sqft	30.0	1,600	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.61	34.4	31.7	0.06	1.45	9.47	10.9	1.33	3.72	5.05	—	6,881	6,881	0.28	0.06	1.11	6,907
Mit.	3.61	34.4	31.7	0.06	1.45	3.85	5.30	1.33	1.49	2.82	—	6,881	6,881	0.28	0.06	1.11	6,907
% Reduced	—	—	—	—	—	59%	51%	—	60%	44%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.61	34.4	31.4	0.06	1.45	9.47	10.9	1.33	3.72	5.05	—	6,866	6,866	0.28	0.06	0.03	6,892

Mit.	3.61	34.4	31.4	0.06	1.45	3.85	5.30	1.33	1.49	2.82	—	6,866	6,866	0.28	0.06	0.03	6,892
% Reduced	—	—	—	—	—	59%	51%	—	60%	44%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.37	12.5	12.6	0.02	0.54	2.35	2.88	0.49	0.92	1.41	—	2,565	2,565	0.10	0.02	0.14	2,575
Mit.	1.35	12.5	12.6	0.02	0.54	0.96	1.50	0.49	0.37	0.86	—	2,565	2,565	0.10	0.02	0.14	2,575
% Reduced	1%	—	—	—	—	59%	48%	—	60%	39%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.25	2.29	2.30	< 0.005	0.10	0.43	0.53	0.09	0.17	0.26	—	425	425	0.02	< 0.005	0.02	426
Mit.	0.25	2.29	2.30	< 0.005	0.10	0.18	0.27	0.09	0.07	0.16	—	425	425	0.02	< 0.005	0.02	426
% Reduced	1%	—	—	—	—	59%	48%	—	60%	39%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.61	34.4	31.7	0.06	1.45	9.47	10.9	1.33	3.72	5.05	—	6,881	6,881	0.28	0.06	1.11	6,907
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.61	34.4	31.4	0.06	1.45	9.47	10.9	1.33	3.72	5.05	—	6,866	6,866	0.28	0.06	0.03	6,892
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.37	12.5	12.6	0.02	0.54	2.35	2.88	0.49	0.92	1.41	—	2,565	2,565	0.10	0.02	0.14	2,575

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.25	2.29	2.30	< 0.005	0.10	0.43	0.53	0.09	0.17	0.26	—	425	425	0.02	< 0.005	0.02	426

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.61	34.4	31.7	0.06	1.45	3.85	5.30	1.33	1.49	2.82	—	6,881	6,881	0.28	0.06	1.11	6,907
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.61	34.4	31.4	0.06	1.45	3.85	5.30	1.33	1.49	2.82	—	6,866	6,866	0.28	0.06	0.03	6,892
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.35	12.5	12.6	0.02	0.54	0.96	1.50	0.49	0.37	0.86	—	2,565	2,565	0.10	0.02	0.14	2,575
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.25	2.29	2.30	< 0.005	0.10	0.18	0.27	0.09	0.07	0.16	—	425	425	0.02	< 0.005	0.02	426

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.53	9.01	17.4	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,452	11,977	13,429	147	2.31	17.1	17,817
Mit.	0.52	9.01	17.4	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,398	11,609	13,007	142	2.17	17.1	17,213
% Reduced	1%	—	—	—	—	—	—	—	—	—	4%	3%	3%	4%	6%	—	3%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51	9.30	17.3	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,452	11,969	13,422	147	2.31	0.85	17,794
Mit.	0.50	9.30	17.3	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,398	11,602	12,999	142	2.18	0.85	17,190
% Reduced	1%	—	—	—	—	—	—	—	—	—	4%	3%	3%	4%	6%	—	3%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.42	7.74	13.0	0.06	0.08	1.56	1.64	0.08	0.41	0.50	1,452	10,559	12,011	147	2.19	6.59	16,350
Mit.	0.42	7.74	13.0	0.06	0.08	1.56	1.64	0.08	0.41	0.50	1,398	10,191	11,589	142	2.05	6.59	15,746
% Reduced	1%	—	—	—	—	—	—	—	—	—	4%	3%	4%	4%	6%	—	4%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	1.41	2.37	0.01	0.02	0.28	0.30	0.01	0.08	0.09	240	1,748	1,989	24.4	0.36	1.09	2,707
Mit.	0.08	1.41	2.37	0.01	0.02	0.28	0.30	0.01	0.08	0.09	231	1,687	1,919	23.4	0.34	1.09	2,607
% Reduced	1%	—	—	—	—	—	—	—	—	—	4%	3%	4%	4%	6%	—	4%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487
Area	0.05	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394

Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Off-Road	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Total	0.53	9.01	17.4	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,452	11,977	13,429	147	2.31	17.1	17,817
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Area	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Off-Road	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Total	0.51	9.30	17.3	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,452	11,969	13,422	147	2.31	0.85	17,794
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.24	6.35	3.84	0.05	0.06	1.56	1.62	0.06	0.41	0.47	—	5,319	5,319	0.22	0.73	6.17	5,547
Area	0.05	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.20	0.20	< 0.005	< 0.005	—	0.20
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Off-Road	0.13	1.38	9.10	0.01	0.02	—	0.02	0.02	—	0.02	—	1,301	1,301	0.05	0.01	—	1,306
Total	0.42	7.74	13.0	0.06	0.08	1.56	1.64	0.08	0.41	0.50	1,452	10,559	12,011	147	2.19	6.59	16,350
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918
Area	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.85	7.85	< 0.005	< 0.005	—	7.88

Water	—	—	—	—	—	—	—	—	—	—	95.9	644	740	9.88	0.24	—	1,059
Waste	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Off-Road	0.02	0.25	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	215	215	0.01	< 0.005	—	216
Total	0.08	1.41	2.37	0.01	0.02	0.28	0.30	0.01	0.08	0.09	240	1,748	1,989	24.4	0.36	1.09	2,707

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487
Area	0.05	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Off-Road	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Total	0.52	9.01	17.4	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,398	11,609	13,007	142	2.17	17.1	17,213
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Area	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

Off-Road	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Total	0.50	9.30	17.3	0.07	0.10	1.83	1.94	0.10	0.49	0.59	1,398	11,602	12,999	142	2.18	0.85	17,190
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.24	6.35	3.84	0.05	0.06	1.56	1.62	0.06	0.41	0.47	—	5,319	5,319	0.22	0.73	6.17	5,547
Area	0.04	< 0.005	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.20	0.20	< 0.005	< 0.005	—	0.20
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	47.4	47.4	< 0.005	< 0.005	—	47.6
Water	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Waste	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Off-Road	0.13	1.38	9.10	0.01	0.02	—	0.02	0.02	—	0.02	—	1,301	1,301	0.05	0.01	—	1,306
Total	0.42	7.74	13.0	0.06	0.08	1.56	1.64	0.08	0.41	0.50	1,398	10,191	11,589	142	2.05	6.59	15,746
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918
Area	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Energy	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.85	7.85	< 0.005	< 0.005	—	7.88
Water	—	—	—	—	—	—	—	—	—	—	86.8	583	670	8.94	0.22	—	958
Waste	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Off-Road	0.02	0.25	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	215	215	0.01	< 0.005	—	216
Total	0.08	1.41	2.37	0.01	0.02	0.28	0.30	0.01	0.08	0.09	231	1,687	1,919	23.4	0.34	1.09	2,607

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	9.20	9.20	—	3.65	3.65	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	8.45	7.44	0.02	0.36	—	0.36	0.33	—	0.33	—	1,627	1,627	0.07	0.01	—	1,633
Dust From Material Movement	—	—	—	—	—	2.27	2.27	—	0.90	0.90	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.16	1.54	1.36	< 0.005	0.07	—	0.07	0.06	—	0.06	—	269	269	0.01	< 0.005	—	270
Dust From Material Movement	—	—	—	—	—	0.41	0.41	—	0.16	0.16	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.0	67.0	< 0.005	< 0.005	0.12	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.52	34.3	30.2	0.06	1.45	—	1.45	1.33	—	1.33	—	6,598	6,598	0.27	0.05	—	6,621
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.87	8.45	7.44	0.02	0.36	—	0.36	0.33	—	0.33	—	1,627	1,627	0.07	0.01	—	1,633
Dust From Material Movement	—	—	—	—	—	0.89	0.89	—	0.35	0.35	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.54	1.36	< 0.005	0.07	—	0.07	0.06	—	0.06	—	269	269	0.01	< 0.005	—	270
Dust From Material Movement	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.28	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	268	268	0.01	0.01	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.33	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	67.0	67.0	< 0.005	< 0.005	0.12	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.04	—
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.46	8.46	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.99	8.99	< 0.005	< 0.005	< 0.005	—
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.46	8.46	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	0.01	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.78	2.78	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.49	9.49	< 0.005	< 0.005	0.04	—
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.46	8.46	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.99	8.99	< 0.005	< 0.005	< 0.005	—

Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.46	8.46	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.00	3.00	< 0.005	< 0.005	0.01	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.78	2.78	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.50	0.50	< 0.005	< 0.005	< 0.005	—
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.46	0.46	< 0.005	< 0.005	< 0.005	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.80	1.80	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	0.37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.80	1.80	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.10	0.10	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.02	0.02	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487
Total	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Total	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918
Total	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487
Total	0.29	7.06	4.54	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,212	6,212	0.26	0.85	16.7	6,487

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Total	0.28	7.36	4.47	0.06	0.07	1.83	1.90	0.07	0.49	0.55	—	6,204	6,204	0.26	0.85	0.43	6,464
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918
Total	0.04	1.16	0.70	0.01	0.01	0.28	0.30	0.01	0.08	0.09	—	881	881	0.04	0.12	1.02	918

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Total	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Total	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4.85	4.85	< 0.005	< 0.005	—	4.88
Total	—	—	—	—	—	—	—	—	—	—	—	4.85	4.85	< 0.005	< 0.005	—	4.88

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Total	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Total	—	—	—	—	—	—	—	—	—	—	—	29.3	29.3	< 0.005	< 0.005	—	29.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4.85	4.85	< 0.005	< 0.005	—	4.88
Total	—	—	—	—	—	—	—	—	—	—	—	4.85	4.85	< 0.005	< 0.005	—	4.88

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01
Total	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.00	3.00	< 0.005	< 0.005	—	3.01

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Total	0.05	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.01	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Total	0.05	< 0.005	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.29	0.29	< 0.005	< 0.005	—	0.29
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03
Total	0.01	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.03	0.03	< 0.005	< 0.005	—	0.03

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Total	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Total	—	—	—	—	—	—	—	—	—	—	579	3,891	4,470	59.7	1.45	—	6,394
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	95.9	644	740	9.88	0.24	—	1,059
Total	—	—	—	—	—	—	—	—	—	—	95.9	644	740	9.88	0.24	—	1,059

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Total	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Total	—	—	—	—	—	—	—	—	—	—	524	3,523	4,048	54.0	1.31	—	5,789
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	86.8	583	670	8.94	0.22	—	958
Total	—	—	—	—	—	—	—	—	—	—	86.8	583	670	8.94	0.22	—	958

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Total	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Total	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506

Total	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Total	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Total	—	—	—	—	—	—	—	—	—	—	873	0.00	873	87.3	0.00	—	3,055
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506
Total	—	—	—	—	—	—	—	—	—	—	145	0.00	145	14.5	0.00	—	506

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.05	0.29	4.06	0.01	0.01	—	0.01	0.01	—	0.01	—	581	581	0.02	< 0.005	—	—
Forklifts	0.03	0.15	2.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	—
Other Material Handling Equipment	0.07	0.34	4.86	0.01	0.01	—	0.01	0.01	—	0.01	—	694	694	0.03	0.01	—	—
Other General Industrial Equipment	0.04	1.15	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	247	247	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,833

Total	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.05	0.29	4.06	0.01	0.01	—	0.01	0.01	—	0.01	—	581	581	0.02	< 0.005	—	—
Forklifts	0.03	0.15	2.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	—
Other Material Handling Equipment	0.07	0.34	4.86	0.01	0.01	—	0.01	0.01	—	0.01	—	694	694	0.03	0.01	—	—
Other General Industrial Equipment	0.04	1.15	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	247	247	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,833
Total	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01	0.04	0.53	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.5	68.5	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.02	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.0	36.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.01	0.04	0.63	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	81.8	81.8	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.15	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.1	29.1	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	216
Total	0.02	0.25	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	215	215	0.01	< 0.005	—	216

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.05	0.29	4.06	0.01	0.01	—	0.01	0.01	—	0.01	—	581	581	0.02	< 0.005	—	—
Forklifts	0.03	0.15	2.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	—
Other Material Handling Equipment	0.07	0.34	4.86	0.01	0.01	—	0.01	0.01	—	0.01	—	694	694	0.03	0.01	—	—
Other General Industrial Equipment	0.04	1.15	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	247	247	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,833
Total	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.05	0.29	4.06	0.01	0.01	—	0.01	0.01	—	0.01	—	581	581	0.02	< 0.005	—	—
Forklifts	0.03	0.15	2.14	< 0.005	0.01	—	0.01	0.01	—	0.01	—	305	305	0.01	< 0.005	—	—
Other Material Handling Equipment	0.07	0.34	4.86	0.01	0.01	—	0.01	0.01	—	0.01	—	694	694	0.03	0.01	—	—

Other General Industrial Equipment	0.04	1.15	1.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	247	247	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,833
Total	0.19	1.93	12.8	0.02	0.03	—	0.03	0.03	—	0.03	—	1,827	1,827	0.07	0.01	—	1,833
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01	0.04	0.53	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	68.5	68.5	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.02	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	36.0	36.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.01	0.04	0.63	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	81.8	81.8	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.15	0.22	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	29.1	29.1	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	216
Total	0.02	0.25	1.66	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	215	215	0.01	< 0.005	—	216

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20

Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Grading	Scrapers	Diesel	Average	2.00	8.00	423	0.48
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42

Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.67	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.26	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT

Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.13	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.67	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.26	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT

Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.13	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	2,400	800	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	270	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	234	234	0.00	73,207	2,190	2,190	0.00	685,210

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	234	234	0.00	73,207	2,190	2,190	0.00	685,210

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	2,400	800	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	15,498	690	0.0489	0.0069	56,538

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	15,498	690	0.0489	0.0069	56,538

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	302,197,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	273,639,836	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	1,620	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	1,620	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	2.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	2.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	2.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	2.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	2.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	2.00	8.00	93.0	0.40

Other General Industrial Equipment	Diesel	Tier 4 Final	2.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A

Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—
CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1

Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5
Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—

Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8
Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1

Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0
No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4
Other Indices	—
Hardship	0.0
Other Decision Support	—

2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Clean Materials Recovery v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Clean Materials Recovery v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	305	1000sqft	7.00	180,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Mit.	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422

Mit.	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331
Mit.	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386
Mit.	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.41	7.73	21.5	0.06	0.24	1.52	1.75	0.23	0.40	0.63	339	11,457	11,796	34.9	0.90	58.4	12,996
Mit.	5.90	7.73	21.5	0.06	0.24	1.52	1.75	0.23	0.40	0.63	326	11,371	11,697	33.6	0.87	58.4	12,855
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.12	7.86	13.3	0.06	0.22	1.52	1.74	0.22	0.40	0.62	339	11,397	11,736	34.9	0.90	47.2	12,925
Mit.	4.60	7.86	13.3	0.06	0.22	1.52	1.74	0.22	0.40	0.62	326	11,311	11,637	33.6	0.87	47.2	12,784
% Reduced	10%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.72	6.46	15.7	0.05	0.19	1.29	1.48	0.19	0.34	0.53	339	10,473	10,812	34.9	0.83	51.1	11,982
Mit.	5.20	6.46	15.7	0.05	0.19	1.29	1.48	0.19	0.34	0.53	326	10,388	10,714	33.6	0.79	51.1	11,841
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.04	1.18	2.86	0.01	0.04	0.23	0.27	0.03	0.06	0.10	56.1	1,734	1,790	5.77	0.14	8.47	1,984
Mit.	0.95	1.18	2.86	0.01	0.04	0.23	0.27	0.03	0.06	0.10	54.0	1,720	1,774	5.56	0.13	8.47	1,960
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Area	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492

Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	6.41	7.73	21.5	0.06	0.24	1.52	1.75	0.23	0.40	0.63	339	11,457	11,796	34.9	0.90	58.4	12,996
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284
Area	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.12	7.86	13.3	0.06	0.22	1.52	1.74	0.22	0.40	0.62	339	11,397	11,736	34.9	0.90	47.2	12,925
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	3.94	4.27	0.03	0.04	1.29	1.33	0.04	0.34	0.37	—	3,541	3,541	0.15	0.45	4.28	3,682
Area	5.19	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8

Total	5.72	6.46	15.7	0.05	0.19	1.29	1.48	0.19	0.34	0.53	339	10,473	10,812	34.9	0.83	51.1	11,982
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610
Area	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887
Water	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247
Waste	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	1.04	1.18	2.86	0.01	0.04	0.23	0.27	0.03	0.06	0.10	56.1	1,734	1,790	5.77	0.14	8.47	1,984

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Area	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.90	7.73	21.5	0.06	0.24	1.52	1.75	0.23	0.40	0.63	326	11,371	11,697	33.6	0.87	58.4	12,855

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284
Area	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	4.60	7.86	13.3	0.06	0.22	1.52	1.74	0.22	0.40	0.62	326	11,311	11,637	33.6	0.87	47.2	12,784
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.34	3.94	4.27	0.03	0.04	1.29	1.33	0.04	0.34	0.37	—	3,541	3,541	0.15	0.45	4.28	3,682
Area	4.67	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Waste	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8
Total	5.20	6.46	15.7	0.05	0.19	1.29	1.48	0.19	0.34	0.53	326	10,388	10,714	33.6	0.79	51.1	11,841
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610
Area	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887

Water	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224
Waste	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	0.95	1.18	2.86	0.01	0.04	0.23	0.27	0.03	0.06	0.10	54.0	1,720	1,774	5.56	0.13	8.47	1,960

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	83.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	4.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.83	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	41.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Total	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284
Total	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610
Total	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Total	0.41	4.36	5.23	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,152	4,152	0.17	0.52	11.6	4,322
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284
Total	0.40	4.56	4.90	0.04	0.04	1.52	1.56	0.04	0.40	0.44	—	4,124	4,124	0.18	0.52	0.30	4,284
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610
Total	0.06	0.72	0.78	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	586	586	0.02	0.07	0.71	610

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

Total	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Total	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Total	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Total	—	—	—	—	—	—	—	—	—	—	135	908	1,043	13.9	0.34	—	1,492
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247
Total	—	—	—	—	—	—	—	—	—	—	22.4	150	173	2.30	0.06	—	247

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Total	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Total	—	—	—	—	—	—	—	—	—	—	122	822	944	12.6	0.31	—	1,351
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224
Total	—	—	—	—	—	—	—	—	—	—	20.3	136	156	2.09	0.05	—	224

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Total	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713

Total	—	—	—	—	—	—	—	—	—	—	204	0.00	204	20.4	0.00	—	713
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118
Total	—	—	—	—	—	—	—	—	—	—	33.7	0.00	33.7	3.37	0.00	—	118

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916

Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37

Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2

Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	270,000	90,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	204	204	0.00	63,823	1,909	1,909	0.00	597,375

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	204	204	0.00	63,823	1,909	1,909	0.00	597,375

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	270,000	90,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	70,512,750	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	63,849,295	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	378	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	378	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20

Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—

CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5
Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—

Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8

Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0
No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4

Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications

Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Resource Recovery v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Resource Recovery v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	87.1	1000sqft	2.00	52,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.70	15.9	16.2	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	2,595	2,595	0.11	0.06	1.96	2,605
Mit.	1.70	15.9	16.2	0.02	0.74	2.89	3.64	0.68	1.37	2.05	—	2,595	2,595	0.11	0.06	1.96	2,605
% Reduced	—	—	—	—	—	60%	54%	—	60%	50%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	24.3	15.9	16.1	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	2,587	2,587	0.11	0.06	0.05	2,598

Mit.	12.2	15.9	16.1	0.02	0.74	2.89	3.64	0.68	1.37	2.05	—	2,587	2,587	0.11	0.06	0.05	2,598
% Reduced	50%	—	—	—	—	60%	54%	—	60%	50%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.18	7.48	8.26	0.01	0.32	1.91	2.22	0.29	0.88	1.18	—	1,484	1,484	0.06	0.03	0.36	1,494
Mit.	1.52	7.48	8.26	0.01	0.32	0.84	1.16	0.29	0.37	0.66	—	1,484	1,484	0.06	0.03	0.36	1,494
% Reduced	30%	—	—	—	—	56%	48%	—	58%	44%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	1.36	1.51	< 0.005	0.06	0.35	0.41	0.05	0.16	0.21	—	246	246	0.01	< 0.005	0.06	247
Mit.	0.28	1.36	1.51	< 0.005	0.06	0.15	0.21	0.05	0.07	0.12	—	246	246	0.01	< 0.005	0.06	247
% Reduced	30%	—	—	—	—	56%	48%	—	58%	44%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.70	15.9	16.2	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	2,595	2,595	0.11	0.06	1.96	2,605
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	24.3	15.9	16.1	0.02	0.74	7.21	7.96	0.68	3.46	4.14	—	2,587	2,587	0.11	0.06	0.05	2,598
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.18	7.48	8.26	0.01	0.32	1.91	2.22	0.29	0.88	1.18	—	1,484	1,484	0.06	0.03	0.36	1,494

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.40	1.36	1.51	< 0.005	0.06	0.35	0.41	0.05	0.16	0.21	—	246	246	0.01	< 0.005	0.06	247

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.70	15.9	16.2	0.02	0.74	2.89	3.64	0.68	1.37	2.05	—	2,595	2,595	0.11	0.06	1.96	2,605
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	12.2	15.9	16.1	0.02	0.74	2.89	3.64	0.68	1.37	2.05	—	2,587	2,587	0.11	0.06	0.05	2,598
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.52	7.48	8.26	0.01	0.32	0.84	1.16	0.29	0.37	0.66	—	1,484	1,484	0.06	0.03	0.36	1,494
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.28	1.36	1.51	< 0.005	0.06	0.15	0.21	0.05	0.07	0.12	—	246	246	0.01	< 0.005	0.06	247

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.02	8.20	12.9	0.07	0.13	1.90	2.02	0.12	0.50	0.63	96.8	9,024	9,121	10.2	0.99	30.8	9,702
Mit.	1.87	8.20	12.9	0.07	0.13	1.90	2.02	0.12	0.50	0.63	93.2	9,000	9,093	9.84	0.98	30.8	9,662
% Reduced	7%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	1%	—	< 0.5%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.64	8.49	10.6	0.07	0.12	1.90	2.02	0.12	0.50	0.62	96.8	9,008	9,104	10.2	0.99	14.0	9,669
Mit.	1.49	8.49	10.6	0.07	0.12	1.90	2.02	0.12	0.50	0.62	93.2	8,983	9,076	9.84	0.98	14.0	9,629
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	1%	—	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.83	7.35	9.87	0.06	0.11	1.61	1.72	0.11	0.43	0.54	96.8	7,871	7,968	10.2	0.86	19.9	8,499
Mit.	1.68	7.35	9.87	0.06	0.11	1.61	1.72	0.11	0.43	0.54	93.2	7,846	7,940	9.79	0.85	19.9	8,459
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	1%	—	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.33	1.34	1.80	0.01	0.02	0.29	0.31	0.02	0.08	0.10	16.0	1,303	1,319	1.68	0.14	3.30	1,407
Mit.	0.31	1.34	1.80	0.01	0.02	0.29	0.31	0.02	0.08	0.10	15.4	1,299	1,314	1.62	0.14	3.30	1,401
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	< 0.5%	< 0.5%	4%	1%	—	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709
Area	1.62	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426

Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Off-Road	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Total	2.02	8.20	12.9	0.07	0.13	1.90	2.02	0.12	0.50	0.63	96.8	9,024	9,121	10.2	0.99	30.8	9,702
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Area	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Off-Road	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Total	1.64	8.49	10.6	0.07	0.12	1.90	2.02	0.12	0.50	0.62	96.8	9,008	9,104	10.2	0.99	14.0	9,669
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	6.57	3.97	0.05	0.06	1.61	1.67	0.06	0.43	0.49	—	5,501	5,501	0.23	0.75	6.38	5,737
Area	1.50	0.01	1.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.37	6.37	< 0.005	< 0.005	—	6.39
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Off-Road	0.05	0.28	3.94	0.01	0.01	—	0.01	0.01	—	0.01	—	563	563	0.02	< 0.005	—	565
Total	1.83	7.35	9.87	0.06	0.11	1.61	1.72	0.11	0.43	0.54	96.8	7,871	7,968	10.2	0.86	19.9	8,499
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950
Area	0.27	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06
Energy	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	255	255	0.02	< 0.005	—	256

Water	—	—	—	—	—	—	—	—	—	—	6.39	42.9	49.3	0.66	0.02	—	70.6
Waste	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24
Off-Road	0.01	0.05	0.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	93.1	93.1	< 0.005	< 0.005	—	93.5
Total	0.33	1.34	1.80	0.01	0.02	0.29	0.31	0.02	0.08	0.10	16.0	1,303	1,319	1.68	0.14	3.30	1,407

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709
Area	1.47	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Off-Road	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Total	1.87	8.20	12.9	0.07	0.13	1.90	2.02	0.12	0.50	0.63	93.2	9,000	9,093	9.84	0.98	30.8	9,662
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Area	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5

Off-Road	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Total	1.49	8.49	10.6	0.07	0.12	1.90	2.02	0.12	0.50	0.62	93.2	8,983	9,076	9.84	0.98	14.0	9,629
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	6.57	3.97	0.05	0.06	1.61	1.67	0.06	0.43	0.49	—	5,501	5,501	0.23	0.75	6.38	5,737
Area	1.35	0.01	1.55	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.37	6.37	< 0.005	< 0.005	—	6.39
Energy	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,542	1,542	0.12	0.01	—	1,548
Water	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Waste	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Off-Road	0.05	0.28	3.94	0.01	0.01	—	0.01	0.01	—	0.01	—	563	563	0.02	< 0.005	—	565
Total	1.68	7.35	9.87	0.06	0.11	1.61	1.72	0.11	0.43	0.54	93.2	7,846	7,940	9.79	0.85	19.9	8,459
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950
Area	0.25	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06
Energy	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	255	255	0.02	< 0.005	—	256
Water	—	—	—	—	—	—	—	—	—	—	5.79	38.9	44.7	0.60	0.01	—	63.9
Waste	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24
Off-Road	0.01	0.05	0.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	93.1	93.1	< 0.005	< 0.005	—	93.5
Total	0.31	1.34	1.80	0.01	0.02	0.29	0.31	0.02	0.08	0.10	15.4	1,299	1,314	1.62	0.14	3.30	1,401

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	3.92	3.80	0.01	0.18	—	0.18	0.17	—	0.17	—	605	605	0.02	< 0.005	—	607
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.71	0.69	< 0.005	0.03	—	0.03	0.03	—	0.03	—	100	100	< 0.005	< 0.005	—	101
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.5	33.5	< 0.005	< 0.005	0.06	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.9	15.4	0.02	0.74	—	0.74	0.68	—	0.68	—	2,454	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	3.92	3.80	0.01	0.18	—	0.18	0.17	—	0.17	—	605	605	0.02	< 0.005	—	607
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.71	0.69	< 0.005	0.03	—	0.03	0.03	—	0.03	—	100	100	< 0.005	< 0.005	—	101
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.06	0.64	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	134	134	0.01	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.17	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	33.5	33.5	< 0.005	< 0.005	0.06	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.54	5.54	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	3.10	3.32	0.01	0.12	—	0.12	0.11	—	0.11	—	592	592	0.02	< 0.005	—	594
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.57	0.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.0	98.0	< 0.005	< 0.005	—	98.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.65	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	308	308	0.01	0.01	1.22	—
Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	275	275	0.01	0.04	0.75	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	292	292	0.01	0.01	0.03	—
Vendor	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	275	275	0.01	0.04	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.48	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.5	97.5	< 0.005	< 0.005	0.17	—
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	90.4	90.4	< 0.005	0.01	0.11	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	—
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.0	15.0	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	—	0.37	0.34	—	0.34	—	1,801	1,801	0.07	0.01	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.37	3.10	3.32	0.01	0.12	—	0.12	0.11	—	0.11	—	592	592	0.02	< 0.005	—	594
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.57	0.61	< 0.005	0.02	—	0.02	0.02	—	0.02	—	98.0	98.0	< 0.005	< 0.005	—	98.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.65	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	308	308	0.01	0.01	1.22	—
Vendor	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	275	275	0.01	0.04	0.75	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	292	292	0.01	0.01	0.03	—

Vendor	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.08	< 0.005	0.02	0.02	—	275	275	0.01	0.04	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.48	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	97.5	97.5	< 0.005	< 0.005	0.17	—
Vendor	< 0.005	0.11	0.05	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	90.4	90.4	< 0.005	0.01	0.11	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.1	16.1	< 0.005	< 0.005	0.03	—
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	15.0	15.0	< 0.005	< 0.005	0.02	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.90	6.53	0.01	0.23	—	0.23	0.21	—	0.21	—	992	992	0.04	0.01	—	995
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.13	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.50	4.50	< 0.005	< 0.005	—	4.51
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.94	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	176	176	0.01	0.01	0.70	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.90	6.53	0.01	0.23	—	0.23	0.21	—	0.21	—	992	992	0.04	0.01	—	995
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.2	27.2	< 0.005	< 0.005	—	27.3
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.50	4.50	< 0.005	< 0.005	—	4.51
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.06	0.94	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	176	176	0.01	0.01	0.70	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	4.65	4.65	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.77	0.77	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	24.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	1.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.5	58.5	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.25	3.25	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	12.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	0.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	58.5	58.5	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.25	3.25	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709
Total	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Total	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950
Total	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709
Total	0.30	7.30	4.69	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,424	6,424	0.27	0.88	17.2	6,709

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Total	0.29	7.61	4.63	0.06	0.07	1.90	1.97	0.07	0.50	0.57	—	6,417	6,417	0.27	0.88	0.45	6,685
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950
Total	0.05	1.20	0.72	0.01	0.01	0.29	0.31	0.01	0.08	0.09	—	911	911	0.04	0.12	1.06	950

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Total	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Total	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	158	158	0.01	< 0.005	—	158
Total	—	—	—	—	—	—	—	—	—	—	—	158	158	0.01	< 0.005	—	158

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Total	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Total	—	—	—	—	—	—	—	—	—	—	—	953	953	0.07	0.01	—	957
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	158	158	0.01	< 0.005	—	158
Total	—	—	—	—	—	—	—	—	—	—	—	158	158	0.01	< 0.005	—	158

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Total	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Total	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	97.5	97.5	0.01	< 0.005	—	97.8
Total	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	97.5	97.5	0.01	< 0.005	—	97.8

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Total	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Total	0.03	0.49	0.41	< 0.005	0.04	—	0.04	0.04	—	0.04	—	589	589	0.05	< 0.005	—	591
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	97.5	97.5	0.01	< 0.005	—	97.8
Total	< 0.005	0.09	0.08	< 0.005	0.01	—	0.01	0.01	—	0.01	—	97.5	97.5	0.01	< 0.005	—	97.8

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.37	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Total	1.62	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer	1.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06
Total	0.27	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape Equipment	0.37	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Total	1.47	0.02	2.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.30	9.30	< 0.005	< 0.005	—	9.33
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.05	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06
Total	0.25	< 0.005	0.28	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.05	1.05	< 0.005	< 0.005	—	1.06

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Total	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Total	—	—	—	—	—	—	—	—	—	—	38.6	259	298	3.98	0.10	—	426
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	6.39	42.9	49.3	0.66	0.02	—	70.6
Total	—	—	—	—	—	—	—	—	—	—	6.39	42.9	49.3	0.66	0.02	—	70.6

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Total	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Total	—	—	—	—	—	—	—	—	—	—	35.0	235	270	3.60	0.09	—	386
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	5.79	38.9	44.7	0.60	0.01	—	63.9
Total	—	—	—	—	—	—	—	—	—	—	5.79	38.9	44.7	0.60	0.01	—	63.9

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Total	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Total	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7

Total	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Total	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Total	—	—	—	—	—	—	—	—	—	—	58.2	0.00	58.2	5.82	0.00	—	204
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7
Total	—	—	—	—	—	—	—	—	—	—	9.64	0.00	9.64	0.96	0.00	—	33.7

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	13.5
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.24	2.24

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.5
Total	0.01	0.05	0.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	93.1	93.1	< 0.005	< 0.005	—	93.5

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—

Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.07	0.39	5.53	0.01	0.01	—	0.01	0.01	—	0.01	—	790	790	0.03	0.01	—	793
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.5
Total	0.01	0.05	0.72	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	93.1	93.1	< 0.005	< 0.005	—	93.5

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37

Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT

Building Construction	—	—	—	—
Building Construction	Worker	21.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	8.52	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.37	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	10.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	21.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	8.52	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.37	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	78,000	26,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year

General Heavy Industry	242	242	0.00	75,711	2,265	2,265	0.00	708,650

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	242	242	0.00	75,711	2,265	2,265	0.00	708,650

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	78,000	26,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	503,684	690	0.0489	0.0069	1,837,498

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	503,684	690	0.0489	0.0069	1,837,498

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	20,146,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	18,242,656	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	108	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	108	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20

Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat

Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8

Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—
CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5
Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—

Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9

Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8
Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0
No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—

Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification

Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Construction and Demolition v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Construction and Demolition v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	436	1000sqft	10.0	180,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Mit.	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422

Mit.	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331
Mit.	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386
Mit.	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386
% Reduced	41%	—	—	—	—	48%	41%	—	54%	39%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	83.7	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	5.62	9.11	11.6	0.02	0.39	2.22	2.61	0.36	0.96	1.32	—	2,307	2,307	0.10	0.07	1.09	2,331

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.03	1.66	2.12	< 0.005	0.07	0.40	0.48	0.07	0.17	0.24	—	382	382	0.02	0.01	0.18	386

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,417	4,417	0.18	0.19	6.79	4,484
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	41.9	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,361	4,361	0.18	0.19	0.18	4,422
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.33	9.11	11.6	0.02	0.39	1.15	1.54	0.36	0.44	0.80	—	2,307	2,307	0.10	0.07	1.09	2,331
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.61	1.66	2.12	< 0.005	0.07	0.21	0.28	0.07	0.08	0.15	—	382	382	0.02	0.01	0.18	386

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.43	7.76	21.7	0.06	0.24	1.57	1.81	0.23	0.41	0.64	484	11,913	12,397	49.6	1.05	58.7	14,009
Mit.	5.92	7.76	21.7	0.06	0.24	1.57	1.81	0.23	0.41	0.64	466	11,791	12,256	47.7	1.00	58.7	13,808
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.14	7.90	13.5	0.06	0.22	1.57	1.79	0.22	0.41	0.63	484	11,851	12,335	49.6	1.05	47.2	13,936
Mit.	4.62	7.90	13.5	0.06	0.22	1.57	1.79	0.22	0.41	0.63	466	11,728	12,194	47.7	1.01	47.2	13,734
% Reduced	10%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.74	6.49	15.9	0.05	0.19	1.33	1.53	0.19	0.35	0.54	484	10,919	11,403	49.6	0.97	51.2	12,984
Mit.	5.22	6.49	15.9	0.05	0.19	1.33	1.53	0.19	0.35	0.54	466	10,796	11,262	47.7	0.93	51.2	12,783
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	5%	—	2%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.05	1.19	2.90	0.01	0.04	0.24	0.28	0.03	0.06	0.10	80.2	1,808	1,888	8.21	0.16	8.48	2,150
Mit.	0.95	1.19	2.90	0.01	0.04	0.24	0.28	0.03	0.06	0.10	77.1	1,787	1,865	7.90	0.15	8.48	2,116
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	5%	—	2%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Area	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131

Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	6.43	7.76	21.7	0.06	0.24	1.57	1.81	0.23	0.41	0.64	484	11,913	12,397	49.6	1.05	58.7	14,009
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350
Area	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.14	7.90	13.5	0.06	0.22	1.57	1.79	0.22	0.41	0.63	484	11,851	12,335	49.6	1.05	47.2	13,936
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.36	3.97	4.46	0.03	0.04	1.33	1.37	0.04	0.35	0.39	—	3,597	3,597	0.15	0.45	4.37	3,739
Area	5.19	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8

Total	5.74	6.49	15.9	0.05	0.19	1.33	1.53	0.19	0.35	0.54	484	10,919	11,403	49.6	0.97	51.2	12,984
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619
Area	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887
Water	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353
Waste	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	1.05	1.19	2.90	0.01	0.04	0.24	0.28	0.03	0.06	0.10	80.2	1,808	1,888	8.21	0.16	8.48	2,150

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Area	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.92	7.76	21.7	0.06	0.24	1.57	1.81	0.23	0.41	0.64	466	11,791	12,256	47.7	1.00	58.7	13,808

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350
Area	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	4.62	7.90	13.5	0.06	0.22	1.57	1.79	0.22	0.41	0.63	466	11,728	12,194	47.7	1.01	47.2	13,734
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.36	3.97	4.46	0.03	0.04	1.33	1.37	0.04	0.35	0.39	—	3,597	3,597	0.15	0.45	4.37	3,739
Area	4.67	0.05	5.36	< 0.005	0.01	—	0.01	0.01	—	0.01	—	22.0	22.0	< 0.005	< 0.005	—	22.1
Energy	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	5,336	5,336	0.41	0.04	—	5,358
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8
Total	5.22	6.49	15.9	0.05	0.19	1.33	1.53	0.19	0.35	0.54	466	10,796	11,262	47.7	0.93	51.2	12,783
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619
Area	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Energy	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	883	883	0.07	0.01	—	887

Water	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319
Waste	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	0.95	1.19	2.90	0.01	0.04	0.24	0.28	0.03	0.06	0.10	77.1	1,787	1,865	7.90	0.15	8.48	2,116

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34	0.36	5.70	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,067	1,067	0.04	0.04	4.21	—
Vendor	0.03	1.12	0.55	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	2.58	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33	0.43	4.82	0.00	0.00	0.99	0.99	0.00	0.23	0.23	—	1,012	1,012	0.05	0.04	0.11	—
Vendor	0.03	1.17	0.56	0.01	0.01	0.25	0.27	0.01	0.07	0.08	—	952	952	0.04	0.13	0.07	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.14	1.67	0.00	0.00	0.32	0.32	0.00	0.08	0.08	—	338	338	0.02	0.01	0.60	—
Vendor	0.01	0.39	0.18	< 0.005	< 0.005	0.08	0.09	< 0.005	0.02	0.03	—	313	313	0.01	0.04	0.36	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.30	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	55.9	55.9	< 0.005	< 0.005	0.10	—
Vendor	< 0.005	0.07	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	51.8	51.8	< 0.005	0.01	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	83.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	4.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.83	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	41.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	2.29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Total	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350
Total	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619
Total	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Total	0.43	4.40	5.47	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,219	4,219	0.18	0.52	11.8	4,391
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350
Total	0.42	4.60	5.11	0.04	0.04	1.57	1.61	0.04	0.41	0.45	—	4,189	4,189	0.18	0.52	0.31	4,350
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619
Total	0.07	0.72	0.81	0.01	0.01	0.24	0.25	0.01	0.06	0.07	—	596	596	0.03	0.07	0.72	619

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Total	—	—	—	—	—	—	—	—	—	—	—	3,298	3,298	0.23	0.03	—	3,314
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549
Total	—	—	—	—	—	—	—	—	—	—	—	546	546	0.04	0.01	—	549

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Total	0.09	1.71	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,038	2,038	0.18	< 0.005	—	2,044
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338
Total	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	337	337	0.03	< 0.005	—	338

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.59	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	4.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

Total	0.95	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.28	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Total	5.08	0.07	7.83	< 0.005	0.01	—	0.01	0.01	—	0.01	—	32.2	32.2	< 0.005	< 0.005	—	32.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.16	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66
Total	0.85	0.01	0.98	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.65	3.65	< 0.005	< 0.005	—	3.66

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Total	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Total	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353
Total	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Total	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Total	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319
Total	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Total	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018

Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Total	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46.9	46.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.76	7.76

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916

Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Grading	Tractors/Loaders/Backh	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37

Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	75.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	29.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2

Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	15.1	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	270,000	90,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)

Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	212	212	0.00	66,326	1,984	1,984	0.00	620,806

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	212	212	0.00	66,326	1,984	1,984	0.00	620,806

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	270,000	90,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)

General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,743,523	690	0.0489	0.0069	6,360,570

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	100,732,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	91,213,279	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	540	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	540	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20

Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A

Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—

CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5
Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—

Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8

Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0
No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4

Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications

Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Mixed Materials Processing v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Mixed Materials Processing v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.20
Precipitation (days)	17.8
Location	241 E 93rd St, Los Angeles, CA 90003, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4284
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	261	1000sqft	6.00	155,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,136	4,136	0.17	0.16	5.85	4,195
Mit.	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,136	4,136	0.17	0.16	5.85	4,195
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	72.1	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,089	4,089	0.17	0.16	0.15	4,142

Mit.	36.1	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,089	4,089	0.17	0.16	0.15	4,142
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.97	9.03	11.4	0.02	0.39	2.16	2.55	0.36	0.94	1.30	—	2,215	2,215	0.09	0.06	0.95	2,237
Mit.	3.00	9.03	11.4	0.02	0.39	1.09	1.48	0.36	0.43	0.79	—	2,215	2,215	0.09	0.06	0.95	2,237
% Reduced	40%	—	—	—	—	49%	42%	—	55%	40%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.91	1.65	2.07	< 0.005	0.07	0.39	0.47	0.07	0.17	0.24	—	367	367	0.02	0.01	0.16	370
Mit.	0.55	1.65	2.07	< 0.005	0.07	0.20	0.27	0.07	0.08	0.14	—	367	367	0.02	0.01	0.16	370
% Reduced	40%	—	—	—	—	49%	42%	—	55%	40%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,136	4,136	0.17	0.16	5.85	4,195
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	72.1	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	4,089	4,089	0.17	0.16	0.15	4,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.97	9.03	11.4	0.02	0.39	2.16	2.55	0.36	0.94	1.30	—	2,215	2,215	0.09	0.06	0.95	2,237

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.91	1.65	2.07	< 0.005	0.07	0.39	0.47	0.07	0.17	0.24	—	367	367	0.02	0.01	0.16	370

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,136	4,136	0.17	0.16	5.85	4,195
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	36.1	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	4,089	4,089	0.17	0.16	0.15	4,142
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	3.00	9.03	11.4	0.02	0.39	1.09	1.48	0.36	0.43	0.79	—	2,215	2,215	0.09	0.06	0.95	2,237
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.55	1.65	2.07	< 0.005	0.07	0.20	0.27	0.07	0.08	0.14	—	367	367	0.02	0.01	0.16	370

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.91	9.57	19.8	0.06	0.33	1.62	1.94	0.31	0.42	0.73	290	10,493	10,784	30.0	0.84	52.2	11,834
Mit.	5.46	9.57	19.8	0.06	0.33	1.62	1.94	0.31	0.42	0.73	280	10,420	10,699	28.8	0.81	52.2	11,713
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	3%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.79	9.72	12.6	0.06	0.31	1.62	1.93	0.30	0.42	0.72	290	10,430	10,721	30.0	0.84	40.7	11,761
Mit.	4.35	9.72	12.6	0.06	0.31	1.62	1.93	0.30	0.42	0.72	280	10,357	10,636	28.8	0.81	40.7	11,640
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	3%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	5.20	7.70	14.5	0.05	0.25	1.37	1.62	0.24	0.36	0.60	290	9,537	9,828	29.9	0.76	44.7	10,848
Mit.	4.76	7.70	14.5	0.05	0.25	1.37	1.62	0.24	0.36	0.60	280	9,464	9,743	28.8	0.74	44.7	10,728
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.95	1.41	2.65	0.01	0.05	0.25	0.30	0.04	0.07	0.11	48.1	1,579	1,627	4.95	0.13	7.40	1,796
Mit.	0.87	1.41	2.65	0.01	0.05	0.25	0.30	0.04	0.07	0.11	46.3	1,567	1,613	4.77	0.12	7.40	1,776
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Area	4.82	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279

Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.91	9.57	19.8	0.06	0.33	1.62	1.94	0.31	0.42	0.73	290	10,493	10,784	30.0	0.84	52.2	11,834
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309
Area	3.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	4.79	9.72	12.6	0.06	0.31	1.62	1.93	0.30	0.42	0.72	290	10,430	10,721	30.0	0.84	40.7	11,761
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	3.88	4.87	0.03	0.04	1.37	1.41	0.04	0.36	0.39	—	3,567	3,567	0.15	0.44	4.37	3,705
Area	4.47	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.22	2.23	3.72	0.01	0.09	—	0.09	0.08	—	0.08	—	563	563	0.02	< 0.005	—	565
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8

Total	5.20	7.70	14.5	0.05	0.25	1.37	1.62	0.24	0.36	0.60	290	9,537	9,828	29.9	0.76	44.7	10,848
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613
Area	0.82	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15
Energy	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	761	761	0.06	0.01	—	764
Water	—	—	—	—	—	—	—	—	—	—	19.2	129	148	1.98	0.05	—	212
Waste	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68
Off-Road	0.04	0.41	0.68	< 0.005	0.02	—	0.02	0.01	—	0.01	—	93.1	93.1	< 0.005	< 0.005	—	93.5
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	0.95	1.41	2.65	0.01	0.05	0.25	0.30	0.04	0.07	0.11	48.1	1,579	1,627	4.95	0.13	7.40	1,796

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Area	4.37	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	5.46	9.57	19.8	0.06	0.33	1.62	1.94	0.31	0.42	0.73	280	10,420	10,699	28.8	0.81	52.2	11,713

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309
Area	3.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Stationary	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Total	4.35	9.72	12.6	0.06	0.31	1.62	1.93	0.30	0.42	0.72	280	10,357	10,636	28.8	0.81	40.7	11,640
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	3.88	4.87	0.03	0.04	1.37	1.41	0.04	0.36	0.39	—	3,567	3,567	0.15	0.44	4.37	3,705
Area	4.02	0.04	4.62	< 0.005	0.01	—	0.01	0.01	—	0.01	—	19.0	19.0	< 0.005	< 0.005	—	19.1
Energy	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	4,595	4,595	0.36	0.03	—	4,614
Water	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Waste	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Off-Road	0.22	2.23	3.72	0.01	0.09	—	0.09	0.08	—	0.08	—	563	563	0.02	< 0.005	—	565
Stationary	0.03	0.09	0.08	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	15.8	15.8	< 0.005	< 0.005	0.00	15.8
Total	4.76	7.70	14.5	0.05	0.25	1.37	1.62	0.24	0.36	0.60	280	9,464	9,743	28.8	0.74	44.7	10,728
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613
Area	0.73	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15
Energy	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	761	761	0.06	0.01	—	764

Water	—	—	—	—	—	—	—	—	—	—	17.4	117	134	1.79	0.04	—	192
Waste	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68
Off-Road	0.04	0.41	0.68	< 0.005	0.02	—	0.02	0.01	—	0.01	—	93.1	93.1	< 0.005	< 0.005	—	93.5
Stationary	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62
Total	0.87	1.41	2.65	0.01	0.05	0.25	0.30	0.04	0.07	0.11	46.3	1,567	1,613	4.77	0.12	7.40	1,776

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.31	4.91	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	919	919	0.04	0.03	3.63	—
Vendor	0.02	0.96	0.47	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	820	820	0.03	0.11	2.22	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.37	4.15	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	871	871	0.04	0.03	0.09	—
Vendor	0.02	1.00	0.48	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	820	820	0.03	0.11	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.44	0.00	0.00	0.28	0.28	0.00	0.06	0.06	—	291	291	0.01	0.01	0.51	—
Vendor	0.01	0.33	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	269	269	0.01	0.04	0.31	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	48.1	48.1	< 0.005	< 0.005	0.09	—
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.6	44.6	< 0.005	0.01	0.05	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.31	4.91	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	919	919	0.04	0.03	3.63	—
Vendor	0.02	0.96	0.47	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	820	820	0.03	0.11	2.22	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29	0.37	4.15	0.00	0.00	0.85	0.85	0.00	0.20	0.20	—	871	871	0.04	0.03	0.09	—
Vendor	0.02	1.00	0.48	0.01	0.01	0.22	0.23	0.01	0.06	0.07	—	820	820	0.03	0.11	0.06	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.12	1.44	0.00	0.00	0.28	0.28	0.00	0.06	0.06	—	291	291	0.01	0.01	0.51	—
Vendor	0.01	0.33	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	269	269	0.01	0.04	0.31	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	48.1	48.1	< 0.005	< 0.005	0.09	—
Vendor	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	44.6	44.6	< 0.005	0.01	0.05	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	71.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	3.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.83	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	174	174	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.69	9.69	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.60	1.60	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	35.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	1.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.83	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	174	174	0.01	0.01	0.02	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	9.69	9.69	< 0.005	< 0.005	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.60	1.60	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Total	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309
Total	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613
Total	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Total	0.48	4.29	6.00	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,187	4,187	0.18	0.51	11.8	4,355
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309
Total	0.47	4.49	5.57	0.04	0.04	1.62	1.66	0.04	0.42	0.46	—	4,152	4,152	0.18	0.51	0.31	4,309
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613
Total	0.07	0.71	0.89	0.01	0.01	0.25	0.26	0.01	0.07	0.07	—	591	591	0.03	0.07	0.72	613

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Total	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Total	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	470	470	0.03	< 0.005	—	472
Total	—	—	—	—	—	—	—	—	—	—	—	470	470	0.03	< 0.005	—	472

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Total	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Total	—	—	—	—	—	—	—	—	—	—	—	2,840	2,840	0.20	0.03	—	2,853
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	470	470	0.03	< 0.005	—	472
Total	—	—	—	—	—	—	—	—	—	—	—	470	470	0.03	< 0.005	—	472

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Total	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Total	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	291	291	0.03	< 0.005	—	291
Total	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	291	291	0.03	< 0.005	—	291

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Total	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Total	0.08	1.47	1.24	0.01	0.11	—	0.11	0.11	—	0.11	—	1,755	1,755	0.16	< 0.005	—	1,760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	291	291	0.03	< 0.005	—	291
Total	0.01	0.27	0.23	< 0.005	0.02	—	0.02	0.02	—	0.02	—	291	291	0.03	< 0.005	—	291

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.11	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Total	4.82	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.71	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.14	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15

Total	0.82	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.11	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Total	4.37	0.06	6.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.7	27.7	< 0.005	< 0.005	—	27.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.14	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15
Total	0.73	0.01	0.84	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.14	3.14	< 0.005	< 0.005	—	3.15

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Total	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Total	—	—	—	—	—	—	—	—	—	—	116	778	894	11.9	0.29	—	1,279
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	19.2	129	148	1.98	0.05	—	212
Total	—	—	—	—	—	—	—	—	—	—	19.2	129	148	1.98	0.05	—	212

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Total	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Total	—	—	—	—	—	—	—	—	—	—	105	705	810	10.8	0.26	—	1,158
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	17.4	117	134	1.79	0.04	—	192
Total	—	—	—	—	—	—	—	—	—	—	17.4	117	134	1.79	0.04	—	192

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Total	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Total	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101
Total	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Total	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611

Total	—	—	—	—	—	—	—	—	—	—	175	0.00	175	17.5	0.00	—	611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101
Total	—	—	—	—	—	—	—	—	—	—	28.9	0.00	28.9	2.89	0.00	—	101

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40.3	40.3
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.68	6.68

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.11	1.10	1.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	290	290	0.01	< 0.005	—	—
Forklifts	0.08	0.74	1.04	< 0.005	0.04	—	0.04	0.04	—	0.04	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.12	1.28	2.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.11	1.10	1.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	290	290	0.01	< 0.005	—	—
Forklifts	0.08	0.74	1.04	< 0.005	0.04	—	0.04	0.04	—	0.04	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.12	1.28	2.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01	0.14	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	0.01	0.10	0.14	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.02	0.17	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.9	40.9	< 0.005	< 0.005	—	—

undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.5
Total	0.04	0.41	0.68	< 0.005	0.02	—	0.02	0.01	—	0.01	—	93.1	93.1	< 0.005	< 0.005	—	93.5

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.11	1.10	1.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	290	290	0.01	< 0.005	—	—
Forklifts	0.08	0.74	1.04	< 0.005	0.04	—	0.04	0.04	—	0.04	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.12	1.28	2.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793
Total	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.11	1.10	1.91	< 0.005	0.04	—	0.04	0.04	—	0.04	—	290	290	0.01	< 0.005	—	—
Forklifts	0.08	0.74	1.04	< 0.005	0.04	—	0.04	0.04	—	0.04	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.12	1.28	2.27	< 0.005	0.04	—	0.04	0.04	—	0.04	—	347	347	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	793

Total	0.31	3.12	5.22	0.01	0.12	—	0.12	0.11	—	0.11	—	790	790	0.03	0.01	—	793
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01	0.14	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	0.01	0.10	0.14	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.02	0.17	0.29	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.9	40.9	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	93.5
Total	0.04	0.41	0.68	< 0.005	0.02	—	0.02	0.01	—	0.01	—	93.1	93.1	< 0.005	< 0.005	—	93.5

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00

undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115
Total	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	115
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.62
Total	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	2.62

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—

Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—

Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	65.1	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	25.4	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	65.1	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	25.4	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	232,500	77,500	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	220	220	0.00	68,829	2,059	2,059	0.00	644,226

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	220	220	0.00	68,829	2,059	2,059	0.00	644,226

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	232,500	77,500	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,501,367	690	0.0489	0.0069	5,477,157

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,501,367	690	0.0489	0.0069	5,477,157

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	60,439,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	54,727,967	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	324	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	324	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Average	1.00	8.00	93.0	0.40

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Average	1.00	8.00	93.0	0.40

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	6.09	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract

Exposure Indicators	—
AQ-Ozone	35.2
AQ-PM	84.0
AQ-DPM	34.9
Drinking Water	95.8
Lead Risk Housing	98.4
Pesticides	0.00
Toxic Releases	93.5
Traffic	19.6
Effect Indicators	—
CleanUp Sites	44.4
Groundwater	16.8
Haz Waste Facilities/Generators	71.6
Impaired Water Bodies	0.00
Solid Waste	66.7
Sensitive Population	—
Asthma	92.3
Cardio-vascular	97.3
Low Birth Weights	94.4
Socioeconomic Factor Indicators	—
Education	93.9
Housing	91.9
Linguistic	83.6
Poverty	96.5
Unemployment	79.7

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	9.636853587
Employed	9.136404466
Median HI	18.0803285
Education	—
Bachelor's or higher	5.851405107
High school enrollment	24.48351084
Preschool enrollment	68.29205697
Transportation	—
Auto Access	13.21698961
Active commuting	84.28076479
Social	—
2-parent households	20.08212498
Voting	6.826639292
Neighborhood	—
Alcohol availability	4.516874118
Park access	81.35506224
Retail density	52.47016553
Supermarket access	48.41524445
Tree canopy	26.02335429
Housing	—
Homeownership	43.80854613
Housing habitability	10.31695111
Low-inc homeowner severe housing cost burden	15.39843449
Low-inc renter severe housing cost burden	23.59810086
Uncrowded housing	5.889901193

Health Outcomes	—
Insured adults	6.557166688
Arthritis	34.9
Asthma ER Admissions	16.4
High Blood Pressure	21.3
Cancer (excluding skin)	77.2
Asthma	5.9
Coronary Heart Disease	21.3
Chronic Obstructive Pulmonary Disease	14.4
Diagnosed Diabetes	5.6
Life Expectancy at Birth	9.7
Cognitively Disabled	36.6
Physically Disabled	15.4
Heart Attack ER Admissions	17.3
Mental Health Not Good	6.9
Chronic Kidney Disease	7.4
Obesity	4.2
Pedestrian Injuries	96.7
Physical Health Not Good	7.0
Stroke	5.6
Health Risk Behaviors	—
Binge Drinking	78.7
Current Smoker	9.3
No Leisure Time for Physical Activity	9.9
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	5.0
Elderly	74.7
English Speaking	26.2
Foreign-born	65.7
Outdoor Workers	18.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	18.9
Traffic Density	54.9
Traffic Access	87.4
Other Indices	—
Hardship	93.9
Other Decision Support	—
2016 Voting	2.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	96.0
Healthy Places Index Score for Project Location (b)	9.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Advanced Thermal Recycling v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Advanced Thermal Recycling v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	436	1000sqft	10.0	260,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	22.1	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	5,314	5,314	0.22	0.26	9.81	5,407
Mit.	1.97	18.3	22.1	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	5,314	5,314	0.22	0.26	9.81	5,407
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	121	18.3	20.9	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	5,234	5,234	0.22	0.26	0.25	5,318

Mit.	60.5	18.3	20.9	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	5,234	5,234	0.22	0.26	0.25	5,318
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.71	9.34	12.5	0.02	0.39	2.40	2.79	0.36	1.00	1.37	—	2,601	2,601	0.11	0.10	1.52	2,634
Mit.	4.40	9.34	12.5	0.02	0.39	1.34	1.73	0.36	0.49	0.85	—	2,601	2,601	0.11	0.10	1.52	2,634
% Reduced	43%	—	—	—	—	44%	38%	—	51%	38%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.41	1.71	2.28	< 0.005	0.07	0.44	0.51	0.07	0.18	0.25	—	431	431	0.02	0.02	0.25	436
Mit.	0.80	1.71	2.28	< 0.005	0.07	0.24	0.32	0.07	0.09	0.16	—	431	431	0.02	0.02	0.25	436
% Reduced	43%	—	—	—	—	44%	38%	—	51%	38%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	22.1	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	5,314	5,314	0.22	0.26	9.81	5,407
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	121	18.3	20.9	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	5,234	5,234	0.22	0.26	0.25	5,318
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	7.71	9.34	12.5	0.02	0.39	2.40	2.79	0.36	1.00	1.37	—	2,601	2,601	0.11	0.10	1.52	2,634

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.41	1.71	2.28	< 0.005	0.07	0.44	0.51	0.07	0.18	0.25	—	431	431	0.02	0.02	0.25	436

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	22.1	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	5,314	5,314	0.22	0.26	9.81	5,407
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	60.5	18.3	20.9	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	5,234	5,234	0.22	0.26	0.25	5,318
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.40	9.34	12.5	0.02	0.39	1.34	1.73	0.36	0.49	0.85	—	2,601	2,601	0.11	0.10	1.52	2,634
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.80	1.71	2.28	< 0.005	0.07	0.24	0.32	0.07	0.09	0.16	—	431	431	0.02	0.02	0.25	436

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	9.30	18.9	41.0	0.14	0.44	3.15	3.59	0.43	0.83	1.27	484	22,756	23,240	50.2	2.04	96.6	25,198
Mit.	8.55	18.9	41.0	0.14	0.44	3.15	3.59	0.43	0.83	1.27	466	22,633	23,099	48.3	1.99	96.6	24,996
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	2%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.43	19.3	29.6	0.14	0.43	3.15	3.57	0.42	0.83	1.25	484	22,700	23,185	50.1	2.04	68.4	25,115
Mit.	6.68	19.3	29.6	0.14	0.43	3.15	3.57	0.42	0.83	1.25	466	22,578	23,044	48.3	2.00	68.4	24,913
% Reduced	10%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	2%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.27	15.8	29.9	0.12	0.35	2.67	3.02	0.34	0.71	1.05	484	20,255	20,740	50.0	1.82	78.4	22,612
Mit.	7.52	15.8	29.9	0.12	0.35	2.67	3.02	0.34	0.71	1.05	466	20,133	20,599	48.2	1.78	78.4	22,411
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	3%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.51	2.89	5.46	0.02	0.06	0.49	0.55	0.06	0.13	0.19	80.2	3,354	3,434	8.29	0.30	13.0	3,744
Mit.	1.37	2.89	5.46	0.02	0.06	0.49	0.55	0.06	0.13	0.19	77.1	3,333	3,410	7.97	0.29	13.0	3,710
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	3%	—	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Area	8.08	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131

Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	9.30	18.9	41.0	0.14	0.44	3.15	3.59	0.43	0.83	1.27	484	22,756	23,240	50.2	2.04	96.6	25,198
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236
Area	6.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	7.43	19.3	29.6	0.14	0.43	3.15	3.57	0.42	0.83	1.25	484	22,700	23,185	50.1	2.04	68.4	25,115
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	11.1	6.34	0.09	0.10	2.67	2.78	0.10	0.71	0.81	—	9,243	9,243	0.39	1.27	10.7	9,642
Area	7.50	0.07	7.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.8	31.8	< 0.005	< 0.005	—	32.0
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.20	2.06	13.6	0.02	0.04	—	0.04	0.04	—	0.04	—	1,952	1,952	0.08	0.02	—	1,958
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7

Total	8.27	15.8	29.9	0.12	0.35	2.67	3.02	0.34	0.71	1.05	484	20,255	20,740	50.0	1.82	78.4	22,612
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596
Area	1.37	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29
Energy	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,276	1,276	0.10	0.01	—	1,281
Water	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353
Waste	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2
Off-Road	0.04	0.38	2.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	323	323	0.01	< 0.005	—	324
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	1.51	2.89	5.46	0.02	0.06	0.49	0.55	0.06	0.13	0.19	80.2	3,354	3,434	8.29	0.30	13.0	3,744

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Area	7.33	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	8.55	18.9	41.0	0.14	0.44	3.15	3.59	0.43	0.83	1.27	466	22,633	23,099	48.3	1.99	96.6	24,996

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236
Area	5.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	6.68	19.3	29.6	0.14	0.43	3.15	3.57	0.42	0.83	1.25	466	22,578	23,044	48.3	2.00	68.4	24,913
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	11.1	6.34	0.09	0.10	2.67	2.78	0.10	0.71	0.81	—	9,243	9,243	0.39	1.27	10.7	9,642
Area	6.75	0.07	7.74	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.8	31.8	< 0.005	< 0.005	—	32.0
Energy	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	7,708	7,708	0.60	0.05	—	7,739
Water	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Waste	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Off-Road	0.20	2.06	13.6	0.02	0.04	—	0.04	0.04	—	0.04	—	1,952	1,952	0.08	0.02	—	1,958
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7
Total	7.52	15.8	29.9	0.12	0.35	2.67	3.02	0.34	0.71	1.05	466	20,133	20,599	48.2	1.78	78.4	22,411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596
Area	1.23	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29
Energy	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	1,276	1,276	0.10	0.01	—	1,281

Water	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319
Waste	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2
Off-Road	0.04	0.38	2.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	323	323	0.01	< 0.005	—	324
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	1.37	2.89	5.46	0.02	0.06	0.49	0.55	0.06	0.13	0.19	77.1	3,333	3,410	7.97	0.29	13.0	3,710

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.52	8.24	0.00	0.00	1.43	1.43	0.00	0.33	0.33	—	1,542	1,542	0.06	0.05	6.08	—
Vendor	0.04	1.62	0.79	0.01	0.02	0.36	0.38	0.02	0.10	0.12	—	1,375	1,375	0.06	0.19	3.73	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.62	6.96	0.00	0.00	1.43	1.43	0.00	0.33	0.33	—	1,461	1,461	0.07	0.05	0.16	—
Vendor	0.04	1.68	0.81	0.01	0.02	0.36	0.38	0.02	0.10	0.12	—	1,375	1,375	0.06	0.19	0.10	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.20	2.41	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	488	488	0.02	0.02	0.86	—
Vendor	0.01	0.56	0.26	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	452	452	0.02	0.06	0.53	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.14	—
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	74.8	74.8	< 0.005	0.01	0.09	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.49	0.52	8.24	0.00	0.00	1.43	1.43	0.00	0.33	0.33	—	1,542	1,542	0.06	0.05	6.08	—
Vendor	0.04	1.62	0.79	0.01	0.02	0.36	0.38	0.02	0.10	0.12	—	1,375	1,375	0.06	0.19	3.73	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.48	0.62	6.96	0.00	0.00	1.43	1.43	0.00	0.33	0.33	—	1,461	1,461	0.07	0.05	0.16	—
Vendor	0.04	1.68	0.81	0.01	0.02	0.36	0.38	0.02	0.10	0.12	—	1,375	1,375	0.06	0.19	0.10	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.20	2.41	0.00	0.00	0.46	0.46	0.00	0.11	0.11	—	488	488	0.02	0.02	0.86	—
Vendor	0.01	0.56	0.26	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	452	452	0.02	0.06	0.53	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.44	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	80.7	80.7	< 0.005	< 0.005	0.14	—
Vendor	< 0.005	0.10	0.05	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	74.8	74.8	< 0.005	0.01	0.09	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.21	0.27	< 0.005	0.01	—	0.01	0.01	—	0.01	—	41.4	41.4	< 0.005	< 0.005	—	41.6
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.86	6.86	< 0.005	< 0.005	—	6.88
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.58	5.58	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.92	0.92	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	121	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	6.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	292	292	0.01	0.01	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.69	2.69	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	60.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	3.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.29	0.29	0.00	0.07	0.07	—	292	292	0.01	0.01	0.03	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.3	16.3	< 0.005	< 0.005	0.03	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.69	2.69	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Total	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236
Total	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596
Total	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Total	0.46	12.3	7.46	0.10	0.12	3.15	3.27	0.11	0.83	0.95	—	10,792	10,792	0.45	1.48	28.9	11,273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236
Total	0.45	12.8	7.41	0.10	0.12	3.15	3.27	0.12	0.83	0.95	—	10,783	10,783	0.45	1.48	0.75	11,236
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596
Total	0.07	2.02	1.16	0.02	0.02	0.49	0.51	0.02	0.13	0.15	—	1,530	1,530	0.06	0.21	1.77	1,596

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Total	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Total	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	789	789	0.06	0.01	—	792
Total	—	—	—	—	—	—	—	—	—	—	—	789	789	0.06	0.01	—	792

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Total	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Total	—	—	—	—	—	—	—	—	—	—	—	4,764	4,764	0.34	0.05	—	4,786
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	789	789	0.06	0.01	—	792
Total	—	—	—	—	—	—	—	—	—	—	—	789	789	0.06	0.01	—	792

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Total	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Total	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	487	487	0.04	< 0.005	—	489
Total	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	487	487	0.04	< 0.005	—	489

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Total	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Total	0.14	2.47	2.07	0.01	0.19	—	0.19	0.19	—	0.19	—	2,944	2,944	0.26	0.01	—	2,953
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	487	487	0.04	< 0.005	—	489
Total	0.02	0.45	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	487	487	0.04	< 0.005	—	489

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.86	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Total	8.08	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	6.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.23	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29

Total	1.37	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.86	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Total	7.33	0.10	11.3	< 0.005	0.02	—	0.02	0.02	—	0.02	—	46.5	46.5	< 0.005	< 0.005	—	46.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	5.15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	5.48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.23	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29
Total	1.23	0.01	1.41	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.27	5.27	< 0.005	< 0.005	—	5.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Total	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Total	—	—	—	—	—	—	—	—	—	—	193	1,297	1,490	19.9	0.48	—	2,131
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353
Total	—	—	—	—	—	—	—	—	—	—	32.0	215	247	3.29	0.08	—	353

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Total	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Total	—	—	—	—	—	—	—	—	—	—	175	1,174	1,349	18.0	0.44	—	1,930
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319
Total	—	—	—	—	—	—	—	—	—	—	28.9	194	223	2.98	0.07	—	319

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Total	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018

Total	—	—	—	—	—	—	—	—	—	—	291	0.00	291	29.1	0.00	—	1,018
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169
Total	—	—	—	—	—	—	—	—	—	—	48.2	0.00	48.2	4.82	0.00	—	169

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	67.7	67.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11.2	11.2

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.08	0.43	6.08	0.01	0.02	—	0.02	0.02	—	0.02	—	871	871	0.04	0.01	—	—
Forklifts	0.04	0.23	3.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	457	457	0.02	< 0.005	—	—
Other Material Handling Equipment	0.10	0.51	7.28	0.01	0.02	—	0.02	0.02	—	0.02	—	1,041	1,041	0.04	0.01	—	—
Other General Industrial Equipment	0.06	1.73	2.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	370	370	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,749
Total	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.08	0.43	6.08	0.01	0.02	—	0.02	0.02	—	0.02	—	871	871	0.04	0.01	—	—
Forklifts	0.04	0.23	3.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	457	457	0.02	< 0.005	—	—
Other Material Handling Equipment	0.10	0.51	7.28	0.01	0.02	—	0.02	0.02	—	0.02	—	1,041	1,041	0.04	0.01	—	—
Other General Industrial Equipment	0.06	1.73	2.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	370	370	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,749
Total	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	0.01	0.06	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	103	103	< 0.005	< 0.005	—	—
Forklifts	0.01	0.03	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.9	53.9	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.01	0.07	0.95	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	< 0.005	< 0.005	—	—
Other General Industrial Equipment	0.01	0.23	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.7	43.7	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	324
Total	0.04	0.38	2.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	323	323	0.01	< 0.005	—	324

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.08	0.43	6.08	0.01	0.02	—	0.02	0.02	—	0.02	—	871	871	0.04	0.01	—	—
Forklifts	0.04	0.23	3.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	457	457	0.02	< 0.005	—	—
Other Material Handling Equipment	0.10	0.51	7.28	0.01	0.02	—	0.02	0.02	—	0.02	—	1,041	1,041	0.04	0.01	—	—
Other General Industrial Equipment	0.06	1.73	2.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	370	370	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,749

Total	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.08	0.43	6.08	0.01	0.02	—	0.02	0.02	—	0.02	—	871	871	0.04	0.01	—	—
Forklifts	0.04	0.23	3.21	< 0.005	0.01	—	0.01	0.01	—	0.01	—	457	457	0.02	< 0.005	—	—
Other Material Handling Equipment	0.10	0.51	7.28	0.01	0.02	—	0.02	0.02	—	0.02	—	1,041	1,041	0.04	0.01	—	—
Other General Industrial Equipment	0.06	1.73	2.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	370	370	0.02	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2,749
Total	0.28	2.90	19.2	0.03	0.05	—	0.05	0.05	—	0.05	—	2,740	2,740	0.11	0.02	—	2,749
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.01	0.06	0.79	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	103	103	< 0.005	< 0.005	—	—
Forklifts	0.01	0.03	0.42	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	53.9	53.9	< 0.005	< 0.005	—	—
Other Material Handling Equipment	0.01	0.07	0.95	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	< 0.005	< 0.005	—	—
Other General Industrial Equipment	0.01	0.23	0.34	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	43.7	43.7	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	324
Total	0.04	0.38	2.49	< 0.005	0.01	—	0.01	0.01	—	0.01	—	323	323	0.01	< 0.005	—	324

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00

Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequeste red	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—

Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—

Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	109	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	42.6	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	21.8	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix

Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	109	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	42.6	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	21.8	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	390,000	130,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	400	400	0.00	125,142	3,744	3,744	0.00	1,171,316

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	400	400	0.00	125,142	3,744	3,744	0.00	1,171,316

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	390,000	130,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00

Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	2,518,422	690	0.0489	0.0069	9,187,490

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	2,518,422	690	0.0489	0.0069	9,187,490

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	100,732,500	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	91,213,279	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	540	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	540	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	3.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	3.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	3.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	3.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	3.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	3.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50
Fire Pump	Diesel	1.00	1.00	50.0	50.0	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A

Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—
CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5

Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—

Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8
Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1
Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0

No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications

Non-Combustion Thermal Technologies v3 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Non-Combustion Thermal Technologies v3
Construction Start Date	1/2/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	0.50
Precipitation (days)	16.8
Location	Los Angeles, CA, USA
County	Los Angeles-South Coast
City	Los Angeles
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4039
EDFZ	16
Electric Utility	Los Angeles Department of Water & Power
Gas Utility	Southern California Gas
App Version	2022.1.1.18

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Heavy Industry	218	1000sqft	5.00	130,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-12	Sweep Paved Roads
Construction	C-13	Use Low-VOC Paints for Construction
Water	W-4	Require Low-Flow Water Fixtures
Area Sources	AS-1	Use Low-VOC Cleaning Supplies
Area Sources	AS-2	Use Low-VOC Paints

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	3,856	3,856	0.16	0.14	4.90	3,907
Mit.	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	3,856	3,856	0.16	0.14	4.90	3,907
% Reduced	—	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	60.5	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	3,816	3,816	0.16	0.14	0.13	3,862

Mit.	30.3	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	3,816	3,816	0.16	0.14	0.13	3,862
% Reduced	50%	—	—	—	—	59%	53%	—	60%	49%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.31	8.93	11.1	0.02	0.39	2.10	2.49	0.36	0.93	1.29	—	2,121	2,121	0.09	0.06	0.82	2,140
Mit.	2.66	8.93	11.1	0.02	0.39	1.04	1.43	0.36	0.42	0.77	—	2,121	2,121	0.09	0.06	0.82	2,140
% Reduced	38%	—	—	—	—	51%	43%	—	55%	40%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	1.63	2.02	< 0.005	0.07	0.38	0.45	0.07	0.17	0.24	—	351	351	0.01	0.01	0.14	354
Mit.	0.49	1.63	2.02	< 0.005	0.07	0.19	0.26	0.07	0.08	0.14	—	351	351	0.01	0.01	0.14	354
% Reduced	38%	—	—	—	—	51%	43%	—	55%	40%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	3,856	3,856	0.16	0.14	4.90	3,907
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	60.5	18.3	19.8	0.03	0.84	7.28	8.12	0.77	3.47	4.24	—	3,816	3,816	0.16	0.14	0.13	3,862
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.31	8.93	11.1	0.02	0.39	2.10	2.49	0.36	0.93	1.29	—	2,121	2,121	0.09	0.06	0.82	2,140

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.79	1.63	2.02	< 0.005	0.07	0.38	0.45	0.07	0.17	0.24	—	351	351	0.01	0.01	0.14	354

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.97	18.3	20.0	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	3,856	3,856	0.16	0.14	4.90	3,907
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	30.3	18.3	19.8	0.03	0.84	2.96	3.80	0.77	1.38	2.15	—	3,816	3,816	0.16	0.14	0.13	3,862
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	2.66	8.93	11.1	0.02	0.39	1.04	1.43	0.36	0.42	0.77	—	2,121	2,121	0.09	0.06	0.82	2,140
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.49	1.63	2.02	< 0.005	0.07	0.19	0.26	0.07	0.08	0.14	—	351	351	0.01	0.01	0.14	354

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.77	6.11	17.1	0.04	0.21	0.91	1.13	0.21	0.24	0.45	242	8,202	8,445	24.9	0.61	41.0	9,290
Mit.	4.40	6.11	17.1	0.04	0.21	0.91	1.13	0.21	0.24	0.45	233	8,141	8,374	24.0	0.58	41.0	9,189
% Reduced	8%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.84	6.19	11.3	0.04	0.20	0.91	1.12	0.20	0.24	0.44	242	8,164	8,407	24.9	0.61	34.0	9,245
Mit.	3.46	6.19	11.3	0.04	0.20	0.91	1.12	0.20	0.24	0.44	233	8,103	8,336	24.0	0.58	34.0	9,144
% Reduced	10%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.12	4.60	12.1	0.03	0.15	0.78	0.92	0.14	0.20	0.35	242	7,404	7,646	24.9	0.56	36.5	8,471
Mit.	3.75	4.60	12.1	0.03	0.15	0.78	0.92	0.14	0.20	0.35	233	7,343	7,576	24.0	0.53	36.5	8,370
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.75	0.84	2.20	0.01	0.03	0.14	0.17	0.03	0.04	0.06	40.1	1,226	1,266	4.12	0.09	6.04	1,402
Mit.	0.68	0.84	2.20	0.01	0.03	0.14	0.17	0.03	0.04	0.06	38.6	1,216	1,254	3.97	0.09	6.04	1,386
% Reduced	9%	—	—	—	—	—	—	—	—	—	4%	1%	1%	4%	4%	—	1%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Area	4.04	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066

Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	4.77	6.11	17.1	0.04	0.21	0.91	1.13	0.21	0.24	0.45	242	8,202	8,445	24.9	0.61	41.0	9,290
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677
Area	3.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	3.84	6.19	11.3	0.04	0.20	0.91	1.12	0.20	0.24	0.44	242	8,164	8,407	24.9	0.61	34.0	9,245
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.19	2.49	2.48	0.02	0.02	0.78	0.80	0.02	0.20	0.23	—	2,211	2,211	0.09	0.28	2.66	2,301
Area	3.75	0.03	3.87	< 0.005	0.01	—	0.01	0.01	—	0.01	—	15.9	15.9	< 0.005	< 0.005	—	16.0
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7

Total	4.12	4.60	12.1	0.03	0.15	0.78	0.92	0.14	0.20	0.35	242	7,404	7,646	24.9	0.56	36.5	8,471
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381
Area	0.68	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65
Energy	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	638	638	0.05	< 0.005	—	641
Water	—	—	—	—	—	—	—	—	—	—	16.0	107	123	1.65	0.04	—	176
Waste	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	0.75	0.84	2.20	0.01	0.03	0.14	0.17	0.03	0.04	0.06	40.1	1,226	1,266	4.12	0.09	6.04	1,402

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Area	3.67	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	4.40	6.11	17.1	0.04	0.21	0.91	1.13	0.21	0.24	0.45	233	8,141	8,374	24.0	0.58	41.0	9,189

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677
Area	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Stationary	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Total	3.46	6.19	11.3	0.04	0.20	0.91	1.12	0.20	0.24	0.44	233	8,103	8,336	24.0	0.58	34.0	9,144
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.19	2.49	2.48	0.02	0.02	0.78	0.80	0.02	0.20	0.23	—	2,211	2,211	0.09	0.28	2.66	2,301
Area	3.37	0.03	3.87	< 0.005	0.01	—	0.01	0.01	—	0.01	—	15.9	15.9	< 0.005	< 0.005	—	16.0
Energy	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	3,854	3,854	0.30	0.03	—	3,869
Water	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Waste	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Off-Road	0.07	0.69	4.55	0.01	0.01	—	0.01	0.01	—	0.01	—	651	651	0.03	0.01	—	653
Stationary	0.05	0.15	0.14	< 0.005	0.01	0.00	0.01	0.01	0.00	0.01	0.00	23.6	23.6	< 0.005	< 0.005	0.00	23.7
Total	3.75	4.60	12.1	0.03	0.15	0.78	0.92	0.14	0.20	0.35	233	7,343	7,576	24.0	0.53	36.5	8,370
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381
Area	0.62	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65
Energy	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	638	638	0.05	< 0.005	—	641

Water	—	—	—	—	—	—	—	—	—	—	14.5	97.2	112	1.49	0.04	—	160
Waste	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60
Off-Road	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108
Stationary	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93
Total	0.68	0.84	2.20	0.01	0.03	0.14	0.17	0.03	0.04	0.06	38.6	1,216	1,254	3.97	0.09	6.04	1,386

3. Construction Emissions Details

3.1. Grading (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969

Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	1.75	1.75	—	0.84	0.84	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.32	0.32	—	0.15	0.15	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.2. Grading (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.90	18.2	18.8	0.03	0.84	—	0.84	0.77	—	0.77	—	2,958	2,958	0.12	0.02	—	2,969
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.47	4.50	4.64	0.01	0.21	—	0.21	0.19	—	0.19	—	729	729	0.03	0.01	—	732
Dust From Material Movement	—	—	—	—	—	0.68	0.68	—	0.33	0.33	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.82	0.85	< 0.005	0.04	—	0.04	0.03	—	0.03	—	121	121	< 0.005	< 0.005	—	121
Dust From Material Movement	—	—	—	—	—	0.12	0.12	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.13	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	212	212	0.01	0.01	0.84	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	201	201	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	50.2	50.2	< 0.005	< 0.005	0.09	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.32	8.32	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.3. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.26	4.12	0.00	0.00	0.71	0.71	0.00	0.17	0.17	—	771	771	0.03	0.03	3.04	—
Vendor	0.02	0.81	0.40	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	687	687	0.03	0.09	1.86	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.31	3.48	0.00	0.00	0.71	0.71	0.00	0.17	0.17	—	731	731	0.03	0.03	0.08	—
Vendor	0.02	0.84	0.41	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	688	688	0.03	0.09	0.05	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.20	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	244	244	0.01	0.01	0.43	—
Vendor	0.01	0.28	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	226	226	0.01	0.03	0.26	—

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.4	40.4	< 0.005	< 0.005	0.07	—
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.4	37.4	< 0.005	0.01	0.04	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.4. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.40	3.69	4.31	0.01	0.16	—	0.16	0.15	—	0.15	—	788	788	0.03	0.01	—	791
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	0.67	0.79	< 0.005	0.03	—	0.03	0.03	—	0.03	—	131	131	0.01	< 0.005	—	131
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.26	4.12	0.00	0.00	0.71	0.71	0.00	0.17	0.17	—	771	771	0.03	0.03	3.04	—
Vendor	0.02	0.81	0.40	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	687	687	0.03	0.09	1.86	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.31	3.48	0.00	0.00	0.71	0.71	0.00	0.17	0.17	—	731	731	0.03	0.03	0.08	—
Vendor	0.02	0.84	0.41	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06	—	688	688	0.03	0.09	0.05	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.20	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	244	244	0.01	0.01	0.43	—
Vendor	0.01	0.28	0.13	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	226	226	0.01	0.03	0.26	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.02	0.22	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	40.4	40.4	< 0.005	< 0.005	0.07	—
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	37.4	37.4	< 0.005	0.01	0.04	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.5. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	6.87	8.89	0.01	0.33	—	0.33	0.30	—	0.30	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37.0	37.0	< 0.005	< 0.005	—	37.1
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.13	6.13	< 0.005	< 0.005	—	6.15
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.44	7.44	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.6. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.76	6.87	8.89	0.01	0.33	—	0.33	0.30	—	0.30	—	1,351	1,351	0.05	0.01	—	1,355
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.19	0.24	< 0.005	0.01	—	0.01	0.01	—	0.01	—	37.0	37.0	< 0.005	< 0.005	—	37.1
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.13	6.13	< 0.005	< 0.005	—	6.15
Paving	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.10	1.51	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	282	282	0.01	0.01	1.11	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.44	7.44	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.23	1.23	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.7. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	60.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	3.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.70	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	146	146	0.01	0.01	0.02	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.13	8.13	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.35	1.35	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.8. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	30.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	1.65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	0.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.70	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	146	146	0.01	0.01	0.02	—

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	8.13	8.13	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.35	1.35	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.9. Trenching (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

3.10. Trenching (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.43	3.70	4.94	0.01	0.15	—	0.15	0.13	—	0.13	—	697	697	0.03	0.01	—	700
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	19.1	19.1	< 0.005	< 0.005	—	19.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.16	3.16	< 0.005	< 0.005	—	3.17
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	141	141	0.01	< 0.005	0.56	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.72	3.72	< 0.005	< 0.005	0.01	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.62	0.62	< 0.005	< 0.005	< 0.005	—
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	—

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Total	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677
Total	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381
Total	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Total	0.23	2.76	3.02	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,591	2,591	0.11	0.33	7.18	2,699
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677
Total	0.22	2.89	2.84	0.02	0.03	0.91	0.94	0.03	0.24	0.27	—	2,576	2,576	0.11	0.33	0.19	2,677
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381
Total	0.04	0.45	0.45	< 0.005	< 0.005	0.14	0.15	< 0.005	0.04	0.04	—	366	366	0.02	0.05	0.44	381

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Total	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Total	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	394	394	0.03	< 0.005	—	396
Total	—	—	—	—	—	—	—	—	—	—	—	394	394	0.03	< 0.005	—	396

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Total	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Total	—	—	—	—	—	—	—	—	—	—	—	2,382	2,382	0.17	0.02	—	2,393
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	394	394	0.03	< 0.005	—	396
Total	—	—	—	—	—	—	—	—	—	—	—	394	394	0.03	< 0.005	—	396

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Total	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Total	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	244
Total	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	244

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Total	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Total	0.07	1.23	1.04	0.01	0.09	—	0.09	0.09	—	0.09	—	1,472	1,472	0.13	< 0.005	—	1,476
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	244
Total	0.01	0.23	0.19	< 0.005	0.02	—	0.02	0.02	—	0.02	—	244	244	0.02	< 0.005	—	244

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.93	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Total	4.04	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.78	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65

Total	0.68	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.93	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Total	3.67	0.05	5.65	< 0.005	0.01	—	0.01	0.01	—	0.01	—	23.3	23.3	< 0.005	< 0.005	—	23.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	2.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.74	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65
Total	0.62	0.01	0.71	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.64	2.64	< 0.005	< 0.005	—	2.65

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Total	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Total	—	—	—	—	—	—	—	—	—	—	96.5	649	745	9.94	0.24	—	1,066
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	16.0	107	123	1.65	0.04	—	176
Total	—	—	—	—	—	—	—	—	—	—	16.0	107	123	1.65	0.04	—	176

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Total	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Total	—	—	—	—	—	—	—	—	—	—	87.4	587	675	9.00	0.22	—	965
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	14.5	97.2	112	1.49	0.04	—	160
Total	—	—	—	—	—	—	—	—	—	—	14.5	97.2	112	1.49	0.04	—	160

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Total	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Total	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3
Total	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Total	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509

Total	—	—	—	—	—	—	—	—	—	—	146	0.00	146	14.5	0.00	—	509
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3
Total	—	—	—	—	—	—	—	—	—	—	24.1	0.00	24.1	2.41	0.00	—	84.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33.8	33.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5.60	5.60

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Tractors/L	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916

Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	—	290	290	0.01	< 0.005	—	—
Forklifts	0.01	0.08	1.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	152	152	0.01	< 0.005	—	—
Other Material Handling Equipment	0.03	0.17	2.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	347	347	0.01	< 0.005	—	—
Other General Industrial Equipment	0.02	0.58	0.86	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	123	123	0.01	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	916
Total	0.09	0.97	6.39	0.01	0.02	—	0.02	0.02	—	0.02	—	913	913	0.04	0.01	—	916
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tractors/Loaders/Backhoes	< 0.005	0.02	0.26	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	34.3	34.3	< 0.005	< 0.005	—	—
Forklifts	< 0.005	0.01	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.0	18.0	< 0.005	< 0.005	—	—
Other Material Handling Equipment	< 0.005	0.02	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	40.9	40.9	< 0.005	< 0.005	—	—
Other General Industrial Equipment	< 0.005	0.08	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.6	14.6	< 0.005	< 0.005	—	—
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	108
Total	0.01	0.13	0.83	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	108	108	< 0.005	< 0.005	—	108

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00

Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.22	0.63	0.57	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	115	115	< 0.005	< 0.005	0.00	0.00
Fire Pump	0.11	0.48	0.43	< 0.005	0.03	0.00	0.03	0.03	0.00	0.03	0.00	57.5	57.5	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	173
Total	0.34	1.10	1.00	< 0.005	0.07	0.00	0.07	0.07	0.00	0.07	0.00	173	173	0.01	< 0.005	0.00	173
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Emergency Generator	0.01	0.02	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	2.61	2.61	< 0.005	< 0.005	0.00	0.00
Fire Pump	< 0.005	0.01	0.01	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	1.30	1.30	< 0.005	< 0.005	0.00	0.00
undefined	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.93
Total	0.01	0.03	0.03	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	3.91	3.91	< 0.005	< 0.005	0.00	3.93

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Grading	Grading	1/2/2024	5/6/2024	5.00	90.0	—
Building Construction	Building Construction	6/4/2024	11/18/2024	5.00	120	—
Paving	Paving	5/21/2024	6/3/2024	5.00	10.0	—

Architectural Coating	Architectural Coating	11/19/2024	12/16/2024	5.00	20.0	—
Trenching	Trenching	5/7/2024	5/20/2024	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34

Trenching	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	6.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	6.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	6.00	10.0	0.56
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Excavators	Diesel	Average	2.00	8.00	36.0	0.38
Trenching	Other General Industrial Equipment	Diesel	Average	1.00	8.00	35.0	0.34
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	54.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	21.3	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	10.9	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2
Trenching	Vendor	—	10.2	HHDT,MHDT

Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	54.6	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	21.3	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	20.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	10.9	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	10.0	18.5	LDA,LDT1,LDT2

Trenching	Vendor	—	10.2	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	195,000	65,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Grading	—	—	90.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Heavy Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	690	0.05	0.01

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	122	122	0.00	38,169	1,142	1,142	0.00	357,255

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	122	122	0.00	38,169	1,142	1,142	0.00	357,255

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

0	0.00	195,000	65,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,259,211	690	0.0489	0.0069	4,593,745

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,259,211	690	0.0489	0.0069	4,593,745

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	50,366,250	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	45,606,639	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	270	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	270	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Forklifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.20
Other Material Handling Equipment	Diesel	Tier 4 Final	1.00	8.00	93.0	0.40
Other General Industrial Equipment	Diesel	Tier 4 Final	1.00	8.00	35.0	0.34

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	1.00	50.0	200	0.50

Fire Pump	Diesel	1.00	1.00	50.0	50.0	0.50

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.52	annual days of extreme heat
Extreme Precipitation	6.15	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	53.7
AQ-PM	91.9
AQ-DPM	98.4
Drinking Water	92.5
Lead Risk Housing	—
Pesticides	29.8
Toxic Releases	79.6
Traffic	86.0
Effect Indicators	—
CleanUp Sites	92.5
Groundwater	86.1
Haz Waste Facilities/Generators	93.1
Impaired Water Bodies	66.7
Solid Waste	96.0
Sensitive Population	—
Asthma	26.3
Cardio-vascular	35.9

Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	46.2
Housing	—
Linguistic	91.2
Poverty	60.5
Unemployment	88.4

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—

Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	42.6
Asthma ER Admissions	76.4
High Blood Pressure	4.9
Cancer (excluding skin)	96.9
Asthma	13.4
Coronary Heart Disease	3.9
Chronic Obstructive Pulmonary Disease	0.8
Diagnosed Diabetes	1.8
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.1
Heart Attack ER Admissions	89.4
Mental Health Not Good	0.4
Chronic Kidney Disease	14.8
Obesity	0.1

Pedestrian Injuries	0.0
Physical Health Not Good	0.1
Stroke	2.6
Health Risk Behaviors	—
Binge Drinking	65.1
Current Smoker	0.0
No Leisure Time for Physical Activity	1.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	99.4
Elderly	84.2
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	98.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	6.2
Traffic Density	0.0
Traffic Access	87.4
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	90.0

Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Project specifications
Construction: Construction Phases	Project Specifications
Construction: Off-Road Equipment	Project specifications
Operations: Off-Road Equipment	project specifications
Operations: Vehicle Data	Project specifications
Operations: Fleet Mix	Project specifications
Operations: Generators + Pumps EF	—

APPENDIX B – SUPPLEMENTAL EMISSIONS CALCULATIONS

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Boiler/Heater Emissions Calculations (point source)

Source Characteristics		
Process Equipment Description	Gas fired boilers, 1 mmBTU/hr, steady-state	
Rated Size Range (pull-down for TAC EFs)	<10	mmBTU/hr

Operating Parameters	—	References/Remarks	Value	Units
Annual Throughput	—	PTE	8760	hrs/yr
Daily Throughput	—	PTE	24	hrs/day
Hourly Throughput	—	PTE	1	hrs/hr
Monthly Schedule	—	PTE	30	days/mo

Emissions Parameters	—	References/Remarks	Value	Units
Hourly Heat Input	—	Client specified	1.00	mmBTU/hr
Daily Heat Input	—	Calculated for estimating	24	mmBTU/day
Annual Heat Input	—	Calculated for estimating	8760	mmBTU/yr

Constants	—	References/Remarks	Value	Units
Fuel Gas HHV	—	40 CFR 98 Table C-1	1028	BTU/cf
Standard Molar Volume	—	EPA Method 19 (68°F, 20°C)	385.3	dscf/lb-mole
Dry Fd Factor	—	EPA Method 19 (68°F, 20°C)	8710	dscf/mmBTU
Wet Fw Factor	—	EPA Method 19 (68°F, 20°C)	10610	wscf/mmBTU

Release Parameters	—	References/Remarks	Value	Units
Stack Exit Temperature	—	DNX SCR, 360-930 °F	400	°F
Stack Exit Temperature	—	Calculated for modeling	478	°K
Stack Gas Oxygen Content	—	Typical, LNB 6%, O_2 rich 10%	10.00	percent O_2
Stack Flowrate, wet standard	—	Calculated for percent O_2	339	wscf/min
Stack Flowrate, actual	—	Calculated for stack temp	552	wacf/min
Stack Flowrate, actual	—	Calculated for modeling	0.26	wacm/sec
Stack Height	—	Typical, Industrial	40.00	feet
Stack Height	—	Calculated for modeling	12.19	meters
Stack Diameter	—	Typical, Industrial	8.00	inches
Stack Diameter	—	Calculated for modeling	0.20	meters
Stack Velocity	—	Calculated for modeling	8.04	meters/sec
Stack Velocity	—	Informational	1582	feet/min

Criteria Pollutants, TACs, GHGs	CAS No.	References/Remarks	Emission Factors			Average Hourly Uncontrolled (AHU)	Average Hourly Controlled (AHC)	Maximum Hourly Uncontrolled (MHU)	Maximum Hourly Controlled (MHC)	Maximum Daily Uncontrolled (MHD)	Maximum Daily Controlled (MHC)	Annual Average / Maximum Annual Controlled (AA/MAC)		30-Day Average (30DA)	Annual Average (AA/MAC)	Hourly Maximum (MHC)
			lb/mmcf	ppmv @3%	lb/mmBTU	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/yr	tons/yr	lb/day	g/sec	g/sec
CO	630080	Rule 1146 (c)(1)(D)	—	400	0.29562	0.30	0.30	0.30	0.30	7.09	7.09	2590	1.295	7.09	3.72E-02	3.72E-02
NO_x	10102440	Rule 1146 (c)(1)(D)	—	15	0.01821	0.02	0.02	0.02	0.02	0.44	0.44	160	0.080	0.44	2.29E-03	2.29E-03
PM_{10}	85101	EPA 1998, AP-42 Table 1.4-2	7.60	—	0.00739	0.01	0.01	0.01	0.01	0.18	0.18	65	0.032	0.18	9.31E-04	9.31E-04
$PM_{2.5}$ (99% of PM_{10})	88101	SCAQMD 2006	7.52	—	0.00732	0.01	0.01	0.01	0.01	0.18	0.18	64	0.032	0.18	9.22E-04	9.22E-04
VOC	43104	EPA 1998, AP-42 Table 1.4-2	5.50	—	0.00535	0.01	0.01	0.01	0.01	0.13	0.13	47	0.023	0.13	6.74E-04	6.74E-04
SO_x	7446095	EPA 1998, AP-42 Table 1.4-2	0.66	—	0.00065	0.00	0.00	0.00	0.00	0.02	0.02	6	0.003	0.02	8.19E-05	8.19E-05
PM_{10} $(NH_4)_2SO_4$	9960	SCAQMD 2004	0.00	—	0.00000	0.00	0.00	0.00	0.00	0.00	0.00	0	0.000	0.00	0.00E+00	0.00E+00
CO_2	124389	40 CFR 98 Table C-1	53.02	kg/mmBTU	116.8879	117	117	117	117	2,805	2,805	1,023,938	464.5	2,805	—	—
CH_4	74828	40 CFR 98 Table C-2	0.001	kg/mmBTU	0.0022	0.00	0.00	0.00	0.00	0.05	0.05	19.27	0.009	0.05	—	—
N_2O	10024972	40 CFR 98 Table C-2	0.0001	kg/mmBTU	0.0002	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.001	0.00	—	—
CO_2e	124389	40 CFR 98 Table A-1	53.07	kg/mmBTU	117.0087	117	117	117	117	2,808	2,808	1,024,996	464.9	2,808	—	—

Ordered Format - Daily

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.13	0.44	7.09	0.02	0.18	0.18	2,808

Ordered Format - Annual

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
0.02	0.08	1.30	0.00	0.03	0.03	465

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4-Stroke Spark Ignited IC Engine Emissions Calculations (point source)

Source Characteristics	
Process Equipment Description	Engine generator, Biogas fuel

Operating Parameters	—	References/Remarks	Value	Units
Annual Throughput	—	PTE	8760	hrs/yr
Daily Throughput	—	PTE	24	hrs/day
Hourly Throughput	—	PTE	1	hrs/hr
Monthly Schedule	—	PTE	30	days/mo

Emissions Parameters	—	References/Remarks	Value	Units
Hourly Heat Input (HHV)	—	Calculated for estimating	1.00	mmBTU/hr
Daily Heat Input (HHV)	—	Calculated for estimating	24.00	mmBTU/day
Annual Heat Input (HHV)	—	Calculated for estimating	8,760	mmBTU/yr
Fuel Gas Flowrate	—	Fuel gas usage	1189	cf/hr
Gross Power Output	—	Client specified	100	kw
Heat Rate (HHV)	—	Calculated	9,999	BTU/kw-hr
Heat Rate (HHV)	—	Calculated	7,457	BTU/BHP-hr
Conversion Efficiency (HHV)	—	Calculated	34.1%	percent

Rule 1110.2 Factors	—	References/Remarks	Value	Units
Hourly Heat Input (LHV)	—	Calculated	0.90	mmBTU/hr
Heat Rate (LHV)	—	Calculated	9,025	BTU/kw-hr
Default Heat Rate (LHV)	—	Calculated	9,250	BTU/kw-hr
Efficiency Correction Factor	—	Calculated	1.0250	fract. percent
Total Parasitic Loads	—	Client specified, 4%	4.00	kw
Net Load	—	Gross - Parasitic Loads	0.096	MW
Heat Recovery	—	Client specified, 30%	0.300	mmBTU/hr
Heat Recovery	—	Equivalent	0.088	MW
Energy Efficiency Factor	—	Calculated EEF (NO_X)	0.522	fraction
Energy Efficiency Factor	—	Maximum on Permit (CO, VOC)	0.500	fraction

Constants	—	References/Remarks	Value	Units
Fuel Gas HHV	—	40 CFR 98	841	BTU/cf
Fuel Gas LHV (est.)		40 CFR 98	759	BTU/cf
Standard Molar Volume	—	EPA Method 19 (68°F, 20°C)	385.3	dscf/lb-mole
Dry Fd Factor	—	EPA Method 19 (68°F, 20°C)	10,647	dscf/mmBTU

Release Parameters	—	References/Remarks	Value	Units
Stack Exit Temperature	—	Vendor Spec	400	°F
Stack Exit Temperature	—	Calculated for modeling	478	°K
Stack Gas Oxygen Content	—	Typical, ICE	15	percent O_2
Stack Flowrate, dry standard		Calculated for percent O_2	629	dscf/min
Stack Flowrate, dry actual		Calculated for stack temp	1,024	dacf/min
Stack Gas Moisture Content (est.)		Calculated for percent O_2	6.2	percent H_2O
Stack Flowrate, actual		Calculated for moisture	1,087	wacf/min
Stack Flowrate, actual	—	Calculated for modeling	0.51	wacm/sec
Stack Height	—	Per Drawings	40	feet
Stack Height	—	Calculated for modeling	12.19	meters
Stack Diameter	—	Per Drawings	6	inches
Stack Diameter	—	Calculated for modeling	0.15	meters
Stack Velocity	—	Calculated for modeling	28.1	meters/sec

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BACT Emission Limits (HHV) - Rule 1110.2

BACT - Natural Gas	Limit lb/MW-hr	EEF Adjusted lb/MW-hr	lb/mmBTU	g/BHP-hr	ppmv	Typical Control Technology Notes
CO	0.200	0.400	0.0400	0.135	14.6	*Oxidation Catalyst*
NO_x	0.070	0.134	0.0134	0.045	3.0	*SCR*
PM_{10}	—	—	0.0119	0.040	—	*10 lbs/mmcf (AP-42 Table 3.2-2)*
$PM_{2.5}$ (99% of PM_{10})	—	—	0.0118	0.040	—	*99% of PM_{10}*
VOC (as methane)	0.100	0.200	0.0200	0.068	12.8	*Oxidation Catalyst*
SO_x (4 ppmv in PNG)	—	—	0.0007	0.002	0.1	*0.6 lbs/mmcf (Table 3.2-2)*
PM_{10} $(NH_4)_2SO_4$	—	—	0.0001	0.000	—	*5% conversion*
CO_2e	—	—	115.3838	390.272	—	*IPCC AR4 GWPs (1, 25, 298) for Biogas (row 80)*
NH_3 (ammonia slip in ppmv)	10	—	0.0166	0.056	10.0	
Organic TAC DRE of OXCAT	90%	—	—			*Ref: 90% reduction in organic TACs by correctly sized (low space velocity, F/V) oxidation catalyst as recommended by SDAPCD*

4-Stroke Spark Ignited IC Engine Emissions Calculations

Criteria Pollutants, TACs, GHGs	CAS No.	References/Remarks	Emission Factors	Average Hourly Uncontrolled (AHU)	Average Hourly Controlled (AHC)	Maximum Hourly Uncontrolled (MHU)	Maximum Hourly Controlled (MHC)	Maximum Daily Uncontrolled (MDU)	Maximum Daily Controlled (MDC)	Annual Average / Maximum Annual Controlled (AA/MAC)		30-Day Average (30DA)	Annual Average (AA/MAC)	Hourly Maximum (MHC)
			lb/mmBTU	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/yr	tons/yr	lb/day	g/sec	g/sec
CO	630080	BACT	0.04000	0.04	0.04	0.04	0.04	0.96	0.96	350	0.175	0.96	5.04E-03	5.04E-03
NO_x	10102440	BACT	0.01340	0.01	0.01	0.01	0.01	0.32	0.32	117	0.059	0.32	1.69E-03	1.69E-03
PM_{10}	85101	BACT	0.01190	0.01	0.01	0.01	0.01	0.29	0.29	104	0.052	0.29	1.50E-03	1.50E-03
$PM_{2.5}$ (99% of PM_{10})	88101	BACT	0.01180	0.01	0.01	0.01	0.01	0.28	0.28	103	0.052	0.28	1.49E-03	1.49E-03
VOC	43104	BACT	0.02000	0.02	0.02	0.02	0.02	0.48	0.48	175	0.088	0.48	2.52E-03	2.52E-03
SO_x	7446095	BACT	0.00070	0.00	0.00	0.00	0.00	0.02	0.02	6	0.003	0.02	8.82E-05	8.82E-05
PM_{10} $(NH_4)_2SO_4$	9960	SCAQMD 2004 (5% conv.)	0.00010	0.00	0.00	0.00	0.00	0.00	0.00	1	0.000	0.00	1.26E-05	1.26E-05
CO_2e	124389	40 CFR 98 Table A-1	115.38380	115	115	115	115	2,769	2,769	1,010,711	458.5	2,769	—	—

Ordered Format - Daily

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day	lbs/day
0.48	0.32	0.96	0.02	0.29	0.28	2,769

Ordered Format - Annual

ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$	CO_2e
tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	MT/yr
0.09	0.06	0.18	0.00	0.05	0.05	458

APPENDIX C – HRA MODELING FILES

Model	Title
AERMOD	AERMOD Input File
HARP2	HARP2 Report Summary
HARP2	Resident Receptor Cancer Risk
HARP2	Worker Receptor Cancer Risk

AERMOD Input File

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 11.2.0
** Lakes Environmental Software Inc.
** Date: 9/12/2023
** File: C:\Lakes\AERMOD
View\Larry_Walker_LASAN_Plastics_CEQA_2023_09-05-23\Larry_Walker_LASAN_Plastics_CEQ
A_2023_09-05-23.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\AERMOD View\Larry_Walker_LASAN_Plastics_CEQA_2023_09-05-23\
   TITLETWO Larry Walker Lasan Plastics CEQA 2023
   MODELOPT CONC FLAT
   AVERTIME 1 PERIOD
   URBANOPT 9818605 Los_Angeles_County
   POLLUTID DPM
   RUNORNOT RUN
   ERRORFIL Larry_Walker_LASAN_Plastics_CEQA_2023_09-05-23.err
CO FINISHED
**
****************************************
** AERMOD Source Pathway
****************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
** ------------------------------------------------------------------
** Line Source Represented by Separated Volume Sources
** LINE VOLUME Source ID = TRUCKS
** DESCRSRC
** PREFIX
** Length of Side = 8.59
** Configuration = Separated
** Emission Rate = 0.0005385149
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 3
** -500.000, 50.000, 0.00, 3.49, 7.92
```

AERMOD Input File

```
** 0.000, 50.000, 0.00, 3.49, 7.92
** 0.000, 30.820, 0.00, 3.49, 7.92
** ----------------------------------------------------------------------
   LOCATION L0000001     VOLUME   -495.705 50.000 0.0
   LOCATION L0000002     VOLUME   -478.685 50.000 0.0
   LOCATION L0000003     VOLUME   -461.666 50.000 0.0
   LOCATION L0000004     VOLUME   -444.646 50.000 0.0
   LOCATION L0000005     VOLUME   -427.626 50.000 0.0
   LOCATION L0000006     VOLUME   -410.607 50.000 0.0
   LOCATION L0000007     VOLUME   -393.587 50.000 0.0
   LOCATION L0000008     VOLUME   -376.567 50.000 0.0
   LOCATION L0000009     VOLUME   -359.548 50.000 0.0
   LOCATION L0000010     VOLUME   -342.528 50.000 0.0
   LOCATION L0000011     VOLUME   -325.508 50.000 0.0
   LOCATION L0000012     VOLUME   -308.489 50.000 0.0
   LOCATION L0000013     VOLUME   -291.469 50.000 0.0
   LOCATION L0000014     VOLUME   -274.449 50.000 0.0
   LOCATION L0000015     VOLUME   -257.430 50.000 0.0
   LOCATION L0000016     VOLUME   -240.410 50.000 0.0
   LOCATION L0000017     VOLUME   -223.390 50.000 0.0
   LOCATION L0000018     VOLUME   -206.371 50.000 0.0
   LOCATION L0000019     VOLUME   -189.351 50.000 0.0
   LOCATION L0000020     VOLUME   -172.331 50.000 0.0
   LOCATION L0000021     VOLUME   -155.312 50.000 0.0
   LOCATION L0000022     VOLUME   -138.292 50.000 0.0
   LOCATION L0000023     VOLUME   -121.272 50.000 0.0
   LOCATION L0000024     VOLUME   -104.253 50.000 0.0
   LOCATION L0000025     VOLUME   -87.233 50.000 0.0
   LOCATION L0000026     VOLUME   -70.213 50.000 0.0
   LOCATION L0000027     VOLUME   -53.194 50.000 0.0
   LOCATION L0000028     VOLUME   -36.174 50.000 0.0
   LOCATION L0000029     VOLUME   -19.154 50.000 0.0
   LOCATION L0000030     VOLUME   -2.135 50.000 0.0
   LOCATION L0000031     VOLUME   0.000 35.115 0.0
** End of LINE VOLUME Source ID = TRUCKS
   LOCATION OFFROAD1     VOLUME        -51.700       51.700          0.0
   LOCATION OFFROAD9     VOLUME         51.700      -51.700          0.0
   LOCATION OFFROAD2     VOLUME          0.000       51.700          0.0
   LOCATION OFFROAD3     VOLUME         51.700       51.700          0.0
   LOCATION OFFROAD4     VOLUME        -51.700        0.000          0.0
   LOCATION OFFROAD5     VOLUME          0.000        0.000          0.0
   LOCATION OFFROAD6     VOLUME         51.700        0.000          0.0
   LOCATION OFFROAD7     VOLUME        -51.700      -51.700          0.0
   LOCATION OFFROAD8     VOLUME          0.000      -51.700          0.0
** Source Parameters **
** LINE VOLUME Source ID = TRUCKS
   SRCPARAM L0000001     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000002     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000003     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000004     0.0000173714      3.49      7.92      3.25
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   SRCPARAM L0000005     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000006     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000007     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000008     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000009     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000010     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000011     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000012     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000013     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000014     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000015     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000016     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000017     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000018     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000019     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000020     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000021     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000022     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000023     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000024     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000025     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000026     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000027     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000028     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000029     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000030     0.0000173714      3.49      7.92      3.25
   SRCPARAM L0000031     0.0000173714      3.49      7.92      3.25
** --------------------------------------------------------------------
   SRCPARAM OFFROAD1     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD9     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD2     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD3     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD4     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD5     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD6     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD7     0.0000263694     6.096    12.023     2.835
   SRCPARAM OFFROAD8     0.0000263694     6.096    12.023     2.835
   URBANSRC ALL

** Variable Emissions Type: "By Hour / Day (HRDOW)"
** Variable Emission Scenario: "Scenario 2"
** WeekDays:
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000001     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000002     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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AERMOD Input File

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EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000003     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000003     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000004     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000005     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000006     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000007     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000008     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000009     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000010     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000011     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000012     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000013     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000014     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000015     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
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EMISFACT L0000015     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000016     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000016     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000017     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000017     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000018     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000019     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000020     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000021     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000021     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000022     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000022     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000023     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000023     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000024     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000024     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000024     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000024     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000025     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000025     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000025     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000025     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000026     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000026     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000026     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000026     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000027     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000027     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000027     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000027     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000028     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000028     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000028     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000028     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000029     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000029     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000029     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000029     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000030     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000031     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Saturday:
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000001     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000002     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000003     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000003     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000004     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000004     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000004     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000005     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000005     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000005     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000006     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000006     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000006     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000007     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000007     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000007     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000008     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
   EMISFACT L0000008     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000009     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000009     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000010     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000010     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000011     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000011     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000012     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000012     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000013     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000014     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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EMISFACT L0000015     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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EMISFACT L0000016     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000016     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000018     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000019     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000020     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
EMISFACT L0000020     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000021     HRDOW 0.0 0.0 3.5 3.5 3.5 3.5
EMISFACT L0000021     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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   EMISFACT L0000022     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000022     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000023     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000024     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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   EMISFACT L0000025     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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   EMISFACT L0000029     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
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   EMISFACT L0000031     HRDOW 3.5 3.5 3.5 3.5 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
** Sunday:
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   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000001     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000002     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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AERMOD Input File

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EMISFACT L0000008     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000009     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000013     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000014     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000015     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000017     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000018     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000019     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000021     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000023     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000025     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000026     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000026     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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EMISFACT L0000027     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000027     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
EMISFACT L0000027     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   EMISFACT L0000029     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000029     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000029     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000030     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
   EMISFACT L0000031     HRDOW 0.0 0.0 0.0 0.0 0.0 0.0
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   SRCGROUP OFFROAD  OFFROAD6 OFFROAD7 OFFROAD8
   SRCGROUP Mobile   L0000001 L0000002 L0000003 L0000004 L0000005 L0000006
   SRCGROUP Mobile   L0000007 L0000008 L0000009 L0000010 L0000011 L0000012
   SRCGROUP Mobile   L0000013 L0000014 L0000015 L0000016 L0000017 L0000018
   SRCGROUP Mobile   L0000019 L0000020 L0000021 L0000022 L0000023 L0000024
   SRCGROUP Mobile   L0000025 L0000026 L0000027 L0000028 L0000029 L0000030
   SRCGROUP Mobile   L0000031
   SRCGROUP ALL
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
** DESCRREC "RISK" "Receptors generated from Risk Grid"
   DISCCART      -200.00      -200.00
   DISCCART      -200.00      -150.00
   DISCCART      -200.00      -100.00
   DISCCART      -200.00       -50.00
   DISCCART      -200.00         0.00
   DISCCART      -200.00       100.00
   DISCCART      -200.00       150.00
   DISCCART      -200.00       200.00
   DISCCART      -150.00      -200.00
   DISCCART      -150.00      -150.00
   DISCCART      -150.00      -100.00
   DISCCART      -150.00       -50.00
   DISCCART      -150.00         0.00
   DISCCART      -150.00       100.00
   DISCCART      -150.00       150.00
   DISCCART      -150.00       200.00
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DISCCART      -100.00       200.00
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DISCCART         0.00       400.00
DISCCART         0.00       500.00
DISCCART       100.00       300.00
DISCCART       100.00       400.00
DISCCART       100.00       500.00
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AERMOD Input File

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DISCCART       200.00      500.00
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DISCCART       300.00      500.00
DISCCART       400.00      300.00
DISCCART       400.00      400.00
DISCCART       400.00      500.00
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DISCCART       500.00      400.00
DISCCART       500.00      500.00
DISCCART       300.00      200.00
DISCCART       300.00      100.00
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DISCCART       500.00      100.00
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DISCCART       500.00     -200.00
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DISCCART       500.00     -400.00
DISCCART       500.00     -500.00
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DISCCART       200.00     -500.00
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AERMOD Input File

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   DISCCART        78.17       100.50
   DISCCART       100.50        78.17
   DISCCART       100.50        55.83
   DISCCART       100.50        33.50
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   DISCCART       100.50       -33.50
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   DISCCART        78.17      -100.50
   DISCCART        55.83      -100.50
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   DISCCART       -11.17      -100.50
   DISCCART       -33.50      -100.50
   DISCCART       -55.83      -100.50
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RE FINISHED
**
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** AERMOD Meteorology Pathway
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ME STARTING
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   PROFFILE KCQT_V9_ADJU\KCQT_v9.PFL
   SURFDATA 93134 2012
   UAIRDATA 3190 2012
   PROFBASE 55.0 METERS
ME FINISHED
**
****************************************
** AERMOD Output Pathway
****************************************
**
**
OU STARTING
   RECTABLE ALLAVE 1ST
   RECTABLE 1 1ST
** Auto-Generated Plotfiles
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AERMOD Input File

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LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-05-23.AD\01H1GALL.PLT 31
   PLOTFILE 1 OFFROAD 1ST
LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-05-23.AD\01H1G001.PLT 32
   PLOTFILE 1 Mobile 1ST
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   PLOTFILE PERIOD ALL
LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-05-23.AD\PE00GALL.PLT 34
   PLOTFILE PERIOD OFFROAD
LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-05-23.AD\PE00G001.PLT 35
   PLOTFILE PERIOD Mobile
LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-05-23.AD\PE00G002.PLT 36
   SUMMFILE Larry_Walker_LASAN_Plastics_CEQA_2023_09-05-23.sum
OU FINISHED
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HARP2 Report Summary

HARP Project Summary Report 9/11/2023 12:59:53 PM

PROJECT INFORMATION
HARP Version: 22118
Project Name: LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023
Project Output Directory: C:\HARP2\LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:2
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
MOBILE	100	1	9901	DieselExhPM	0	69524.979	1	1
OFFROAD	101	1	9901	DieselExhPM	1	69524.979	1	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH23216
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL

HARP2 Report Summary

```
9901            DieselExhPM     1.1                                            5


***AIR DISPERSION MODELING INFORMATION***
Versions used in HARP.  All executables were obtained from USEPA's Support Center
for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/)
AERMOD: 18081
AERMAP: 18081
BPIPPRM: 04274
AERPLOT: 13329

***METEOROLOGICAL INFORMATION***
Version:
Surface File:
Profile File:
Surface Station:
Upper Station:
On-Site Station:

***LIST OF AIR DISPERSION FILES***
AERMOD Input File:
AERMOD Output File:
AERMOD Error File:
Plotfile list
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01H1G001.PLT
01H1G002.PLT
cancer_resident_period_variable_emissions.plt
cancer_resident_period_variable_emissions_10_15yrs-2035.plt
cancer_resident_period_variable_emissions_15_20yrs-2040.plt
cancer_resident_period_variable_emissions_20_25yrs-2045.plt
cancer_resident_period_variable_emissions_25_30yrs-2050.plt
cancer_resident_period_variable_emissions_3rdtri_5yrs-2025.plt
cancer_resident_period_variable_emissions_5_10yrs-2030.plt
cancer_worker_variable_emissions.plt
PE00G001.PLT
PE00G002.PLT

***LIST OF RISK ASSESSMENT FILES***
Health risk analysis files (\hra\)
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cancer_resident_period_variable_emissionsCancerRisk.csv
cancer_resident_period_variable_emissionsCancerRiskSumByRec.csv
cancer_resident_period_variable_emissionsGLCList.csv
cancer_resident_period_variable_emissionsHRAInput.hra
cancer_resident_period_variable_emissionsOutput.txt
cancer_resident_period_variable_emissionsPathwayRec.csv
cancer_resident_period_variable_emissionsPolDB.csv
cancer_worker_variable_emissionsCancerRisk.csv
cancer_worker_variable_emissionsCancerRiskSumByRec.csv
```

```
cancer_worker_variable_emissionsGLCList.csv
cancer_worker_variable_emissionsHRAInput.hra
cancer_worker_variable_emissionsOutput.txt
cancer_worker_variable_emissionsPathwayRec.csv
cancer_worker_variable_emissionsPolDB.csv

Spatial averaging files (\sa\)
__________________________
```

Resident Receptor Cancer Risk

```
HARP2 - HRACalc (dated 22118) 9/7/2023 2:24:49 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
**********************************
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: Cancer
Calculation Method: Derived

**********************************
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 30

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 0
2<16 Years Bin: 14
16<30 Years Bin: 14
16 to 70 Years Bin: 0

**********************************
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments.  The remaining
pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: True
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

**********************************
INHALATION

Daily breathing rate: RMP
```

Resident Receptor Cancer Risk

```
**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: ON

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

**********************************
HOMEGROWN CROP PATHWAY SETTINGS

Household type: HouseholdsthatGarden
Fraction leafy: 0.137
Fraction exposed: 0.137
Fraction protected: 0.137
Fraction root: 0.137

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\HARP2\LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023\hra\cancer_resident_perio
d_variable_emissionsCancerRisk.csv
Cancer risk total by receptor saved to:
C:\HARP2\LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023\hra\cancer_resident_perio
d_variable_emissionsCancerRiskSumByRec.csv
HRA ran successfully
```

Worker Receptor Cancer Risk

HARP2 - HRACalc (dated 22118) 9/7/2023 4:39:36 PM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Worker
Scenario: Cancer
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: 16
Total Exposure Duration: 25

Exposure Duration Bin Distribution
3rd Trimester Bin: 0
0<2 Years Bin: 0
2<9 Years Bin: 0
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 25

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: False
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

****
INHALATION

Daily breathing rate: Moderate8HR

Worker Receptor Cancer Risk

```
**Worker Adjustment Factors**
Worker adjustment factors enabled: NO

**Fraction at time at home**
3rd Trimester to 16 years: OFF
16 years to 70 years: OFF

**********************************
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Warm

**********************************
TIER 2 SETTINGS
Tier2 not used.

**********************************

Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to:
C:\HARP2\LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023\hra\cancer_worker_variabl
e_emissionsCancerRisk.csv
Cancer risk total by receptor saved to:
C:\HARP2\LARRY_WALKER_LASAN_PLASTICS_CEQA_2023_09-06-2023\hra\cancer_worker_variabl
e_emissionsCancerRiskSumByRec.csv
HRA ran successfully
```

Appendix D Biological Resources Existing Environment

Biological Resources Existing Environment
for the
Programmatic Environmental Impact Report

Prepared for:
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Prepared by:
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San Diego, CA 92105
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Staff Biologist
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July 31, 2023

1.0 Introduction

This section describes the geographic setting for biological resources that occur within the City of Los Angeles (City). Figures are included as Attachment A. The regulatory setting for biological resources that occur within the City are included as Attachment B. Lastly, the biological database queries are included as Attachment C.

2.0 Setting

2.1 Geographic Setting

2.1.1 Regional Setting

The City of Los Angeles lies in Los Angeles County, which encompasses approximately 4,084 square miles. The County borders 70 miles of coastline on the Pacific Ocean and extends west to the Mojave Desert. The County is divided west-to-east by the San Gabriel Mountains, which are part of the Transverse Ranges of southern California. The region's climate is characteristic of a Mediterranean climate system with hot, dry summers and cooler, wetter winters.

2.1.2 Local Setting

The City of Los Angeles encompasses approximately 469 square miles of land and is bounded by the Pacific Ocean to the west, the Angeles National Forest to the north, and the San Gabriel Valley to the east. Elevations within the City range from sea level at the coast to 5,075 feet above mean sea level (amsl) at Mount Lukens in the northeastern end of the San Fernando Valley. Average temperatures in the City range from 55 degrees Fahrenheit (°F) in the winter months to 74°F in the summer. Average annual rainfall in the City is approximately 14.77 inches, with the majority of rain falling between December and March (WRCC 2023).

3.0 Existing Conditions

3.1 Vegetation Communities and Land Cover Types

Urbanization in the City has substantially reduced the abundance and diversity of biological resources. This is most evident in the central portion of the City, where development is the most dense (Figure 1; City of Los Angeles 2001). The majority of remaining natural open space in the City is limited to the mountainous terrain bordering the San Fernando and San Gabriel Valleys (the Simi Hills, Santa Susana Mountains, San Gabriel Mountains, and Verdugo Mountains). Another large natural open-space area within the City is located at the eastern end of the Santa Monica Mountains, where the range separates the San Fernando Valley from the coastal plain of metropolitan Los Angeles (City of Los Angeles 2001).

Significant biological resource areas within the City include lowland areas of the coastal plain such as Sepulveda flood control basin, Tujunga and Pacoima spreading grounds, and Harbor Lake Park. In addition, the beaches and coastal canyons of the Pacific Palisades, dunes and estuarine wetlands of the southwest coastline, beaches and headlands of the Palos Verdes peninsula, and Terminal

Island in the Los Angeles Harbor are all important habitats for plants and wildlife of the City (City of Los Angeles 2001).

Vegetation communities within open space areas of the City are highly varied. The north slopes and high-elevation south slopes of the Santa Monica and Verdugo mountains are dominated by dense chaparral habitat. Lower-elevation south slopes of the Santa Monica and Verdugo Mountains, as well as the Simi Hills, Santa Susana, and San Gabriel Mountains are dominated by open coastal sage scrub and grassland habitats. The mountainous areas of the City support riparian woodland habitats dominated by willow, oak, sycamore, cottonwood, and alder (City of Los Angeles 2001). Along the coastal areas of the City, sandy beaches, rocky cliffs, and headlands provide suitable habitat for marine intertidal invertebrates, fish, mammals, various avian species, as well as rare plant species. The southwestern coastal area of the City includes coastal saltmarsh, salt flats, freshwater marsh, riparian scrub, bluffs, and dunes that support sensitive wildlife and plant species (City of Los Angeles 2001).

Other vegetation communities and land cover types that occur within the City include agriculture, annual grassland, open water, disturbed habitat, oak woodland, big-cone spruce woodland, walnut woodland, coastal dune scrub, and willow forest (Figure 1; City of Los Angeles 2001).

3.2 Wildlife of the City

Given the urbanized nature of the majority of the City, most wildlife communities in the City consist of species that can tolerate human-dominated landscapes. Commonly encountered mammals in the City include pocket gophers (*Thomomys* sp.), coyote (*Canis latrans*), squirrels (*Sciuridae* sp.), Virginia opossum (*Didelphis virginiana*), common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and rabbits (*Sylvilagus* sp.). Commonly encountered avian species in the City include house finch (*Haemorhous mexicanus*), American crow (*Corvus brachyrhynchos*), California towhee (*Melozone crissalis*), California scrub jay (*Aphelocoma californica*), northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), and Anna's hummingbird (*Calypte anna*). Common reptiles found in the City include southern alligator lizard (*Elgaria multicarinata*), western fence lizard (*Sceloporus occidentalis*), western side blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*). Amphibians found within the City include Baja California tree frog (*Pseudacris hypochondriaca*) and western toad (*Anaxyrus boreas*) (iNaturalist 2023).

3.3 Aquatic Resources

Various aquatic resources, including rivers, streams, and wetlands, are present within the City (Figure 2; USGS 2023, USFWS 2023a). The Los Angeles River is the primary drainage channel within the City. The river originates in the Canoga Park region of the City, flows east from the San Fernando Valley along the Santa Monica Mountains, turns south through the City center, and ultimately flows to the Port of Long Beach in the Pacific Ocean. Ballona Creek is another drainage that flows through the Mid-City neighborhood of Los Angeles and continues to the community of Playa del Rey where it empties into the Santa Monica Bay.

The Ballona Wetlands Ecological Reserve, located in the Playa del Rey community of the City, is the City's largest wetland totaling approximately 600 acres. Habitats within the reserve include coastal salt marsh, salt pan, freshwater marsh, riparian scrub, riparian forest, seasonal wetlands, coastal sage scrub, and coastal sand dunes (Friends of Ballona Wetlands 2023).

3.4 Significant Ecological Areas

Significant Ecological Areas (SEA) are officially designated areas within Los Angeles County that contain sensitive biological resources. The SEA Program was originally established as a part of the 1980 County General Plan in order to conserve the genetic and physical diversity within the County by designating biological resources areas capable of sustaining themselves into the future. Within SEAs, development is carefully reviewed with a focus on conservation of sensitive biological resources.

Two County SEAs lie completely within the boundaries of the City: Tujunga Valley/Hansen Dam and Griffith Park. In addition, three more SEAs overlap partially with the City including Verdugo Mountains (northeast portion of the City), Santa Susana Mountains/Simi Hills (northwest portion of the City), and Santa Monica Mountains (southwest portion of the City; Figure 3).

Special-status species that are historically known to occur within the Tujunga Valley/Hansen Dam SEA include Nevin's barberry (*Berberis nevinii*), slender-horned spineflower (*Dodecahema leptoceras*), arroyo chub (*Gila orcuttii*), and Santa Ana sucker (*Catostomus santaanae*) (City of Los Angeles 2001). Sensitive vegetation communities within the Tujunga Valley/Hansen Dam SEA include alluvial scrub, freshwater marsh, willow forest, and willow scrub (City of Los Angeles 2001).

Special-status species that are historically known to occur within the Griffith Park SEA include mountain lion (*Puma concolor*), southern California legless lizard (*Anniella stebbinsi*), and coast horned lizard (*Phrynosoma blainvillii*). Vegetation communities within the Griffith Park SEA include oak-walnut woodland, oak woodland, oak-sycamore riparian woodland, mixed chaparral, and mixed coastal sage scrub (City of Los Angeles n.d.).

Special-status species that are historically known to occur within the Santa Susana Mountains/ Simi Hills SEA include southern California rufous-crowned sparrow (*Aimophila ruficeps canescen*), two-striped gartersnake (*Thamnophis hammondii*), and least Bell's vireo (*Vireo bellii pusillus*) (PCR 2000a). Sensitive vegetation communities within the Santa Susana Mountains/Simi Hills SEA include coastal sage scrub, alluvial scrub, valley oak woodland, valley oak savannah, mainland cherry woodland, native grassland, southern willow scrub, and cottonwood-willow riparian forest (PCR 2000a).

Special-status species that are historically known to occur within the Santa Monica Mountains SEA include southern tarplant (*Centromadia parryi* ssp. *australis*), southern California steelhead (*Oncorhynchus mykiss*), arroyo chub, Coast Range newt (*Taricha torosa*), coast horned lizard (*Phrynosoma blainvillii*), coastal whiptail (*Aspidoscelis tigris stejneger*i), southwestern willow flycatcher (*Empidonax traillii extimus*), and southern California rufous-crowned sparrow (PCR 2000b). Sensitive vegetation communities within the Santa Monica Mountains SEA include coastal sage scrub, native grassland, valley oak woodland, walnut woodland, southern willow scrub, southern cottonwood-willow riparian forest, sycamore-alder woodland, oak riparian forest, freshwater marsh, and salt marsh (PCR 2000b).

Both general and specific accounts of biological resources within the Verdugo Mountains SEA are lacking, and the most recent vegetation map of the area was prepared in 1934 (City of Los Angeles 2001). Based on aerial photography, vegetation communities within this SEA include grassland, coastal sage scrub, chaparral, riparian scrub and forests, and oak woodlands (City of Los Angeles 2001).

3.5 Coastal and Marine Habitats

Marine Protected Areas (MPAs) are areas where human activities are managed to protect important natural or cultural resources (NOAA 2023a). There are no MPAs in the City, however, there are MPAs near the City. The Point Fermin Marine Life Refuge (designated as a State Marine Conservation Area), is managed by CDFW and is located on the Palos Verdes Peninsula, south of Fort MacArthur (Figure 3). Commercial and recreational fishing is restricted in this MPA (NOAA 2023b). In addition, the Point Dume State Marine Reserve, is located along the Malibu coastline, west of Pacific Palisades. This MPA is managed by CDFW and has a "No Take" level of protection (NOAA 2023b).

In State marine conservation areas, it is unlawful to injure, damage, take, or possess any marine resources for commercial or recreational purposes that would compromise the protection of the species of interest, natural community, habitat, or geological feature.

In State marine reserves it is unlawful to injure, damage, take, or possess any marine resource, except under a permit or specific authorization. Access for activities including, but not limited to, walking, swimming, boating, and diving may be restricted to protect marine resources.

3.6 Essential Fish Habitat

Essential Fish Habitat (EFH) are areas in marine and estuary waters that include habitat that is essential for the spawning, breeding, feeding, and growth to maturity of federally managed fish (NOAA 2022). There are no EFHs within the City but the coastline surrounding the City contains EFHs for many species including albacore tuna, bigeye tuna, blue shark, broadbill swordfish, coastal pelagic species, common thresher shark, dorado, finfish, groundfish, krill, northern bluefin tuna, shortfin mako shark, skipjack tuna, striped marlin, and yellowfin tuna (Figure 3).

3.7 Critical Habitat

A database query of the USFWS Critical Habitat Online Mapper (USFWS 2023c) was conducted to identify any USFWS-designated critical habitat that occurs within the City. Critical habitat for coastal California gnatcatcher (*Polioptila californica californica*) is present in the northwest portion of the City near Oat Mountain (Figure 4). In addition, critical habitat for southwestern-willow flycatcher exists near Hansen Dam. Designated-critical habitat for Santa Ana sucker is also present in the northeast area of the City along Big Tujunga Creek. A small area of critical habitat for Braunton's milk-vetch (*Astragalus brauntonii*) occurs within Topanga State Park in the southwest portion of the City. Two areas of critical habitat for western snowy plover (*Charadrius nivosus nivosus*) occur within the City. One area is located between Pacific Palisades and Santa Monica, and the second area is located along Dockweiler State Beach. Lastly, a small area of critical habitat for the Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*) occurs near the southern tip of the City on the Palos Verdes peninsula.

Critical habitat for California red-legged frog (*Rana draytonii*) falls just outside the western boundary of the City, just north of the City of Calabasas. Lastly, a small area of critical habitat for tidewater goby (*Eucycloglobius newberryi*) is present to the west of the City, south of Tuna Canyon Park (Figure 4).

3.8 Special-Status Species

Within the City, 61 special-status species, including 26 plants and 35 animals were identified through queries of multiple biological databases (Attachment C). First, a CNDDB query was conducted of the U.S.G.S topographic quadrangles that overlap with the City's boundaries including *Sunland, Pasadena, Burbank, San Pedro, Torrance, Inglewood, Los Angeles, Hollywood, Venice, Beverly Hills, Topanga, Van Nuys, Canoga Park*, and *San Fernando*. The CNDDB query focused on species occurrences that have been recorded from 2013 to present day (2023). In addition, a species list was obtained through the United State Fish and Wildlife's (USFWS) Information for Planning and Conservation (IPaC) website of Threatened and Endangered Species occurring within the City (USFWS 2023c). Lastly, the National Marine Fisheries Service (NMFS) was reviewed for a list of species that occur within marine areas located in/near the City (NOAA Fisheries 2022).

Potentials for special-status species to occur within the City were evaluated based on proximity, recency and abundance of known occurrences, availability of suitable habitats, and historic distributions of the species. Potentials for occurrence were generally evaluated based on the following criteria:

- **High** – Historic records indicate that the species has been known to occur within the vicinity of the City (5 miles), and moderate to high-quality suitable habitat occurs in the City.
- **Moderate** – Historic records indicate that the species has been known to occur within the vicinity of the City (5 miles), but low-quality suitable habitat occurs onsite, or; no historic records occur within the City, but the City occurs within the historic range of the species, and moderate to high quality habitat occurs in the City.
- **Low** – Historic records indicate that the species has not been known to occupy the immediate vicinity of the City, and low-quality habitat for the species exists in the City.
- **Unlikely** – The species is restricted to habitats not occurring within the City or is considered extirpated from the City.

The following status codes were used to categorize each special-status species identified in the database queries:

- FE: Federally Endangered
- FT: Federally Threatened
- FC: Federal Candidate
- SE: State Endangered
- ST: State Threatened
- SCE: State Candidate Endangered
- SCT: State Candidate Threatened
- SR: State Rare
- FP: California Fully Protected
- SSC: California Species of Special Concern
- WL: State Watch List
- CRPR:
  - 1B: Plants rare, threatened, or endangered in California and elsewhere
  - 2B: Plants rare, threatened, or endangered in California but more common elsewhere
  - 3: Plants about which more information is needed
  - 4: Watch list, plants of limited distribution
    - 0.1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
    - 0.2: Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
    - 0.3: Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

3.8.1 Special-Status Plants

The following special-status plant species were identified in the database queries:

- Parish's brittlescale (*Atriplex parishii*; **CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- slender mariposa-lily (*Calochortus clavatus var. gracilis*; **CRPR 1B.2**)
  - Potential to Occur: **Low**
- Santa Susana tarplant (*Deinandra minthornii*; **SR, CRPR 1B.2**)
  - Potential to Occur: **Low**
- Davidson's bush-mallow (*Malacothamnus davidsonii:* **CRPR 1B.2**)
  - Potential to Occur: **Moderate**
- Braunton's milk-vetch (*Astragalus brauntonii*; **FE, CRPR 1B.1**)
  - Potential to Occur: **Moderate**
- aphanisma (*Aphanisma blitoides*; **CRPR 1B.2**)
  - Potential to Occur: **Moderate**
- Palmer's grapplinghook (*Harpagonella palmeri;* **CRPR 4.**2)
  - Potential to Occur: **Unlikely**
- San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*; **SE, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- California Orcutt grass (*Orcuttia californica*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*; **CRPR 1B.1**)
  - Potential to Occur: **Low**
- Lyon's pentachaeta (*Pentachaeta lyonii*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**

- Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*; **CRPR 3.1**)
  - Potential to Occur: **Low**
- southern tarplant (*Centromadia parryi* ssp. *australis*; **CRPR 1B.1**)
  - Potential to Occur: **High**
- Parry's spineflower (*Chorizanthe parryi* var. *parryi*; **CRPR 1B.1**)
  - Potential to Occur: **Low**
- Greata's aster (*Symphyotrichum greatae*; CRPR 1B.3)
  - Potential to Occur: **Unlikely**
- Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*; **CRPR 1B.1**)
  - Potential to Occur: **High**
- salt spring checkerbloom (*Sidalcea neomexicana*; **CRPR 2B.2**)
  - Potential to Occur: **Low**
- south coast saltscale (*Atriplex pacifica;* **CRPR 1B.2**)
  - Potential to Occur: **Low**
- Sanford's arrowhead (*Sagittaria sanfordii*; **CRPR 1B.2**)
  - Potential to Occur: **Moderate**
- coastal dunes milk-vetch (*Astragalus tener* var. *titi*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- Gambel's watercress (*Rorippa gambellii*; **FE, ST, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- marsh sandwort (*Arenaria paludicola*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**
- Nevin's barberry (*Berberis nevinii*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Moderate**
- salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *Maritimus*; **FE, SE, CRPR 1B.2**)
  - Potential to Occur: **Low**
- slender-horned spineflower (*Dodecahema leptoceras*; **FE, SE, CRPR 1B.1**)
  - Potential to Occur: **Moderate**
- spreading navarretia (*Navarretia fossalis*; **FT, CRPR 1B.1**)
  - Potential to Occur: **Unlikely**

3.8.2 Special-Status Wildlife

The following special-status wildlife species were identified in the database queries:

- monarch - California overwintering population (*Danaus plexippus plexippus* pop. 1; **FC**)
  - Potential to Occur: **High**
- coastal California gnatcatcher (*Polioptila californica californica*; **FT, SSC**)
  - Potential to Occur: **High**
- coast horned lizard (*Phrynosoma blainvillii*; **SSC**)
  - Potential to Occur: **Moderate**
- western pond turtle (*Emys marmorata*; **SSC**)
  - Potential to Occur: **Low**
- Santa Ana speckled dace (*Rhinichthys osculus* ssp. 8; **SSC**)
  - Potential to Occur: **High**
- arroyo chub (*Gila orcuttii*; **SSC**)
  - Potential to Occur: **High**
- American badger (*Taxidea taxus*; **SSC**)
  - Potential to Occur: **Low**

- least Bell's vireo (*Vireo bellii pusillus*; **FE, SE**)
  - Potential to Occur: **High**
- Crotch bumble bee (*Bombus crotchii*; **SCE**)
  - Potential to Occur: **Moderate**
- southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*; **WL**)
  - Potential to Occur: **High**
- Coast Range newt (*Taricha torosa*; **SSC**)
  - Potential to Occur: **Low**
- coastal whiptail (*Aspidoscelis tigris stejnegeri*; **SSC**)
  - Potential to Occur: **Moderate**
- southern California legless lizard (*Anniella stebbinsi*; **SSC**)
  - Potential to Occur: **High**
- California legless lizard (*Anniella* spp.; **SSC**)
  - Potential to Occur: **High**
- western spadefoot (*Spea hammondii*; **SSC**)
  - Potential to Occur: **Low**
- two-striped gartersnake (*Thamnophis hammondii*; **SSC**)
  - Potential to Occur: **Low**
- Pacific pocket mouse (*Perognathus longimembris pacificus*; **FE, SSC**)
  - Potential to Occur: **Low**
- California condor (*Gymnogyps californianus*; **FE, SE, FP**)
  - Potential to Occur: **Unlikely (nesting), Low (foraging)**
- California least tern (*Sterna antillarum browni*, **FE, SE, FP**)
  - Potential to Occur: **Moderate**
- California spotted owl (*Strix occidentalis occidentalis*; **SSC**)
  - Potential to Occur: **Unlikely (nesting), Low (foraging)**
- Hawaiian petrel (*Pterodroma sandwichensis*; **FE**)
  - Potential to Occur: **Unlikely (nesting), Low (foraging)**
- light-footed clapper rail (*Rallus longirostris levipes*; **FE, SE, FP**)
  - Potential to Occur: **Unlikely**
- marbled murrelet (*Brachyramphus marmoratus*; **FT, SE**)
  - Potential to Occur: **Unlikely**
- short-tailed albatross (*Phoebastria =Diomedea albatrus*; **FE, SSC**)
  - Potential to Occur: **Unlikely (nesting), Low (foraging)**
- southwestern willow flycatcher (*Empidonax traillii extimus*; **FE, SE**)
  - Potential to Occur: **Moderate**
- western snowy plover (*Charadrius nivosus nivosus*; **FT, SSC**)
  - Potential to Occur: **Moderate**
- yellow-billed cuckoo (*Coccyzus americanus*; **FT, SE**)
  - Potential to Occur: **Unlikely**
- arroyo toad (*Anaxyrus californicus*; **FE, SSC**)
  - Potential to Occur: **Unlikely**
- Santa Ana sucker (*Catostomus santaanae*; **FT**)
  - Potential to Occur: **Moderate**
- El Segundo blue butterfly (*Euphilotes battoides allyni*; **FE**)
  - Potential to Occur: **High**
- Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*; **FE**)
  - Potential to Occur: **Moderate**

- Riverside fairy shrimp (*Streptocephalus woottonii*; **FE**)
    - Potential to Occur: **Unlikely**
- vernal pool fairy shrimp (*Branchinecta lynchi*; **FT**)
    - Potential to Occur: **Unlikely**
- mountain lion (southern California ESU) (*Puma concolor*; **SCT**)
    - Potential to Occur: **High**
- southern California steelhead (*Oncorhynchus mykiss*; **FE, SCE**)
    - Potential to Occur: **Moderate**

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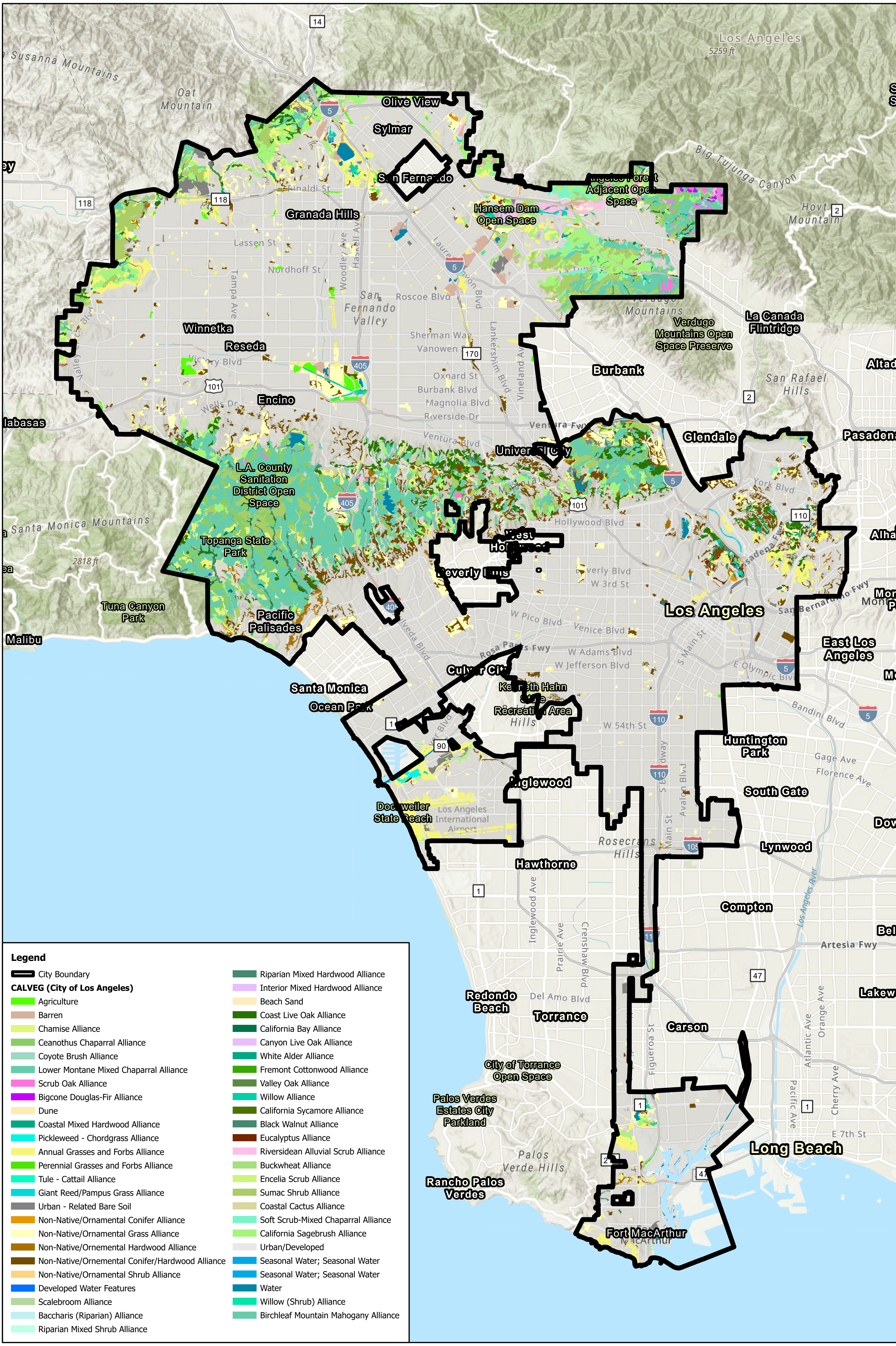
ATTACHMENT A

Figures

BLACKHAWK
Environmental



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Miles

Figure 1
Vegetation Communities

City of Los Angeles LASAN Plastics PEIR

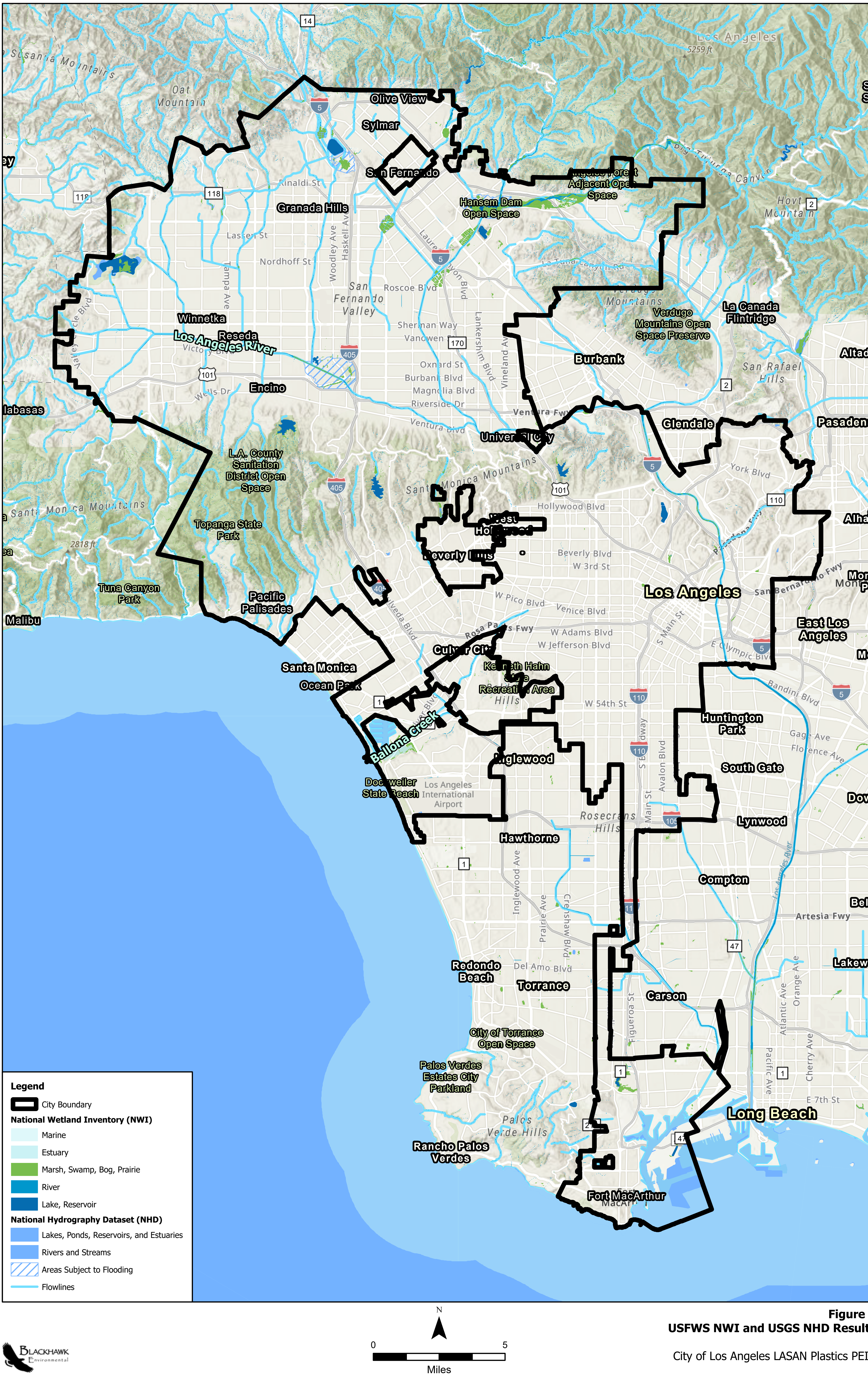
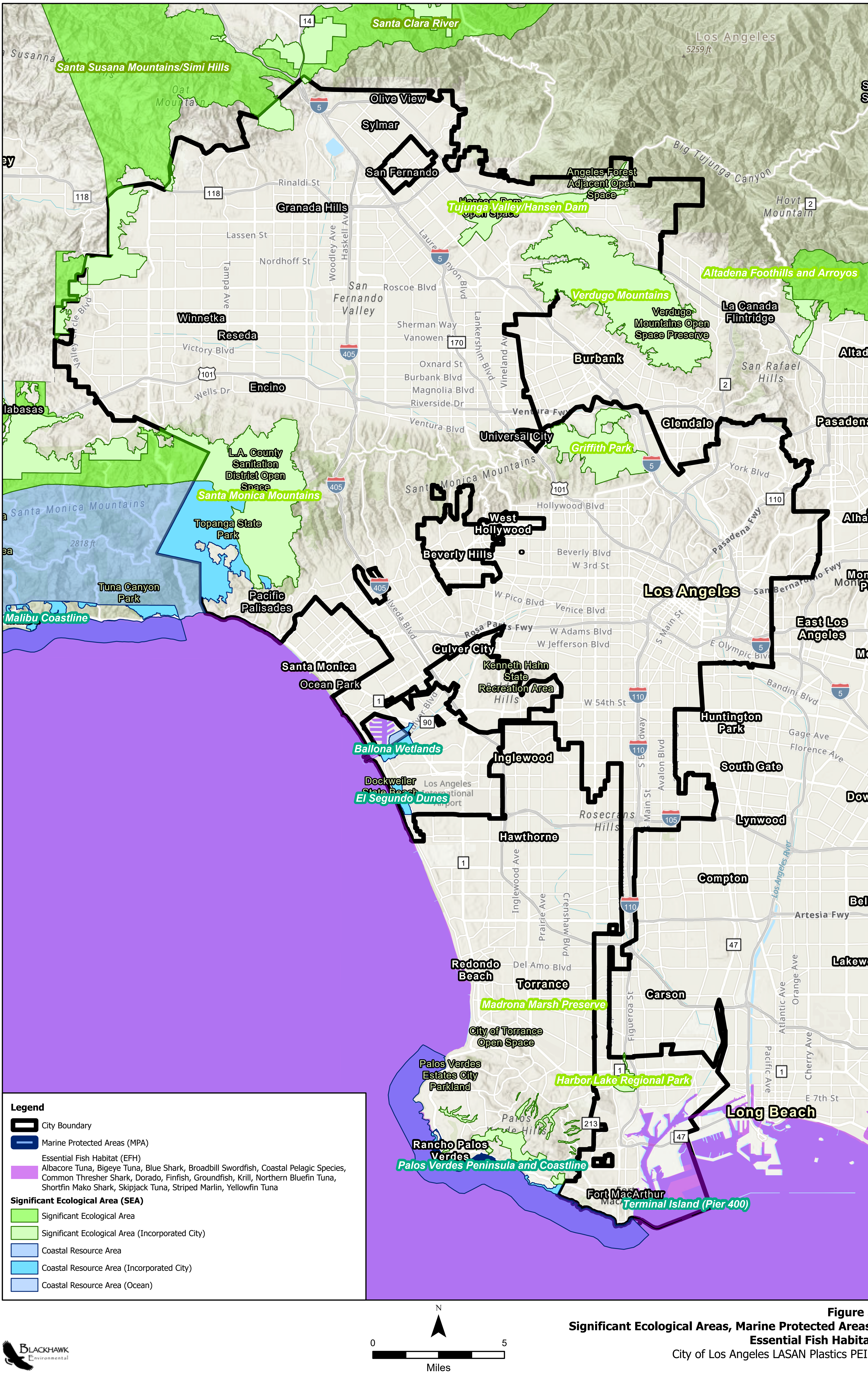


Figure 2
USFWS NWI and USGS NHD Results

City of Los Angeles LASAN Plastics PEIR

Blackhawk Environmental



BLACKHAWK Environmental

Figure 3
Significant Ecological Areas, Marine Protected Areas, Essential Fish Habitat
City of Los Angeles LASAN Plastics PEIR

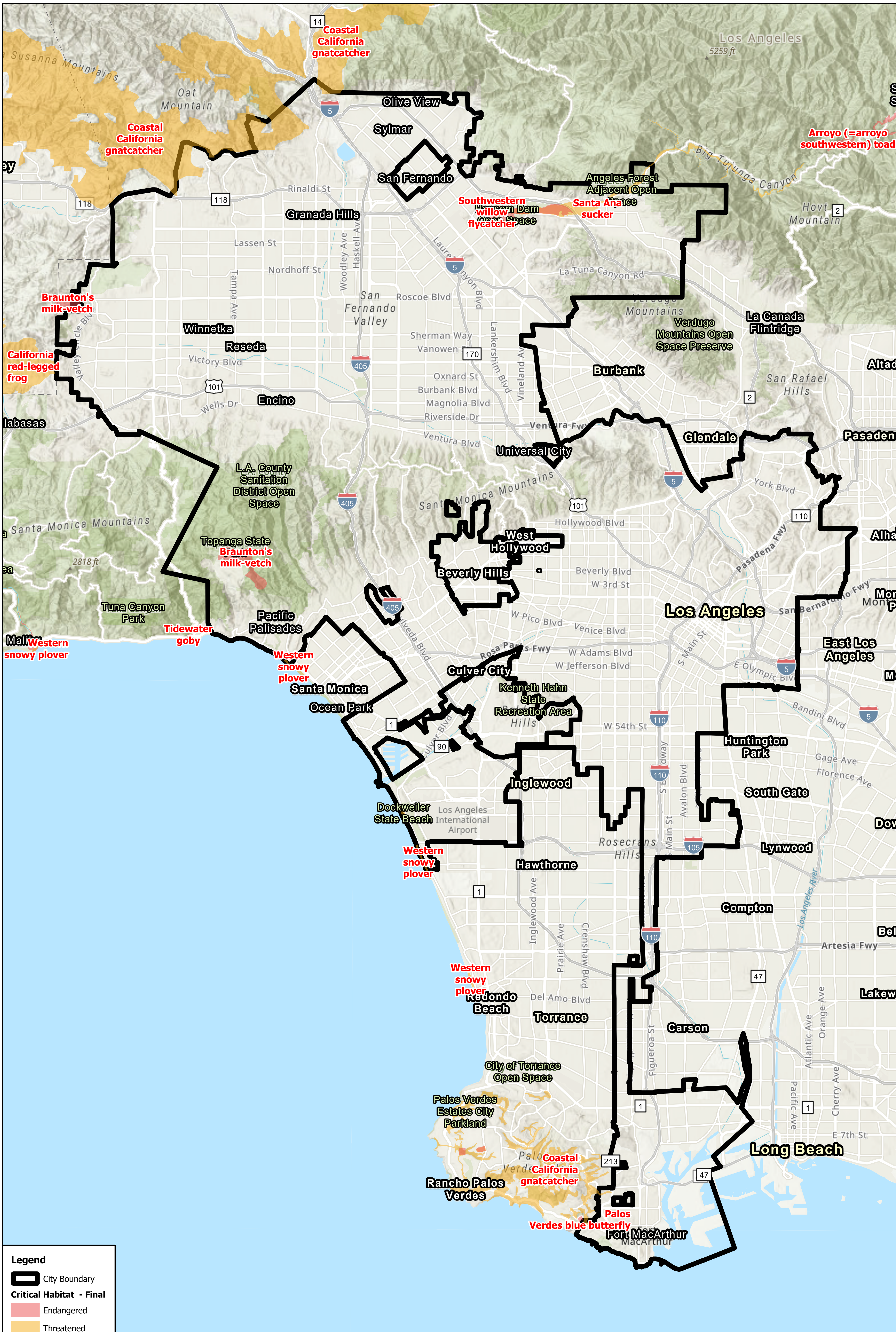


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Figure 4
USFWS Designated Critical Habitat

City of Los Angeles LASAN Plastics PEIR

Blackhawk Environmental

ATTACHMENT B

Regulatory Setting

Regulatory Framework

1.1 Federal Regulations

1.1.1 Federal Endangered Species Act (ESA)

The Federal Endangered Species Act of 1973 (ESA) defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the ESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of ESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the United States Fish and Wildlife Service (USFWS), through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a Federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the ESA addresses the protections afforded to listed plants.

1.1.2 Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (PL 65-186, as amended; 16 USC §§ 703 et seq.) protects most birds, whether or not they migrate. Birds, their nests, eggs, parts, or products may not be killed or possessed. Game birds are listed and protected except where specific seasons, bag limits, and other features govern their hunting. Exceptions are made for some agricultural pests, which require a USFWS permit (yellow-headed, red-winged, bi-colored, tri-colored, rusty and Brewer's Blackbirds, cowbirds, all grackles, crows and magpies). Some other birds that injure crops in California may be taken under the authority of the County Agricultural Commissioner (meadowlarks, horned larks, golden-crowned sparrows, white- and other crowned sparrows, goldfinches, house finches, acorn woodpeckers, Lewis' woodpeckers and flickers). Permits may be granted for various non-commercial activities involving migratory birds and some commercial activities involving captive-bred migratory birds.

1.1.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (PL 95-616; 16 USC §§ 668 et seq.) provides for protection of the bald and golden eagles by prohibiting taking, possession, and commerce in the birds.

1.1.4 Fish and Wildlife Conservation Act of 1980

The Fish and Wildlife Conservation Act of 1980 (PL 96-366; 16 USC §§2901 et seq.) provides for conservation, protection, restoration and propagation of certain species, including migratory birds threatened with extinction.

1.1.5 Federal Clean Water Act (CWA)

The Clean Water Act (CWA) regulates the discharge of pollutants to Waters of the United States to protect water quality and the beneficial uses of these waters. Through a permit application process, CWA Section 404 regulates dredge and fill discharges to waters of the United States.

1.1.5.1 USACE Waters of the U.S.

According to the USACE Wetland Delineation Manual, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions."

Regulatory Definition

In accordance with Section 404 of the Clean Water Act (CWA), USACE regulates the discharge of dredged or fill material into Waters of the United States. The term "Waters of the United States" is defined as:

- All Traditional Navigable Waters (TNW) currently used, or used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;

- All interstate waters, including interstate wetlands;

- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds; the use, degradation, or destruction of which could affect foreign commerce including any such waters, (1) which could be used by interstate or foreign travelers for recreational or other purposes; or (2) from which fish or shellfish are, or could be, taken and sold in interstate or foreign commerce; or (3) which are used or could be used for industries in interstate commerce;

- All other impoundments of waters otherwise defined as Waters of the United States under the definition;

- Tributaries of waters identified above;

- The territorial seas; and

- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above (33 Code of Federal Regulations [CFR] Part 328.3[a]).

Non-navigable tributaries that do not constitute Relatively Permanent Waters (RPW; exhibit at least seasonal flow, typically three months) may be considered Waters of the U.S. based on significant nexus standards, which may include assessment of downstream hydrologic and ecological functions of the tributary, as well as connectivity to receiving waters (RPWs and/or TNWs).

Wetland Parameters

Wetlands are delineated using three parameters: hydrophytic vegetation, wetland hydrology and hydric soils. According to USACE, indicators for all three parameters must normally be present to qualify as a wetland.

Hydrophytic Vegetation

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content" (USACE 1987). The potential wetland areas within the Survey Area were surveyed by walking through the Project site and making observations of those areas exhibiting characteristics of jurisdictional waters or wetlands. Vegetation units with potential wetland areas were examined, and data for each vegetation stratum (i.e., tree, shrub, herb and vine) were recorded on the datasheet provided in the Arid West Supplement (USACE 2008). The percent absolute cover of each species present was visually estimated and recorded.

The wetland indicator status of each species recorded was determined by using the National Wetland Plant Inventory (Lichvar, et. al. 2016). An obligate (OBL) indicator status refers to plants that are almost always hydrophytic and rarely in uplands. A facultative wet (FACW) indicator status refers to plants that usually are hydrophytic but are occasionally found in non-wetlands. A facultative (FAC) indicator status refers to plants that commonly occur as either a hydrophyte or non-hydrophyte. Facultative upland (FACU) species occasionally are hydrophytic but usually occur in uplands. Upland (UPL) species almost always occur in uplands and are rarely hydrophytic. A not indicated (NI) status refers to species that have insufficient data available to determine an indicator status at this time for the local region.

Plant species nomenclature follows that contained in *the Jepson Online Interchange* (Jepson Flora Project 2014). Dominant species with an indicator status of NI or not listed in the 2014 list were evaluated as either wetland or upland indicator species based on local professional knowledge of where the species are most often observed in habitats characteristic of southern California.

Hydric Soils

A hydric soil is a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (USACE 1987). Hydric soil indicators are formed predominantly by the accumulation or loss of iron, manganese, sulfur or carbon compounds (USACE 2008). The hydric soil criterion is considered fulfilled at a location if soils in the area can be inferred to have a high groundwater table, evidence of prolonged soil saturation exists, or any indicators suggesting a long-term reducing environment in the upper 18 inches of the soil profile are present.

A sampling point is typically selected within a potential wetland area where the apparent boundary between wetland and upland is inferred based on changes in the composition of the vegetation and topography. Soil pits are dug to a depth of at least 18 inches or to a depth necessary to determine soil color, evidence of soil saturation, depth to groundwater, and indicators of a reducing soil environment (e.g., mottling, gleying, sulfidic odor).

Wetland Hydrology

The presence of wetland hydrology indicators can confirm that inundation or saturation has occurred on a site, but may not provide information about the timing, duration or frequency of the events. Hydrology features are generally the most ephemeral of the three wetland parameters (USACE 2008).

Hydrologic information for the site was obtained by reviewing USGS topographic maps, historic and current aerial photographs, and by directly observing hydrology indicators in the field. The wetland hydrology criterion is considered fulfilled at a location if, based upon the conclusions inferred from the field observations, an area has a high probability of being periodically inundated or has soils saturated to the surface at some time during the growing season to develop anaerobic conditions in the surface soil environment, especially the root zone (USACE 1987). If at least one primary indicator or at least two secondary indicators are found at a sample point, the wetland hydrology criterion is considered fulfilled.

Atypical Situations

Because there are situations in which one or more of the wetland parameters has been removed or altered as a result of recent natural events or human activities, the definition of a wetland includes the phrase "under normal circumstances" (USACE 1987). To describe these conditions, USACE uses definitions for atypical situations and problem areas. They are as follows:

> Atypical situation: . . . refers to areas in which one or more parameters (vegetation, soil, and/or hydrology) have been sufficiently altered by recent

human activities or natural events to preclude the presence of wetland indicators of the parameter (USACE 1987).

Problem areas: . . . wetland types in which wetland indicators of one or more parameters may be periodically lacking due to normal seasonal or annual variations in environmental conditions that result from causes other than human activities or catastrophic natural events. Representative examples of problem areas include seasonal wetlands, wetlands on drumlins, prairie potholes, and vegetated flats (USACE 1987).

Atypical situations and problem areas may lack one or more of the three criteria, yet still may be considered wetlands. Background information on the previous condition of the area, field observations and/or the identification of undisturbed reference sites adjacent to atypical sites may indicate that the site met the wetland criteria prior to disturbance. Additional delineation procedures would be employed if normal circumstances did not occur on a site.

Vernal Pools

Vernal pools are considered "problem areas" because vegetation or hydric soils may be lacking due to seasonal filling by rainfall and eventual drying. As described in the Arid Supplement, "the species composition of some wetland plant communities in the Arid West can change in response to seasonal weather patterns and long-term climatic fluctuations. Wetland types that are influenced by these shifts include vernal pools, playa edges, seeps and springs. Lack of hydrophytic vegetation during dry periods should not immediately eliminate a site from further consideration as a wetland." In addition, since they support seasonally ponded soils, when soil investigations are performed within vernal pools, they may lack hydric soil indicators. The USACE includes problem soils as "seasonally ponded, depressional wetlands (that) occur in basins and valleys throughout the Arid West. Most are perched systems, with water ponding above a restrictive soil layer, such as a hardpan or clay layer, that is at or near the surface (e.g., in Vertisols). Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions or other factors."

1.1.5.2 USACE Non-Wetland Waters of the U.S.

The USACE also requires the delineation of non-wetland jurisdictional Waters of the U.S. These waters must have strong hydrology indicators, such as the presence of seasonal flows and an ordinary high watermark (OHWM). An ordinary high watermark is defined as:

. . . that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Areas delineated as non-wetland jurisdictional waters may lack wetland vegetation or hydric soil characteristics. Hydric soil indicators may be missing because topographic position precludes ponding and subsequent development of hydric soils. Absence of wetland vegetation can result from frequent scouring due to rapid water flow. These types of jurisdictional waters are delineated by the lateral and upstream/downstream extent of the OHWM of the particular drainage or depression.

1.2 State Regulations

1.2.1 California Endangered Species Act (CESA)

California's Endangered Species Act (CESA) defines an endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that is in danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the Federal Endangered Species Act (FESA), CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for endangered species, threatened species, or candidate species for scientific, educational, or management purposes and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

State-Designation Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (FP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern (SSC) are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's California Natural Diversity Database (CNDDB) project. Informally listed taxa are not protected but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

1.2.2 California Rare Plant Rank (CRPR)

The California Native Plant Society (CNPS) is a private plant conservation organization dedicated to the monitoring and protection of special-status species in California. The CNPS's *California Native Plant Society's Inventory of Rare and Endangered Plants of California* separates plants of interest into five categories. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of Rare, Threatened, or Endangered vascular plant species of California. The list serves as the candidate list for listing as threatened and endangered by CDFW.

1.2.3 California Environmental Quality Act (CEQA)

Shortly after the United States federal government passed the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA) was passed in 1970 to institute a statewide policy of environmental protection. CEQA does not directly regulate land uses, but instead requires state and local agencies within California to follow a protocol of analysis and public disclosure of environmental impacts of proposed projects and adopt all feasible measures to mitigate those impacts. CEQA makes environmental protection a mandatory part of every California state and local agency's decision-making process.

CEQA Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California to:

> *"Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."*

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to CEQA, Section 15064.7 (Thresholds of Significance), each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the CEQA Guidelines, Attachment G, Environmental Checklist Form. Section 15065(a) states that a project may have a significant effect where:

> *"The project has the potential to: substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or wildlife community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, ..."*

1.2.4 California Fish and Game Codes 3500 Series

California Fish & Game Codes 3500, 3503, 3503.5, 3505, 3511 and 3513 are State regulations that cover resident and non-resident game birds, protected bird nests, protected raptor nests, egrets, ospreys, Fully Protected bird species, and take considerations for Migratory Bird Treaty Act birds. The Project will comply will CDFW Code 3500 series protections for non-resident game birds, and this regulation is not further discussed in this report.

- **Code 3500:** "(a) Resident game birds are as follows:

  (1) Doves of the genus Streptopelia, including, but not limited to, spotted, ringed turtledoves, and Eurasian collared-doves.

  (2) California quail and varieties thereof.

  (3) Gambel's or desert quail.

  (4) Mountain quail and varieties thereof.

(5) Sooty or blue grouse and varieties thereof.

(6) Ruffed grouse.

(7) Sage hens or sage grouse.

(8) Hungarian partridges.

(9) Red-legged partridges including the chukar and other varieties.

(10) Ring-necked pheasants and varieties thereof.

(11) Wild turkeys of the order Galliformes.

(b) Migratory game birds are as follows:

(1) Ducks and geese.

(2) Coots and gallinules.

(3) Jacksnipe.

(4) Western mourning doves.

(5) White-winged doves.

(6) Band-tailed pigeons

(c) Reference in this code to "game birds" means both resident and migratory game birds."

- **Code 3503:** "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

- **Code 3503.5:** "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

- **Code 3505:** "It is unlawful to take, sell, or purchase any aigrette or egret, osprey, bird of paradise, goura, numidi, or any part of such a bird."

- **Code 3511:** "(a) (1) Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species, and may authorize the live capture and relocation of those species pursuant to a permit for the protection of livestock. Prior to authorizing the take of any of those species, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected species and who has provided an e-mail address, if available, or postal address to the department. Affected and interested parties shall have 30 days after notification is published in the California Regulatory Notice Register to provide any relevant information and comments on the proposed authorization.

  (2) As used in this subdivision, "scientific research" does not include any actions taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

(3) Legally imported fully protected birds or parts thereof may be possessed under a permit issued by the department.

(b) The following are fully protected birds:

(1) American peregrine falcon (*Falco peregrinus anatum*).

(2) Brown pelican (*Pelican occidentalis*).

(3) California black rail (*Laterallus jamaicensis coturniculus*).

(4) California Ridway's rail (*Rallus longirostris obsoletus*).

(5) California condor (*Gymnogyps californianus*).

(6) California least tern (*Sterna albifrons browni*).

(7) Golden eagle (*Aquila chrysaetos*).

(8) Greater sandhill crane (*Grus Canadensis tabida*).

(9) Light-footed Ridgway's rail (*Rallus longirostris levipes*).

(10) Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*).

(11) Trumpeter swan (*Cygnus buccinator*).

(12) White-tailed kite (*Elanus leucurus*).

(13) Yuma Ridgway's rail (*Rallus longirostris yumanensis*).

- **Code 3513: "**It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."

1.2.5 Native Plant Protection Act (NPPA)

The Native Plant Protection Act (NPPA) was enacted in 1977 and allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the NPPA. The NPPA prohibits take of endangered or rare native plants, but includes some exceptions for agricultural and nursery operations, emergencies, and/or with proper notification to the CDFW for vegetation removal from canals, roads, and other sites, changes in land use, and in certain other situations.

1.2.6 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code §§13000 et seq.) is the State's primary water law. It gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards substantial authority to regulate water use of surface and sub-surface waters.

1.2.7 CDFW Jurisdictional Waters

Under Sections 1600–1607 of the Fish and Game Code, CDFW regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFW has jurisdiction over riparian habitats (e.g., riparian woodland) associated with watercourses. CDFW jurisdictional waters are delineated by the distances between the outer edges of wetland/riparian vegetation or at the tops of the banks of streams or lakes, whichever is wider. Although CDFW does not regulate vernal pools under Section 1602 of the Fish and Game Code, CDFW will assert jurisdiction over isolated riparian features (including vernal pools) if California state threatened and/or endangered species are present via the California Endangered Species Act, or which provide resources directly or indirectly to fish and wildlife of the region. CDFW may also assert jurisdiction over modified or man-made waterways; such jurisdiction is generally based on the value of such features to support riparian or aquatic plant or animal species. For clarification, of features that may be subject to CDFW jurisdiction, the CDFW Legal Advisor has prepared the following opinion (CDFG 1994):

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects, and riparian vegetation will be treated like natural waterways.
- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses should be treated by [CDFW] as natural waterways.
- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions.

CDFW jurisdictional limits may also include artificial stock ponds and irrigation ditches constructed within uplands, and outer drip line limits of adjacent riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status or its location beyond the defined bed, bank or channel.

1.2.8 RWQCB Jurisdictional Waters

RWQCB is the regional agency responsible for protecting water quality in California. The jurisdiction of this agency includes Waters of the State as mandated by the federal CWA Section 401. When CWA Section 404 jurisdiction is not present for isolated water, the RWQCB may assert jurisdiction via the California Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The Porter-Cologne Water Quality Control Act provides a regulatory framework to provide comprehensive protections for surface and groundwater within the State of California. Waters subject to jurisdiction under the Porter-Cologne Water Quality Control Act require that any discharge that may negatively impact or otherwise affect a Water of the State must coordinate with RWQCB. During coordination, RWQCB may require implementation of mitigation measures or other requirements to protect overall water quality.

1.2.9 California Coastal Act of 1976

The California Coastal Commission (CCC) regulates the diking, filling, or dredging of wetlands within the coastal zone. Section 30121 of the Coastal Act defines "wetlands" as land "which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." The 1981 CCC Statewide Interpretive Guidelines state that hydric soils and hydrophytic vegetation "are useful indicators of wetland conditions, but the presence or absence of hydric soils and/or hydrophytes alone are not necessarily determinative when the Commission identifies wetlands under the Coastal Act." The 1981 CCC Statewide Interpretive Guidelines define riparian habitats as areas of riparian vegetation. Riparian vegetation is defined as "an association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other bodies of fresh water." Riparian habitats may encompass wetland areas, but may also extend beyond those areas.

In addition, the California Coastal Act (California Public Resources Code Division 20, Section 30240a) restricts land uses within or adjacent to environmentally sensitive habitat areas (ESHAs). The Coastal Act Section 30107.5 defines an ESHA as: "…any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." Included within this definition are wetlands, estuaries, streams, riparian habitats, lakes, and portions of open coastal waters, which meet the rare or valuable habitat criteria. Not all wetlands necessarily meet the "rare or valuable habitat criteria" and as set forth in Section 30233, "where there is no feasible less environmentally damaging alternative, and where feasible avoidance and minimization measures have been provided to minimize adverse environmental effects" degraded or low-value wetlands that do not which meet the rare criteria.

1.3 Local Regulations

1.3.1 Los Angeles County – Significant Ecological Areas (SEAs)

Through the County of Los Angeles' General Plan 61 SEAs were established to protect a wide variety of biological communities within the County. If a project falls within a County SEA, a conditional use permit is required for development in order to protect resources contained in SEAs from incompatible development. The County CEQA Thresholds Guide also states that a biological constraints analysis is required to describe in "a general manner the extent, location, and sensitivities of ecological resources found within an SEA".

1.3.2 City of Los Angeles Protected Tree Code Amendment Ordinance 177404

Ordinance 177404 protects four species of native trees including oaks (other than scrub oak), southern California black walnut, western sycamore, and California bay. Protected trees must measure 4 inches or more in cumulative diameter at 4.5 feet above the ground level at the base of the tree. No protected tree may be relocated or removed except as provided in Article 7 of Chapter 1 or Article 6 of Chapter 4 of the City of Los Angeles Municipal Code. The term "removed' or "removal" includes any act that will cause a protected tree to die, including but not limited to, acts that inflict damage upon the root system or other part of the tree by fire, application of toxic substances, operation of equipment or machinery, or by changing the natural grade of land by excavation or filling the drip line area around the trunk.

1.3.3 City of Los Angeles General Plan

The *Conservation Element* of the *City of Los Angeles General Plan* (City of Los Angeles 2001) contains policies that pertain to the preservation of biological resources, including the following:

Endangered Species Objectives and Policies

Objective 1. Protect and promote the restoration, to the greatest extent practical, of sensitive plant and animal species and their habitats.

- **Policy 1.** Continue to require evaluation, avoidance, and minimization of potential significant impacts, as well as mitigation of unavoidable significant impacts on sensitive animal and plant species and their habitats and habitat corridors relative to land development activities.
- **Policy 2.** Continue to administer city-owned and managed properties so as to protect and/or enhance the survival of sensitive plant and animal species to the greatest practical extent.
- **Policy 3.** Continue to support legislation that encourages and facilitates protection of endangered, threatened, sensitive, and rare species and their habitats and habitat corridors.

Fisheries Objectives and Policies

Objective 1. Protect and restore ocean fisheries (habitats).

Objective 2. Protect fisheries and enhance, restore, or create fisheries for native fish populations and for sport fishing or harvesting in city managed waters.

- **Policy 1.** Continue to implement and to cooperate with lake fish stocking or enhancement programs.
- **Policy 2.** Continue to consider and implement measures that will mitigate potential damage to and will encourage maintenance or restoration of fisheries.

Forest Objectives and Policies

Objective 1. Retain the forests as primary watershed, open space, and recreational resources for the region.

- **Policy 1.** Continue to support the preservation and protection of Angeles Forest and Santa Clarita Woodlands.

Habitats/Ecological Areas Objectives and Policies

Objective 1. Preserve, protect, restore, and enhance natural plant and wildlife diversity, habitats, corridors, and linkages so as to enable the healthy propagation and survival of native species, especially those species that are endangered, sensitive, threatened, or species of special concern.

- **Policy 1.** Continue to identify significant habitat areas, corridors, and buffers and to take measures to protect, enhance, and/or restore them.
- **Policy 2.** Continue to protect, restore, and/or enhance habitat areas, linkages, and corridor segments, to the greatest extent practical, within city owned or managed sites.
- **Policy 3.** Continue to work cooperatively with other agencies and entities in protecting local habitats and endangered, threatened, sensitive, and rare species.
- **Policy 4.** Continue to support legislation that encourages and facilitates protection of local native plant and animal habitats.

Ocean Objectives and Policies

Objective 1. Protect and enhance the diversity and sustainability of the natural ecologies of the Santa Monica and San Pedro bays, including the bay fishery populations.

- **Policy 1.** Continue to reduce pollutant discharge into the bays from both natural and human sources.
- **Policy 2.** Continue to support legislation and to seek funding and legislation intended for bay and coastal protection, enhancement, and habitat restoration.
- **Policy 3.** Continue to support and/or participate in programs to clean bay sediments and/or mitigate potentially harmful effects of contaminants in the sediments and waters of the bays.

ATTACHMENT C

Database Queries

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Los Angeles County, California

Local offices

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958
FW8VenturaSection7@FWS.Gov

2493 Portola Road, Suite B
Ventura, CA 93003-7726

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Pocket Mouse Perognathus longimembris pacificus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8080	Endangered

Birds

NAME	STATUS

California Condor Gymnogyps californianus — Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/8193

California Least Tern Sterna antillarum browni — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8104

California Spotted Owl Strix occidentalis occidentalis — Proposed Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7266

Coastal California Gnatcatcher Polioptila californica californica — Threatened

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/8178

Hawaiian Petrel Pterodroma sandwichensis — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6746

Least Bell's Vireo Vireo bellii pusillus — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/5945

Light-footed Clapper Rail Rallus longirostris levipes — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6035

Marbled Murrelet Brachyramphus marmoratus — Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/4467

Short-tailed Albatross Phoebastria (=Diomedea) albatrus — Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/433

Southwestern Willow Flycatcher Empidonax traillii extimus — Endangered

Wherever found

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
https://ecos.fws.gov/ecp/species/6749

Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad Anaxyrus californicus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3762	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker Catostomus santaanae There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/3785	Threatened

Insects

NAME	STATUS
El Segundo Blue Butterfly Euphilotes battoides allyni Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/3135	Endangered
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Palos Verdes Blue Butterfly Glaucopsyche lygdamus palosverdesensis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8535	Endangered

Crustaceans

NAME	STATUS

Riverside Fairy Shrimp Streptocephalus woottoni | Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/8148

Vernal Pool Fairy Shrimp Branchinecta lynchi | Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Braunton's Milk-vetch Astragalus brauntonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5674	Endangered
California Orcutt Grass Orcuttia californica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4923	Endangered
Coastal Dunes Milk-vetch Astragalus tener var. titi Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7675	Endangered
Gambel's Watercress Rorippa gambellii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4201	Endangered
Lyon's Pentachaeta Pentachaeta lyonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4699	Endangered
Marsh Sandwort Arenaria paludicola Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered

Nevin's Barberry Berberis nevinii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8025	Endangered
Salt Marsh Bird's-beak Cordylanthus maritimus ssp. maritimus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6447	Endangered
Slender-horned Spineflower Dodecahema leptoceras Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4007	Endangered
Spreading Navarretia Navarretia fossalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1334	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Coastal California Gnatcatcher Polioptila californica californica https://ecos.fws.gov/ecp/species/8178#crithab	Final
Santa Ana Sucker Catostomus santaanae https://ecos.fws.gov/ecp/species/3785#crithab	Final
Southwestern Willow Flycatcher Empidonax traillii extimus https://ecos.fws.gov/ecp/species/6749#crithab	Final
Western Snowy Plover Charadrius nivosus nivosus https://ecos.fws.gov/ecp/species/8035#crithab	Final

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory bird information is not available at this time

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

The area of this project is too large for IPaC to load all NWI wetlands in the area. The list below may be incomplete. Please contact the local U.S. Fish and Wildlife Service office or visit the NWI map for a full list.

ESTUARINE AND MARINE DEEPWATER

- E1UBLx

ESTUARINE AND MARINE WETLAND

- M2USP
- E2EM1P
- E2USP
- M2USN
- E2SSP
- E2USM
- E2EM1N
- E2SBN
- E2USN
- E2RSPr
- M2RSPr
- E2SBNx
- E2SBM
- M2RSNr
- M2RSN
- E2USNx

FRESHWATER EMERGENT WETLAND

- PEM1Cx
- PEM1Ch
- PEM1A
- PEM1C
- PEM1Ax
- PEM1Rx
- PEM1Cr
- PEM1Fh
- PEM1Ah

- PEM1/SSAh
- PEM1R
- PEM1B
- PEM1/SSCx
- PEM1F
- PEM1Fx

FRESHWATER FORESTED/SHRUB WETLAND

- PFOCh
- PSSAh
- PFOCx
- PFOC
- PFOA
- PSSA
- PSSCh
- PSSC
- PSSCx
- PSSAx
- PFOAx
- PFOAh
- PFO/SSCx
- PSS/EM1C
- PSS/EM1Cx
- PSSR
- PSSFx
- PSSS
- PFOB

FRESHWATER POND

- PUSKx
- PUSAx
- PUBHx
- PUBFx
- PUBKx
- PUSCx
- PUBHh
- PUS/SSC
- PUSAh
- PUSCh
- PUS/EM1Ch
- PUBH
- PUBFh
- PUSA
- PUBKr
- PUSAr
- PABHr
- PUBF
- PUSKr
- PUS/EM1Ax
- PUS/SSAh
- PUSCr
- PABHx
- PUBFr

LAKE

- L1UBHh
- L1UBKr
- L1UBHx
- L2USAh
- L2UBKx
- L2USCh
- L2USCx
- L2UBFh
- L1ABHx
- L2UBHh

RIVERINE

- R2UBHx
- R2UBHr
- R4SBCr
- R4SBAr
- R4SBA
- R1UBVx
- R2USCr
- R4SBCx
- R4SBJ
- R4SBAx
- R2USC
- R4SBC
- R2UBFr
- R2USCx
- R2UBFx
- R4SBAh
- R4SBJx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

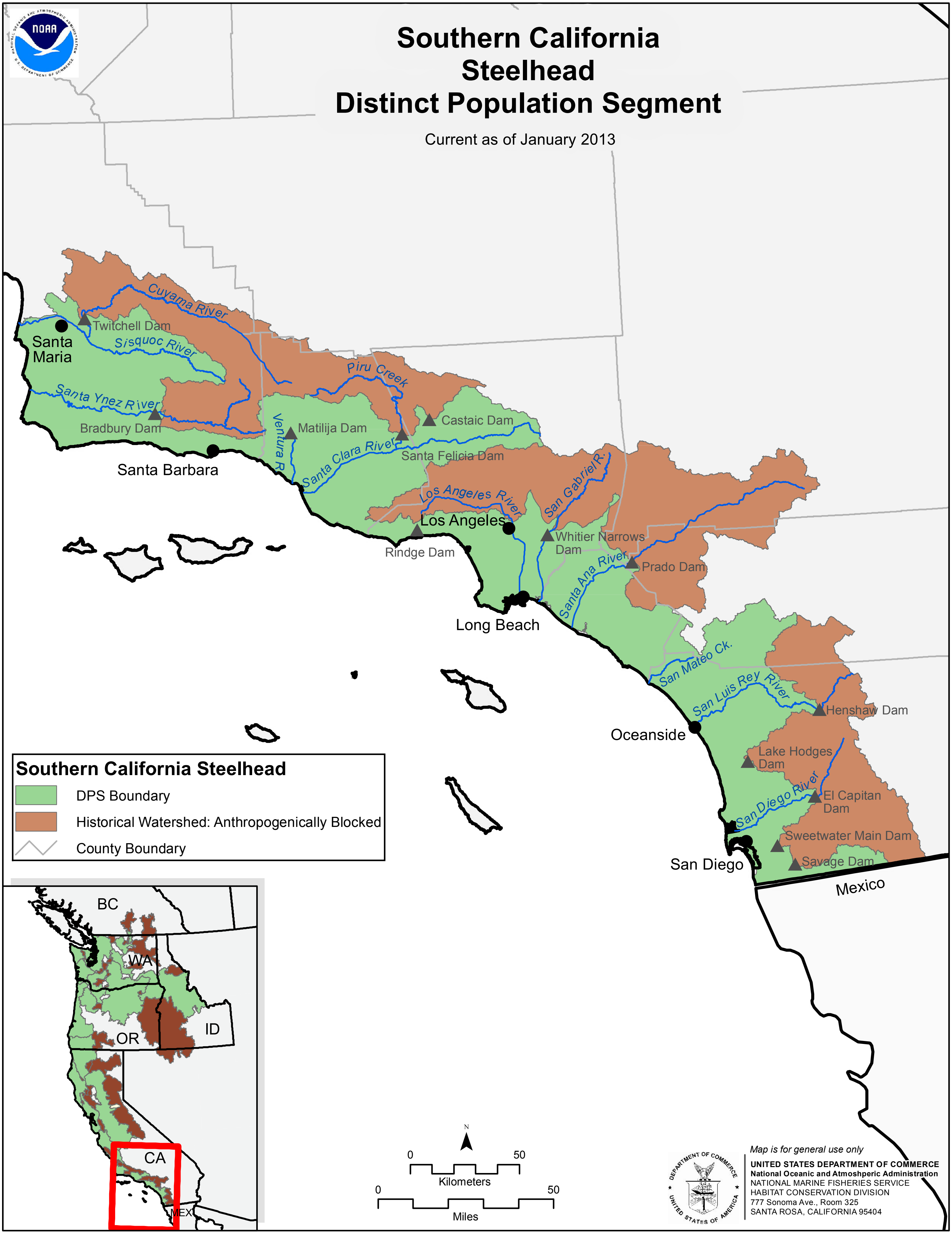
Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.


Southern California
Steelhead
Distinct Population Segment
Current as of January 2013
Cuyama River
Twitchell Dam
Santa Maria
Sisquoc River
Piru Creek
Santa Ynez River
Bradbury Dam
Ventura R.
Matilija Dam
Castaic Dam
Santa Clara River
Santa Felicia Dam
Santa Barbara
Los Angeles River
San Gabriel R.
Los Angeles
Whitier Narrows
Dam
Rindge Dam
Santa Ana River
Prado Dam
Long Beach
San Mateo Ck.
San Luis Rey River
Henshaw Dam
Oceanside
Lake Hodges
Dam
San Diego River
El Capitan
Dam
Sweetwater Main Dam
Savage Dam
San Diego
Mexico
Southern California Steelhead
DPS Boundary
Historical Watershed: Anthropogenically Blocked
County Boundary
BC
WA
ID
OR
CA
MEX
N
0
50
Kilometers
0
50
Miles
Map is for general use only
UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
HABITAT CONSERVATION DIVISION
777 Sonoma Ave., Room 325
SANTA ROSA, CALIFORNIA 95404

Appendix E Downstream Noise Model

Downstream Operational Vehicle Noise Model Output

		Vehicle Distribution			Autos					Heavy Trucks					Total Noise Levels
Facility Type	*ADT Total*	*Autos*	*Medium*	*Heavy Trucks*	*Volumes/Day*	*Speed (mph)*	*Reference Energy Mean [1]*	*Traffic Flow Adjustment [2]*	*Total Leq Day [3]*	*Volumes/Day*	*Speed (mph)*	*Reference Energy Mean [4]*	*Traffic Flow Adjustment [5]*	*Total Leq Day [6]*	*Total Day [7]*
Green Bin Facilities: Anaerobic Digestion Facilities	248	28	0	110	28	40	67.4	-14.8	52.5	110	40	81.2	-8.9	72.3	72.3
Green Bin Facilities: Aerobic Composting/Mulching Facilities	440	28	0	206	28	40	67.4	-14.8	52.5	206	40	81.2	-6.2	75.0	75.0
Blue Bin Facilities: Clean Materials Recovery Facility	328	80	0	124	80	40	67.4	-10.3	57.1	124	40	81.2	-8.4	72.8	72.9
Blue Bin Facilities: Resource Recovery Centers/Parks	454	30	0	212	30	40	67.4	-14.5	52.8	212	40	81.2	-6.0	75.1	75.2
Blue Bin Facilities: Construction and Demolition Materials Processing Facility	328	90	0	122	90	40	67.4	-9.7	57.6	122	40	81.2	-8.4	72.7	72.9
Black Bin Facilities: Mixed Material Processing	340	100	0	120	100	40	67.4	-9.3	58.1	120	40	81.2	-8.5	72.7	72.8
Black Bin Facilities: Advanced Thermal Recycling	756	44	0	356	44	40	67.4	-12.9	54.5	356	40	81.2	-3.8	77.4	77.4
Black Bin Facilities: Non-Combustion Thermal Technologies	200	44	0	78	44	40	67.4	-12.9	54.5	78	40	81.2	-10.4	70.8	70.9
Foodware and Linen Washing Facilities	108	28	0	40	28	40	67.4	-14.8	52.5	40	40	81.2	-13.3	67.9	68.0

Notes: The following calculations were used
1. Calculation used for Auto Reference Energy Mean:
5.2+38.8log(speed,mph)
2. Calculation used for Auto Traffic Flow Adjustment:
10*(log[(Auto Volume)(3.14)(0.015)/(speed, mph)]
3. Calculation used for Total Auto Leq:
(Auto Reference Energy Mean + Auto Traffic Flow Adjustment)
4. Calculation used for Heavy Truck Reference Energy Mean:
50.4+19.2log(speed, mph)
5. Calculation used for Auto Traffic Flow Adjustment:
10*(log[(Heavy Truck Volume)(3.14)(0.015)/(speed, mph)]
6. Calculation used for Total Heavy Truck Leq:
(Heavy Truck Reference Energy Mean + Heavy Truck Traffic Flow Adjustment)
7. Calculation used for Total Noise Level:
10*log((10^(Total Auto Leq/10))+(10^(Total Heavy Truck Leq/10)))