INITIAL STUDY
GANT ELEMENTARY SCHOOL HVAC AND MODERNIZATION PROJECT
LONG BEACH, CA
(LOS ANGELES COUNTY)

Prepared for:

LONG BEACH UNIFIED SCHOOL DISTRICT
Facilities Development and Planning Branch
2425 Webster Avenue
Long Beach, CA 90810

Prepared by:

CHAMBERS GROUP, INC.
3151 Airway Avenue, Suite F208
Costa Mesa, California 92626

February 2024

TABLE OF CONTENTS

Page

SECTION 1.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING 1
1.1 PROJECT PURPOSE 1
1.2 PROJECT LOCATION AND SITE CHARACTERISTICS 1
1.2.1 Location 1
1.3 PROJECT BACKGROUND 1
1.4 PROJECT DESCRIPTION 1
1.4.1 Project Schedule 2

SECTION 2.0 – EVALUATION OF ENVIRONMENTAL IMPACTS 2

SECTION 3.0 – CHECKLIST OF ENVIRONMENTAL ISSUES 4
3.1 AESTHETICS 4
3.1.1 Impact Analysis 4
3.2 AGRICULTURE & FORESTRY RESOURCES 5
3.2.1 Impact Analysis 7
3.3 AIR QUALITY 8
3.3.1 Introduction 8
3.3.2 Environmental Setting 8
3.3.3 Impact Analysis 11
3.4 BIOLOGICAL RESOURCES 14
3.4.1 Impact Analysis 14
3.5 CULTURAL RESOURCES 16
3.5.1 Impact Analysis 17
3.6 ENERGY 18
3.6.1 Impact Analysis 18
3.7 GEOLOGY AND SOILS 19
3.7.1 Impact Analysis 20
3.8 GREENHOUSE GAS EMISSIONS 22
3.8.1 Impact Analysis 23
3.9 HAZARDS AND HAZARDOUS MATERIALS 24
3.9.1 Impact Analysis 24
3.10 HYDROLOGY AND WATER QUALITY 27
3.10.1 Impact Analysis 28
3.11 LAND USE AND PLANNING 31
3.11.1 Impact Analysis 32
3.12 MINERAL RESOURCES 32
3.12.1 Impact Analysis 33
3.13 NOISE 33
3.13.1 Environmental Setting 33

3.13.2 Impact Analysis` 34
3.14 POPULATION AND HOUSING 36
3.14.1 Impact Analysis 37
3.15 PUBLIC SERVICES 37
3.15.1 Impact Analysis 38
3.16 RECREATION 39
3.16.1 Impact Analysis 40
3.17 TRANSPORTATION 40
3.17.1 Impact Analysis 41
3.18 TRIBAL CULTURAL RESOURCES 42
3.18.1 Impact Analysis 42
3.19 UTILITIES AND SERVICE SYSTEMS 43
3.19.1 Impact Analysis 44
3.20 WILDFIRE 45
3.20.1 Impact Analysis 46
3.21 MANDATORY FINDINGS OF SIGNIFICANCE 47
3.21.1 Impact Analysis 47

SECTION 4.0 – REFERENCES 49

LIST OF TABLES

Page

Table 1: Designations/Classifications for the Project Area 10

LIST OF FIGURES

Page

Figure 1 - Project Vicinity/Location Map 3

Figure 2 - Project Site Plan 4

Figure 3 – Passenger Drop-off and Loading 1

SECTION 1.0 – PROJECT DESCRIPTION AND ENVIRONMENTAL SETTING

1.1 PROJECT PURPOSE

Bonds were approved on June 23, 2016, to support upgrades to aging schools within the Long Beach Unified School District (LBUSD, District). The $1.5 billion school repair and safety bond measure includes repairs; technology improvements; heating, ventilation, and air conditioning (HVAC); and school safety improvements.Measure Q bonds were approved in November 2022 to support health, safety, and student achievement within the Long Beach Unified School District (LBUSD, District). The $1.7 billion measure aims to:

- Improve plumbing systems;
- Maintain safe drinking water;
- Upgrade schools to meet accessibility and earthquake safety standards;
- Other health and safety improvements;
- Renovation of libraries, science & computer labs;
- Fund construction of new career education spaces;
- New or renovated athletic facilities; and,
- New air conditioning systems at aging campuses.

1.2 PROJECT LOCATION AND SITE CHARACTERISTICS

1.2.1 Location

Minnie Gant (Gant) Elementary School was originally built in 1949. Gant Elementary School is located at 1854 N Britton Dr, Long Beach, CA 90815 and is situated in a residential area surrounded by housing and recreational/institutional land uses to the south of the property (see Figure 1, Project Vicinity and Location).

1.3 PROJECT BACKGROUND

The District serves nearly 74,000 students in 85 public schools and is the third largest school district in California. In November 2022, Measure E and Measure Q bonds were approved to implement District-wide school upgrade projects.

1.4 PROJECT DESCRIPTION

The Gant Elementary School Modernization Project consists of renovation of all the existing buildings on campus (see Figure 2, Site Plan). The scope includes the following items:

- HVAC installation in all classrooms, offices and support spaces (including Auditorium, Cafeteria and Kitchen) located in permanent buildings on site.
- Accessibility upgrades to path of travel, parking, restrooms and drinking fountain per current building code.
- Utility systems upgrades (e.g. electrical, low voltage, water, sewer, etc.) as required to support HVAC installation.
- Hardware upgrades (e.g. LED lighting, Extron audio-visual system, overhead projectors, etc.).
- Upgrades to building finishes (e.g. new ceilings, flooring, painting)

- New tactile signage required throughout the campus for rooms and exits. The entire campus will undergo building/room re-numbering per current District standards.
- Window and/or door replacement as required.
- Campus-wide Fire Alarm upgrades.
- Seismic upgrades, if required, per DSA IR EB-4
- Certification of DSA Legacy A# 03-65156 (Various sites including Bixby, Gant, Birney, McKinley Elementary Schools)
- Measure Q site improvements including a new drop off area on the west side of campus along Britton Drive at Minnie Gant Elementary School (see Figure 3).

1.4.1 Project Schedule

The Proposed Project is expected to occur over a 6-month period, from approximately Spring 2024 to Fall 2024. The construction would occur in one phase. Construction activities would take place between the hours of 7:00 a.m. to 4:00 p.m. Mondays through Fridays, and 8:00 a.m. to 5:00 p.m. on Saturday on an as needed basis.

Construction Activities

Once the Proposed Project has been approved by the District's Board of Education, Proposed Project construction activities would begin Sprong 2024. The construction would begin after Division of the State Architect (DSA) approval of plans and specifications is obtained and the contract for construction is awarded.

Prior to construction activities, any existing asbestos and lead-based paint, or asbestos- and lead-containing materials would be abated in accordance with all applicable requirements, including South Coast Air Quality Management District (SCAQMD) Rule 1403, and disposed of properly (SCAQMD 1994).

Demolition and Excavation

Proposed demolition work for the Proposed Project will primarily occur within the existing buildings and rooftops. The proposed demolition activities will include the removal of window HVAC units, flooring, ceiling tile, plumbing fixtures, ceiling fans, window coverings and treatments, light fixtures, conduits, and other mechanical and electrical equipment. Concrete slabs outside buildings will be removed (in specific areas) for the construction of ADA ramps or reconstruction of ADA walkways. Types of excavation will include concrete, asphalt, and earth excavations for installation of units, electrical wiring, plumbing, and ramps. Universal wastes and other discarded materials such as HVAC units, piping, fixtures, and other eligible materials will be transported for recycling or be properly disposed.

Staging Areas

Construction trailers and staging areas will be located within the school property. Hauling trucks, cranes, and other construction vehicles will be located in the staging areas. Temporary fence enclosures with lockable gates will be added to the staging areas.

Figure 1 - Project Vicinity/Location Map

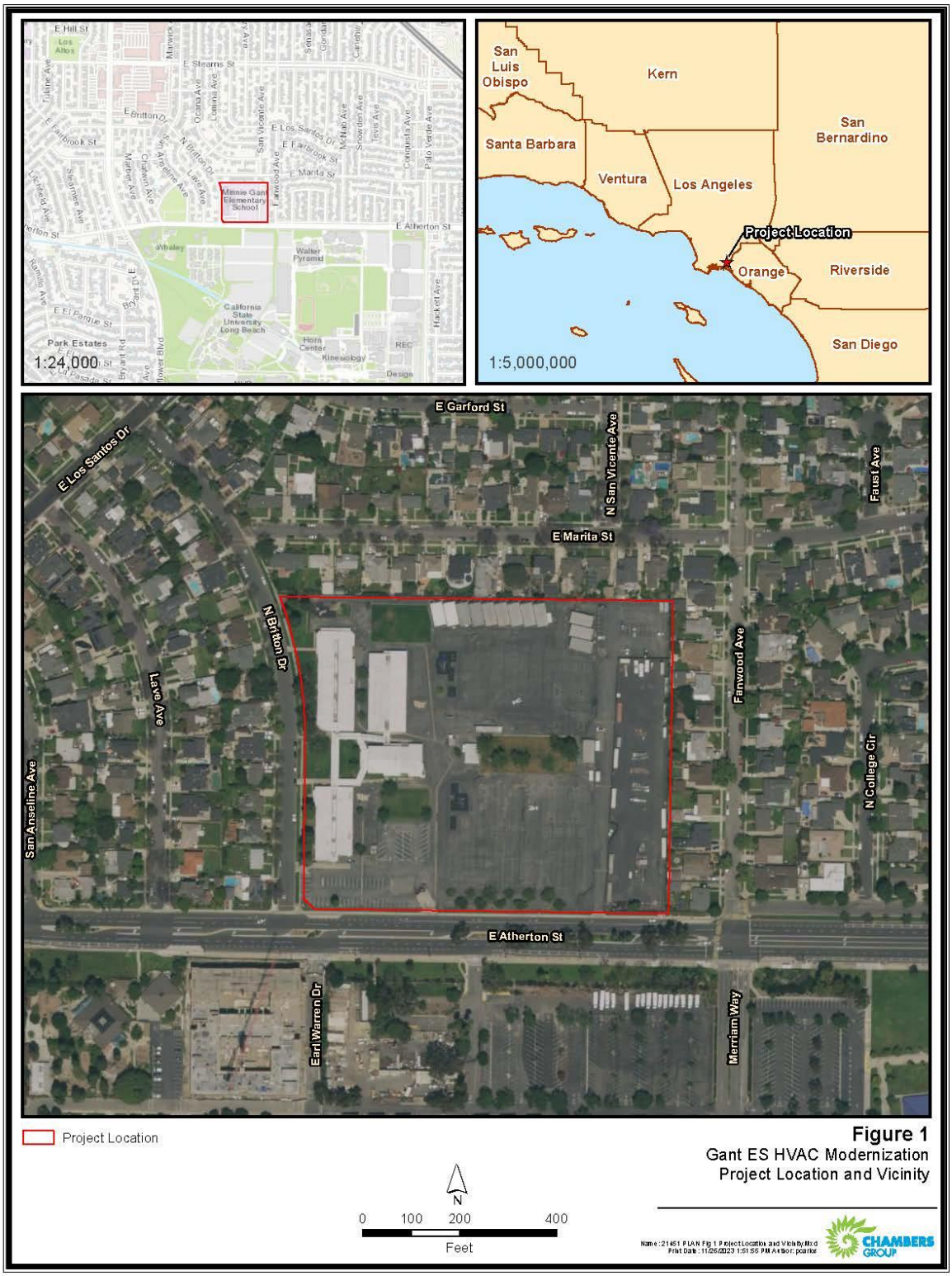


Figure 2 - Project Site Plan

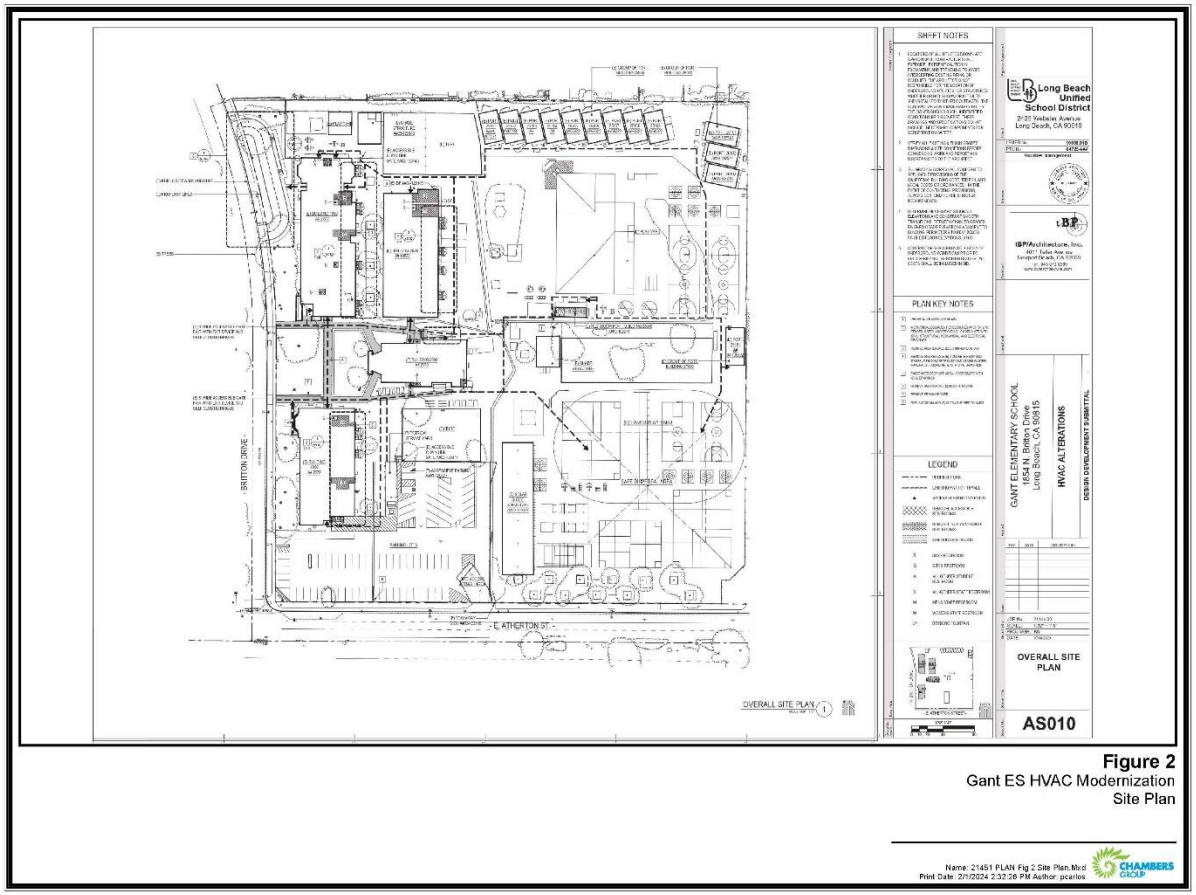
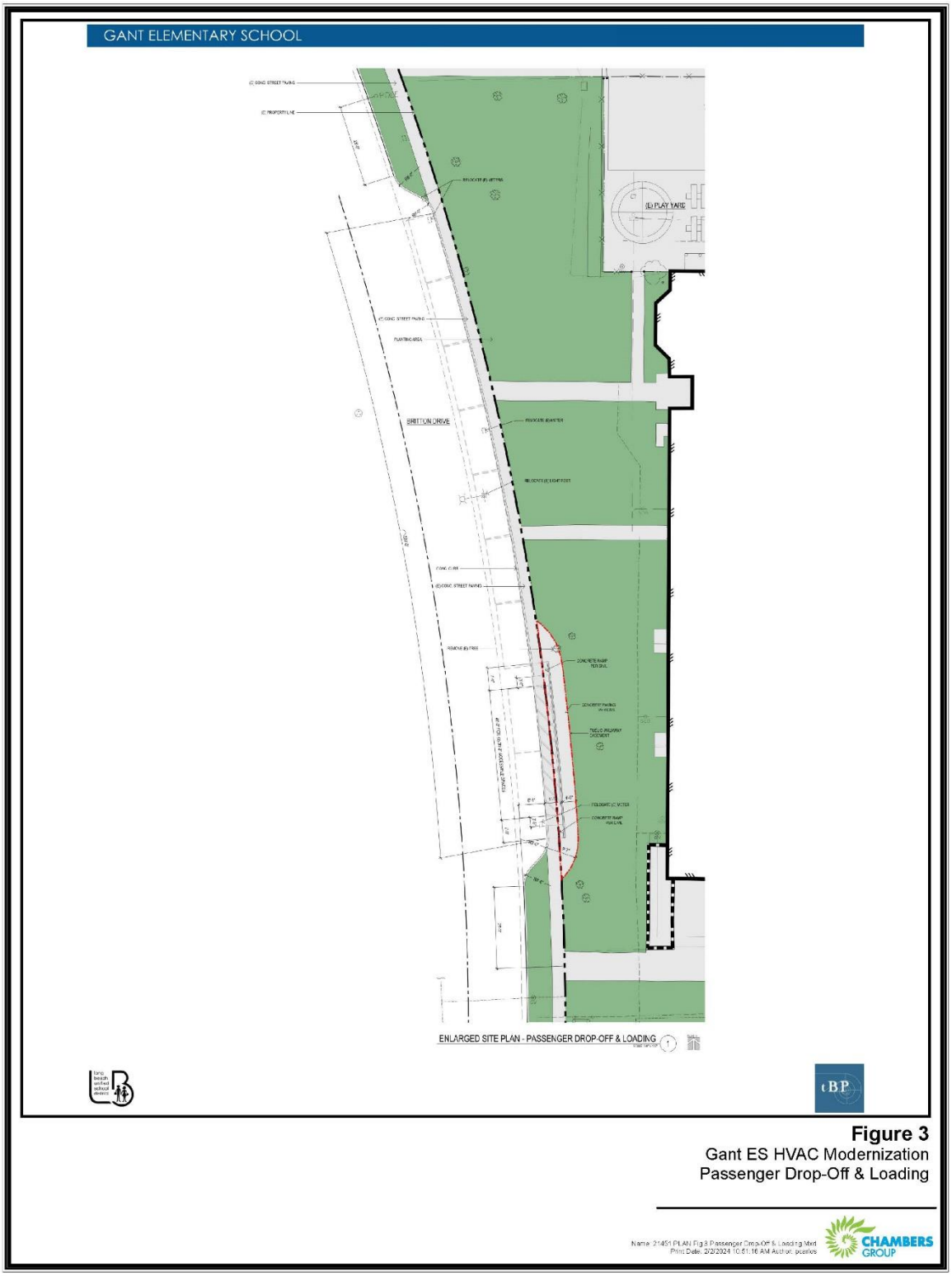


Figure 2
Gant ES HVAC Modernization
Site Plan

Figure 3 – Passenger Drop-off and Loading



SECTION 2.0 – EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if substantial evidence exists that an effect may be significant. If one or more "Potentially Significant Impact" entries are marked when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. The explanation of each issue should identify:

    a. the significance criteria or threshold, if any, used to evaluate each question; and

    b. the mitigation measure identified, if any, to reduce the impact to less than significant.

    *Note: Instructions may be omitted from final document.

SECTION 3.0 – CHECKLIST OF ENVIRONMENTAL ISSUES

3.1 AESTHETICS

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area. Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Aesthetic resources include scenic resources, which include water forms, trees, rock outcroppings, historic buildings, and scenic highways. Impacts to aesthetic resources include obstruction and destruction of views to or from scenic resources and/or the degradation of the visual character of the area.

1.	AESTHETICS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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)	Substantially degrade the existing visual character or quality of public views of the site and its surroundings? 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?	☐	☐	☒	☐

3.1.1 Impact Analysis

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

No Impact. The Proposed Project site is bound by East Marita Street to the north, Fawnwood Avenue to the east, East Atherton Street to the south, and North Britton Drive to the west. Potential scenic vistas in the vicinity of the Proposed Project site include views of the Pacific Ocean and nearby lagoons to the southeast and south; however, the surrounding area is heavily developed, and views of these scenic vistas are limited. The area surrounding the Proposed Project site has been developed since the early twentieth century, and Gant Elementary School has existed on the current site since 1949 (LBUSD 2017a). Therefore, implementation of the Proposed Project would not result in an impact associated with scenic vistas.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The Proposed Project site is approximately 1 mile northeast of California State Highway 1. Although parts of California State Highway 1 are classified as eligible for state scenic highway designation, the Proposed Project site is not visible from the nearest section that is eligible or officially designated (Caltrans 2018). Therefore, implementation of the Proposed Project would not result in an impact associated with scenic resources within a scenic highway.

c) Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. Implementation of the Proposed Project includes facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC/accessibility upgrades. The area surrounding the Proposed Project site is designated as Institutional. The visual character of the Proposed Project site would be slightly altered; however, the proposed renovations will be designed and constructed in a way that is consistent with the existing architecture of the Proposed Project site. The Proposed Project would not substantially degrade the existing visual character or quality of the site and its surroundings; therefore, implementation of the Proposed Project would result in less than significant impacts associated with visual character or quality.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. The Proposed Project site currently contains security lighting, parking lighting, indoor lighting, and adjacent street lighting. Lighting at the Proposed Project site is installed to minimize glare for pedestrians and drivers and to minimize spillover light. The District applies design standards that avoid any impacts that adversely affect day or nighttime views, such as window shades and glare shields. The Proposed Project would upgrade indoor lighting and outdoor lighting; however, it would be installed to minimize glare for pedestrians and drivers and to minimize spillover light. Additionally, the Proposed Project would not alter the facade or exterior finish of existing buildings, or install materials in new buildings, in a way which increases glare on the Proposed Project site. During construction, the Proposed Project site will include temporary construction lighting, and presence of vehicles transporting equipment. However, these activities would be temporary and not result in permanent, significant impacts. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with new sources of light or glare. No further analysis is required.

3.2 AGRICULTURE & FORESTRY RESOURCES

Agricultural resources include prime farmland, farmland of statewide importance, unique farmland, farmland of local importance, and commercial grazing land as defined in the Guidelines for the Farmland Mapping and Monitoring Program, pursuant to Section 65570 of the Government Code, as well as land in a Williamson Act contract.

Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion (7 United States Code [U.S.C.] 4201(c)(1)(A)).

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops such as citrus, tree nuts, olives, cranberries, fruits, and vegetables (7 U.S.C. 4201(c)(1)(B)).

Additional farmland of statewide or local importance is land identified by state or local agencies for agricultural use, but not of national significance (7 U.S.C. 4201(c)(1)(C)).

The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open-space lands by discouraging premature and unnecessary conversion to urban uses. The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses.

The Williamson Act is a means to restrict the uses of agricultural and open-space lands to farming and ranching uses during the length of the contract period. The Williamson Act Program was also envisioned as a way for local governments to integrate the protection of open space and agricultural resources into their overall strategies for planning urban growth patterns.

2.	**AGRICULTURE & FOREST RESOURCES.** **(In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.) In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.)** **Would the project:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(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 nonagricultural 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))?	☐	☐	☐	☒
(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 nonagricultural use or the conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Impact Analysis

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 nonagricultural use?

No Impact. The Proposed Project site is currently an elementary school, and the project does not propose a change to the land use designation. The Proposed Project site is not identified as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program (Department of Conservation 2016a); therefore, implementation of the Proposed Project would not result in any impacts associated with the conversion of farmland to non-agricultural use.

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

No Impact. No areas zoned for agricultural use are on or near the Proposed Project site. Additionally, the City of Long Beach does not include any properties subject to the Williamson Act (Department of Conservation 2016b). Therefore, implementation of the Proposed Project would not result in any impacts associated with Williamson Act lands or agricultural zoning.

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))?

No Impact. The City of Long Beach does not include any forest lands or timberland. Ornamental trees exist on the Proposed Project site; however, Proposed Project activities would not result in any disturbance to the existing ornamental trees on site. Therefore, implementation of the Proposed Project would not result in any impacts associated with forest land or timberland.

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

No Impact. The City of Long Beach does not include any forest land. Ornamental trees exist on the Proposed Project site; however, Proposed Project activities would not result in any disturbance to the existing ornamental trees on site. Additionally, implementation of the Proposed Project would not result in any change to land use on the Proposed Project site. Therefore, implementation of the Proposed Project would not result in any impacts associated with forest land or the conversion of forest land to non-forest use.

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 nonagricultural use or the conversion of forest land to non-forest use?

No Impact. The Proposed Project site and surrounding properties do not contain any Farmland Mapping and Monitoring Program Farmland, and the City of Long Beach does not include any forest land. Therefore, implementation of the Proposed Project would not result in any impact associated with conversion of Farmland to non-agricultural use or forest land to non-forest land.

3.3 AIR QUALITY

3.3.1 Introduction

This section describes the existing air quality setting and potential effects from Proposed Project implementation on the site and its surrounding area. An Air Quality Technical Memo was prepared for the Proposed Project and is included as Appendix A.

3.3.2 Environmental Setting

The Proposed Project site is located within the City of Long Beach in southwestern Los Angeles County. The Proposed Project site is located within the South Coast Air Basin (SCAB), and air quality regulation is administered by the South Coast Air Quality Management District (SCAQMD). The SCAQMD implements the programs and regulations required by the federal and State Clean Air Acts.

Atmospheric Setting

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographical features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine their movement and dispersal and, consequently, their effect on air quality. The combination of topography and inversion layers generally prevents dispersion of air pollutants in the SCAB.

The climate of the SCAB is influenced by the semi-permanent high-pressure zone of the eastern Pacific, which results in a mild climate tempered by cool sea breezes. Although the SCAB has a semiarid climate, the air near the surface is typically moist due to the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent, and low stratus clouds, often referred to as “high fog,” are a characteristic climate feature. Average temperatures for Long Beach Municipal Airport, which is the nearest monitoring station to the Proposed Project site (WRCC 2016), range from an average low of 45.3 degrees Fahrenheit (°F) in December to an average high of 83.9 °F in August. Rainfall averages approximately 12.01 inches a year, with almost all annual rainfall coming from the fringes of mid-latitude storms from late October to early April, with summers being almost completely dry.

Winds are an important parameter in characterizing the air quality environment of a project site because they determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in the SCAB are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean. These winds are usually the strongest in the dry summer months. Nighttime winds in the SCAB result mainly from the drainage of cool air off the mountains to the east, and they occur more often during the winter months and are usually lighter than the daytime winds. Between the periods of dominant airflow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day.

During the winter and fall months, surface high-pressure systems north of the SCAB, combined with other meteorological conditions, can result in very strong winds from the northeast called “Santa Ana winds.” These winds normally have durations of a few days before predominant meteorological conditions are reestablished. The highest wind speed typically occurs during the afternoon due to daytime thermal

convection caused by surface heating. This convection brings about a downward transfer of momentum from stronger winds aloft. It is not uncommon to have sustained winds of 60 miles per hour with higher gusts during a Santa Ana wind.

Regulatory Setting

The Proposed Project site lies within the SCAB, which is managed by the SCAQMD. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) have been established for the following criteria pollutants: carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead. The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility.

Areas are classified under the Federal Clean Air Act as either "attainment" or "nonattainment" areas for each criteria pollutant, based on whether the NAAQS have been achieved or not. Attainment relative to the state standards is determined by the California Air Resources Board (CARB). The SCAB has been designated by the federal Environmental Protection Agency (EPA) as a nonattainment area for O_3 and suspended particulates ($PM_{2.5}$). Currently, the SCAB is in attainment with the ambient air quality standards for CO, SO_2, PM_{10} and NO_2. The SCAB is designated as partial nonattainment for lead, based on two source-specific monitors in Vernon and in the City of Industry that are both near battery recycling facilities.

The EPA has designated the SCAB as extreme nonattainment for the 8-hour average ozone standard. The 1997 8-hour ozone NAAQS was strengthened from 0.08 parts per million (ppm) to 0.075 ppm, effective May 27, 2008. The 1997 8-hour ozone standard was revoked in implementation rules for the 2008 ozone NAAQS, effective April 6, 2015. On October 1, 2015, the EPA again strengthened the 8-hour ozone NAAQS to 0.070 ppm, effective December 28, 2015, retaining the same form as the previous 1997 and 2008 standards. The 2008 ozone NAAQS is a primary focus of the 2016 AQMP.

Additionally, the EPA has designated the SCAB as nonattainment for $PM_{2.5}$. In 1997, the EPA established standards for $PM_{2.5}$ (particles less than 2.5 micrometers), which were not implemented until March 2002. $PM_{2.5}$ is a subset of the PM_{10} emissions whose standards were developed to complement the PM_{10} standards that cover a full range of inhalable particle matter. For the PM_{10} health standards, the annual PM_{10} standard was revoked by the EPA on October 17, 2006; and the 24-hour average PM_{10} nonattainment status was redesignated to attainment (maintenance) on July 26, 2013.

The 2012 Air Quality Management Plan (AQMP) provides measures to reduce $PM_{2.5}$ emissions to within the federal standard by 2015. On January 25, 2013, the California Air Resources Board (CARB) approved the 2012 AQMP that was prepared per the federal Clean Air Act requirements to show attainment of the $PM_{2.5}$ standard by the revised date of 2014. The 2012 AQMP builds upon the approaches taken in the 2007 AQMP utilized to reduce $PM_{2.5}$ emissions in the SCAB. On December 14, 2012, the EPA revised the primary annual $PM_{2.5}$ NAAQS from 15 micrograms per cubic meter ($\mu g/m^3$) to 12 $\mu g/m^3$. The 2016 AQMP includes implementation strategies to meet the revised $PM_{2.5}$ standard.

The SCAB has been designated by CARB as a nonattainment area for O_3, NO_2, PM_{10}, $PM_{2.5}$, and lead. Currently, the SCAB is in attainment with the State ambient air quality standards for CO, SO_2, and sulfates and is unclassified for visibility-reducing particles and hydrogen sulfide. The 2007, 2012, and 2016 AQMPs provide measures to meet the state standards for O_3, NO_2, PM_{10}, and $PM_{2.5}$.

Table 1: Designations/Classifications for the Project Area

Pollutant	Averaging Time Standard	National Standards Attainment Date	California Standards
Ozone (O_3)	1-Hour (1979) (0.12 ppm)	Nonattainment (Extreme) 2/26/2023	Nonattainment
	8-Hour (1997) (0.08 ppm)	Nonattainment (Extreme) 6/15/2024	
	8-Hour (2008) (0.075 ppm)	Nonattainment (Extreme) 7/20/2032	
	8-Hour (2015) (0.07 ppm)	Pending – Expect Nonattainment beyond 2032	Pending
Carbon Monoxide (CO)	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance) 6/11/2007 (attained)	Maintenance
Nitrogen Dioxide (NO_2)	1-Hour (100 ppb)	Unclassifiable/Attainment Attained	Attainment
	Annual (0.053 ppm)	Attainment (Maintenance) 9/22/1998	
Sulfur Dioxide (SO_2)	1-Hour (75 ppb)	Designation Pending/ Pending	Attainment
	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment 3/19/1979 (attained)	
Particulate Matter (PM_{10})	24-Hour (150 µg/m^3)	Attainment (Maintenance) 7/26/2013	Nonattainment
Particulate Matter ($PM_{2.5}$)	24-Hour (2006) (35 µg/m^3)	Nonattainment 12/14/2014	Nonattainment
	Annual (2012) (12.0 µg/m^3)	Nonattainment 4/5/2015	
	Annual (1997) (15.0 µg/m^3)	Attainment (final determination pending) 4/5/2015 (attained 2013)	Attainment
Lead (Pb)	3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial) 12/31/2015	Nonattainment

Source: SCAQMD 2017

3.	**AIR QUALITY. (Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.) Would the project:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☐
(b)	Violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation?	☐	☐	☐	☐
(c)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☐
(d)	Result in substantial emissions (such as odors or dust) adversely affecting a substantial number of people?	☐	☐	☐	☐

3.3.3 Impact Analysis

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

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The CEQA Handbooks provide the following two criteria to determine if a project is consistent with the AQMP:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Criterion 1 – Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in Appendix A, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance or local thresholds of significance. The ongoing operation of the Proposed Project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, based on the information provided above, the Proposed Project would be consistent with the first criterion.

Criterion 2 Exceed Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the Proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the Proposed Project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Long Beach General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The Project site is currently designated as Founding and Contemporary Neighborhood (FCN) in the General Plan and is zoned Institutional (I). The Proposed Project is an allowed use within the existing land use designation and zoning. As such, the Proposed Project is consistent with the current land use designation and zoning and is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

b) Would the project violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation?

Short-Term Construction-Related Air Quality Impacts

Construction of the Proposed Project would create air emissions from the operation of construction equipment as well as from fugitive dust generated from the movement of dirt onsite. Construction of the proposed project is anticipated to start early 2024 and would take approximately six months to complete.

The criteria air pollution impacts created by the Proposed Project have been analyzed through use of CalEEMod Version 2022.1.21. The CalEEMod 2022.1 program uses the EMFAC2021 computer program to calculate the emission rates specific for the South Coast Air Basin portion of Los Angeles County for employee, vendor and haul truck vehicle trips and the OFFROAD2007 and OFFROAD2011 computer programs to calculate emission rates for heavy equipment operations. EMFAC2021, OFFROAD2007 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles.

The 42,399 square feet of permanent buildings A through D was entered into CalEEMod and analyzed as new construction, which results in a conservative analysis, since the Proposed Project only consists of upgrades to these buildings. In addition, it was estimated that the new drop off area on Britton Drive would require the grading and paving of roads and new sidewalks on approximately 4,600 square feet of area and the accessibility upgrades to path of travel on the campus would require the paving of an additional 400 square feet for a total of 5,000 square feet of new paved area that was entered into CalEEMod. Construction is anticipated to start June 17, 2024 and be completed by August 16, 2025, which was entered into CalEEMod.

The CalEEMod model has been utilized to calculate the construction-related emissions from the Proposed Project and the CalEEMod output files are attached to this Memo. The daily construction-related criteria pollutant emissions from the Proposed Project is shown in Table D of the Air Quality Technical Memo (Appendix A).

Table D of the Air Quality Technical Memo shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the Proposed Project. Therefore, a less than significant regional or local air quality impact would occur from construction of the Proposed Project.

Long-Term Operational Air Quality Impacts

The Proposed Project would consist of operation of the upgraded permanent school buildings. The Proposed Project would generate air emissions from area sources and energy usage. The Proposed Project would not increase the capacity of the school and would not increase the vehicle trips generated by the school. As such, the trip generation rate was set to zero in CalEEMod. No other changes were made to the operational perimeters entered into the CalEEMod model. CalEEMod calculates maximum daily emissions for the summer and winter periods. The worst-case summer or winter VOC, NOx, CO, SO¬2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations are summarized in Table E of the Air Quality Technical Memo (Appendix A).

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

The nearest sensitive receptors to the project site are single-family homes located as near as 12 feet (3.6 meters) east of the Project site. The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the Proposed Project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1 or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the proposed project from DPM emissions.

d) Would the project result in substantial emissions (such as odors or dust) affecting a substantial number of people?

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the Project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of upgrading the permanent school buildings as well as a new drop off area on Britton Drive and accessibility and utility systems upgrades. The Proposed Project would not include operation of any known odor sources. As such, no odor impacts are anticipated to be created from

operation of the Proposed Project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

3.4 BIOLOGICAL RESOURCES

Biological resources include habitats and vegetative communities, migratory corridors, plants, wildlife, fisheries, special status species (regulated by a law, regulation, or policy, such as threatened and endangered species), and waters of the United States. The Proposed Project site is a developed site and is located in an urbanized area in the City of Long Beach. Campus vegetation is limited to ornamental landscaping.

4.	BIOLOGICAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☒	☐
(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 U.S. Fish and Wildlife Service?	☐	☐	☐	☒
(c)	Have a substantial adverse effect on state or federally protected wetlands as (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 Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.1 Impact Analysis

(a) Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as 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?

Less Than Significant Impact. Minnie Gant Elementary School was first built on the existing property in 1949. Since opening, the campus has expanded, and the property has become more developed. Campus vegetation is limited to ornamental landscaping; and no candidate, sensitive, or special status species are expected to exist on or around the elementary school. Additionally, the majority of work associated with the Proposed Project would occur in the interior of existing buildings; only minor accessibility upgrades and HVAC infrastructure would result in minor ground-disturbing activities. Due to the current amount of development on site and the limited amount of work occurring away from existing buildings, implementation of the Proposed Project would have a less than significant impact associated with candidate, sensitive, or special status species.

(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 or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. The Proposed Project site is an existing campus located in an urbanized area. Campus vegetation is limited to ornamental landscaping. No riparian habitats or other sensitive natural communities are known to exist on the Proposed Project site (USFWS 2018a). Therefore, implementation of the Proposed Project would not result in impacts associated with riparian habitat or other sensitive natural communities.

(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?

No Impact. The Proposed Project site is an existing campus in an urbanized area. Campus vegetation is limited to ornamental landscaping. No wetlands are known to exist on the site (USFWS 2018b). Therefore, implementation of the Proposed Project would not result in an impact associated with wetlands.

(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?

No Impact. The Proposed Project site is an existing campus in an urbanized area. No native resident or migratory fish or wildlife species, established wildlife corridors, or native wildlife nursery sites are known to exist on the Proposed Project site (USFWS 2018a). Therefore, implementation of the Proposed Project would result in no impact associated with native migratory species or nursery sites.

(e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The Proposed Project site is an existing campus in an urbanized area, and vegetation is limited to ornamental landscaping. The majority of work will occur on the interior of existing buildings; only minor accessibility upgrades and turf replacement would result in minor ground-disturbing activities. The Long Beach Public Works Department implements Section 14.28 of the Long Beach Municipal Code that focuses on the preservation and protection of Long Beach's urban forests (City of Long Beach 2018). In the event the Proposed Project requires the removal of trees, then the District will work with the City to ensure the trees are not protected under Section 14.28 of the Long Beach Municipal Code. Additionally, if trees are

removed during nesting bird season, then a nesting bird survey will be completed in compliance with the Migratory Bird Treaty Act.

(f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservancy Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. Currently, no habitat conservation plans or natural community conservation plans are adopted for the City of Long Beach or the surrounding area; therefore, implementation of the Proposed Project would not result in impacts associated with an applicable habitat conservation plan or natural community conservation plan.

3.5 CULTURAL RESOURCES

Cultural resources include archaeological and paleontological artifacts such as human remains, geologic features, historical buildings and structures, and Native American remains and artifacts. CEQA defines cultural resources as:

- Resources listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the California Register of Historical Resources (Public Resources Code [PRC] 5024.0, Title 14 California Code of Regulations [CCR], Section 4850 et seq.)

- Resources included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public Agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant; and

- Any object, building structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (PRC 5024.1, Title 14 CCR, Section 4852).

Impacts to cultural resources include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The Secretary of the Interior's Standards for Rehabilitation (Standards) are codified at 36 Code of Federal Regulations (CFR) Section 67.7. In most circumstances, the Standards are relevant in assessing whether a substantial adverse change under CEQA would occur. Section 15064.5b(3) of the CEQA Guidelines states in part that "…a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historic resource," and therefore may be considered categorically exempt.

The Proposed Project was reviewed for its historical significance and for compliance with the Secretary of the Interior's Standards by PCR Services in 2017 in the *Distrcit-Wide Historical Resources Assessment for Long Beach Unified School District*. A Phase II Intensive Historic Assessment Report was prepared for the school on December 2018 (Appendix B).

As part of the District-Wide Cultural Resources Assessment, PCR Services recommended that Gant Elementary is not eligible for the National Register of Historic Places (NRHP).

5.	CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒

3.5.1 Impact Analysis

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. According to the CEQA Guidelines regarding historical resources, a substantial adverse change in the significance of a historical resource amounts to a significant impact on the environment (Guidelines § 15064.5(b)). Accordingly, a substantial adverse change means demolition, destruction, relocation, or alteration of the resource or its immediate surroundings resulting in the significance of the resource being materially impaired. The significance of a historical resource is materially impaired when a project:

(A) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

The Proposed Project site was not determined to be eligible for listing in the NRHP and CRHR (LBUSD 2017a). Therefore, the Proposed Project would not significantly impact to a historical resource.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

No Impact. No known archaeological resources are located on the Proposed Project site (LBUSD 2017b). A Record's Search conducted with the Information Center returned a negative result for resources within the Project site. In addition, if any archaeological resources are encountered during construction activities, the District's Construction BMPs related to cultural resources will be followed. Ground disturbances for path-of-travel improvements and installation of the synthetic turf field would occur within previously disturbed areas. No disturbances will occur on native soils or on soils not previously disturbed. Therefore, no impacts are expected.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

No Impact. Historic and modern maps were reviewed, and no known cemeteries or areas in which humans remains are located were found within the Proposed Project area. The Proposed Project site is located in an urbanized area, previously disturbed by past activities. In addition, if any human remains are encountered during construction activities, the District's Construction BMPs related to cultural resources and procedures required by State law will be followed. Further, ground disturbance of any native soils or soils not previously disturbed will not occur as part of the Proposed Project. Therefore, no impacts are expected.

3.6 ENERGY

This section describes the potential energy resources impacts from implementation of the Proposed Project.

6.	ENERGY Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?	☐	☐	☒	☐
(b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

3.6.1 Impact Analysis

a) Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?

Less Than Significant Impact. The Proposed Project includes the installation of HVAC and modernization of the existing campus. Construction associated with the Proposed Project would result in a temporary increase in energy consumption due to the energy requirements associated with operating construction equipment. All construction activities would implement BMPs to reduce construction related emissions,

which would minimize the energy needed to implement the Proposed Project. The Proposed Project would implement California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Compliance with this regulation would result in condominium buildings that require less electricity, natural gas, and other fuels for operational purposes. Therefore, the Proposed Project would result in less than significant impacts associated with wasteful or inefficient energy consumption during construction or operation.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. The Proposed Project would comply with California Code of Regulations Title 24, which regulates the amount of energy consumed by new development for heating, cooling, ventilation, and lighting. Additionally, the Proposed Project would implement the City-wide strategy of promoting renewable energy sources. Therefore, the Proposed Project would result in less than significant impacts associated with renewable energy or energy efficiency plans.

3.7 GEOLOGY AND SOILS

Informed land-use decisions require information about California's geologic and seismic hazards such as surface rupture, ground failure, landslides, liquefaction, soil erosion, and subsidence. The California Geological Survey (CGS) provides technical information and advice about landslides, erosion, sedimentation, and other geologic hazards to the public, local governments, agencies, and industries that make land-use decisions in California. Surface rupture is the breakage of ground along the surface trace of a fault caused by the intersection of the fault surface area ruptured in an earthquake. Liquefaction is a process by which water-saturated granular soils transform from a solid to a liquid state during strong ground-shaking. A seismically induced landslide is a general term for falling, sliding, or flowing masses of soil, rocks, water, and debris caused by an earthquake. Erosion is displacement of soil, usually by moving water and wind.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. This State law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. Surface rupture is the most easily avoided seismic hazard. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Seismic Hazards Mapping Act, passed in 1990, addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides.

7.	GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				

7.	GEOLOGY AND SOILS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	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 waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
(f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

3.7.1 Impact Analysis

a)i) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving 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.

Less than Significant Impact. Although the Proposed Project site is located within a seismically active region of southern California, the site is not located within a designated Alquist-Priolo Special Study Zone. The Alquist-Priolo Special Study Zone prevents construction of buildings used for human occupancy on the surface trace of active faults. The nearest designated Alquist-Priolo Earthquake Fault Zone is the Newport-Inglewood Fault Zone, which is approximately 2 miles northeast of the Proposed Project site (CGS 1999). Furthermore, the Proposed Project involves interior and exterior upgrades, including HVAC upgrades and ADA accessibility requirements, consistent with current State and local building and safety codes.

The implementation of the Proposed Project would not exacerbate existing conditions at the school or result in risk of loss, injury, or death involving a rupture of a known fault. Therefore, implementation of

the Proposed Project would result in a less than significant impact associated with earthquake fault rupture.

ii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Less than Significant Impact. The Proposed Project site is not located within a State of California or Los Angeles County-designated Earthquake Fault Rupture Hazard Zone for active surface faulting (CGS 1999). The Proposed Project involves interior and exterior upgrades, including HVAC upgrades and ADA accessibility requirements, coinciding with current building and safety codes. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with strong seismic ground-shaking.

iii) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Less Than Significant Impact. The California Geological Survey (1999) identifies the Proposed Project site as located within an area prone to seismically induced liquefaction; however, as noted above in Section 4.6.1 Impact (a) i) and (a) ii), the Proposed Project involves interior and exterior upgrades, including HVAC upgrades and ADA accessibility requirements, coinciding with current building and safety codes. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with seismic induced liquefaction.

iv)Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

No Impact. The Proposed Project site is not identified as an area prone to seismically induced landslides, and the relatively flat site does not facilitate landslide potential; therefore, implementation of the Proposed Project would not result in an impact associated with seismically induced landslides.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The location of the proposed facility repairs and upgrades and utility upgrades would occur in areas that are currently paved and developed and would require minor ground-disturbing activities. These upgrades, including those occurring within the interior buildings, will not result in soil erosion or the loss of topsoil. The City of Long Beach Municipal Separate Storm Sewer System (MS4) Permit provides best management practices (BMPs) for construction sites to reduce sediment loss and soil erosion. Compliance with these BMPs, which include erosion and sediment controls, would reduce soil erosion during ground-disturbing activities. These include, but are not limited to, fiber rolls, gravel bags, and wind erosion controls. As such, the Proposed Project would not result in substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

c) Would the project 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?

Less Than Significant Impact. The Proposed Project site is located within a seismically active region of southern California, and the California Geological Survey identifies the Proposed Project site as located

within an area prone to seismically induced liquefaction (CGS 1999); however, the Proposed Project site has been previously graded and developed, and the Proposed Project involves upgrades to existing facilities. Facility upgrades would conform to current building and seismic safety codes as required by the California Building Code and California Department of Education. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

d) Would the project 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?

Less than Significant Impact. The Proposed Project site has been previously graded and developed. The United States Department of Agriculture (USDA) classifies the landform underlying the Proposed Project site as urban land with areas classified as loam to fine sandy loam (USDA NRCS 2018). The native materials are capped locally by artificial fill where previously existing natural grades have been modified as part of urbanization. Due to a lack of clay content in soils underlying the Proposed Project site and previous grading and development on site, it is unlikely that the Proposed Project site contains expansive soils. Additionally, the work associated with implementation of the Proposed Project will involve minimal ground-disturbing activities. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with expansive soils.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The Proposed Project site relies on existing sewer infrastructure to accommodate wastewater disposal requirements. Therefore, implementation of the Proposed Project would not result in an impact associated with soils incapable of supporting septic systems.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. No known paleontological resources are located on the Proposed Project site. The Proposed Project site is located in an urbanized area previously disturbed by past activities. In addition, if any paleontological resources are encountered during construction activities, the District's Construction BMPs related to cultural resources will be followed. Ground disturbances for path-of-travel improvements will occur within previously disturbed areas. No disturbances will occur on native soils nor soils not previously disturbed. Therefore, impacts would be less than significant.

3.8 GREENHOUSE GAS EMISSIONS

This section describes the potential global climate change effects from implementation of the Proposed Project. Greenhouse gas (GHG) emission modeling was performed through use of the CalEEMod Version 2016.3.2. The model output is provided in Appendix A.

8.	GREENHOUSE GAS EMISSIONS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact

(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?	☐	☐	☐	☐

3.8.1 Impact Analysis

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. Significant legislative and regulatory activities directly and indirectly affect climate change and greenhouse gas (GHG) emissions in California. The primary climate change legislation in California is Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 focuses on reducing GHG emissions in California and requires that GHGs emitted in California be reduced to 1990 levels by the year 2020.

The California Air Resources Board (CARB) is the State agency charged with monitoring and regulating sources of emissions of GHGs in California that contribute to global warming in order to reduce emissions of GHGs. The CARB Governing Board approved the 1990 GHG emissions level of 427 million tonnes of CO_2 equivalent ($MtCO_2e$) on December 6, 2007. Therefore, in 2020, annual emissions in California are required to be at or below 427 $MtCO_2e$. In January 2017, the CARB Board approved the 2017 Climate Change Scoping Plan (Scoping Plan). The Scoping Plan aims to reduce 1990 levels by 40 percent by 2030. The Scoping Plan continues programs and activities that are implemented primarily by State agencies but also includes actions by local government agencies. Primary strategies addressed in the Scoping Plan include new industrial and emission control technologies; alternative energy generation technologies; advanced energy conservation in lighting, heating, cooling, and ventilation; reduced-carbon fuels; hybrid and electric vehicles; and other methods of improving vehicle mileage. Local government will have a part in implementing some of these strategies. The Scoping Plan also calls for reductions in vehicle-associated GHG emissions through smart growth that will result in reductions of vehicle miles traveled (CARB 2017).

The Proposed Project would not increase the capacity of the school nor would it increase the number of activities that would occur at the Proposed Project site that would result in a significant increase in GHG emissions. No increases in long-term operational GHG emissions are anticipated to occur from the Proposed Project. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with greenhouse gas emissions.

b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. Neither the County nor SCAQMD have any specific plans, policies, or regulations adopted for reducing the emissions of GHGs. The Proposed Project emissions are short-term and anticipated to be insignificant, and the operation of the Proposed Project would not create a significant increase in GHG emissions as the school will continue to operate in the same manner; therefore, implementation of the Proposed Project would result in a less than significant impact associated with an applicable plan, policy, or regulation adopted for reducing the emissions of GHGs.

3.9 HAZARDS AND HAZARDOUS MATERIALS

The Proposed Project and Proposed Project site were analyzed to determine the potential for hazards or hazardous materials to occur on site. Background research included an evaluation of the Geotracker and EnviroStor websites, operated by the State Water Resources Control Board (SWRCB) and the Department of Toxic Substances Control (DTSC).

9.	HAZARDS AND HAZARDOUS MATERIALS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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 had not been adopted, within 2 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?	☐	☐	☒	☐
(h)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

3.9.1 Impact Analysis

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The Proposed Project would not involve the routine transport, use, or disposal of hazardous materials. The Proposed Project would involve the use of heavy equipment during construction that would emit emissions associated with internal combustion engines, (i.e., diesel and gasoline); however, once operational, the Proposed Project would only use chemicals associated with maintenance operations including the use of commercial cleansers, lubricants, solvents, and paints, among other things typically used in educational facilities. Maintenance materials would not be

considered acutely hazardous and would be used in limited quantities at the Proposed Project site. Compliance with the existing regulations, including the manufacturer's product label and Safety Data Sheets, would ensure that no significant hazard to the public, the students, or the environment would result through the routine transport, use, or disposal of hazardous materials; therefore, implementation of the Proposed Project would result in less than significant impacts associated with the routine transport, use, or disposal of hazardous materials.

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?

Less than Significant. Construction activities associated with the Proposed Project would require compliance with federal and State law that regulate construction activities which might involve interaction with asbestos-containing materials (ACMs) or lead-containing surfaces (LCS). Regulations require that, prior to demolition, alteration, or renovation, (1) proper notification is given to the SCAQMD (who regulates airborne pollutants) and the local California Occupational Safety and Health Administration (OSHA) office; (2) LBUSD will certify that ACMs have been removed or mitigated by a licensed asbestos abatement contractor certified by the State of California Contractors Licensing Board; and (3) LBUSD will institute an operations and maintenance (O&M) program so that ACMs that are not damaged or LBP that will remain in place are properly managed to prevent exposure to hazardous materials. These permitting requirements automatically apply to all development associated with the Proposed Project and are considered standard conditions for approval of the Proposed Project.

School staff and contractors that may be on site during construction work will be informed of the type of ACMs that they may encounter and the location of the ACM. The appropriate employers/contractors will implement specific work practices to protect workers, school staff, and students from airborne asbestos exposures. Control measures will be implemented that will address worker, staff, and student safety during the proposed upgrades. Recommendations include abatement procedures, proper training when working with or near ACM, and sampling and reporting procedures.

Compliance with these regulations and implementation of the recommended safety measures would reduce potential impacts during construction and operation to a level below significant.

Additionally, as mentioned in Section 4.9.1 Impact (a), the construction phase of the Proposed Project would involve the use of heavy equipment during construction that would emit emissions associated with internal combustion engines (i.e., diesel and gasoline); however, the use of fuels is regulated by the State and would be in compliance with all State regulations during construction.

Implementation of the Proposed Project would result in a less than significant impact associated with the release of hazardous.

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?

Less than Significant Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC, and accessibility upgrades. PAAL Academy is located approximately 0.25 mile east of the Proposed Project site. The results of the Hazardous Building Material Survey identified areas within the campus that contain lead and asbestos compounds. As listed

above in Section 4.9.1 Impact (b), and as identified in the construction activities in Section 1.5.3, the District will comply with the recommendations on handling asbestos- and lead-containing materials, including avoidance, and therefore reduce impacts to less than significant.

The Proposed Project would also involve the use of heavy equipment during construction that would emit emissions associated with internal combustion engines (i.e., diesel and gasoline). Once operational, the Proposed Project would involve the use of chemicals associated with maintenance operations which would be subject to federal, State, and local health and safety requirements. As discussed above in Section 4.9.1 Impact (a), adherence to all local, county, State, and federal policies and regulations would reduce impacts to a level less than significant. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

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?

No Impact. The Proposed Project site is not on a list of hazardous materials sites compiled pursuant to Government Code Section 65862.5 (SWRCB 2018; DTSC 2018); therefore, implementation of the Proposed Project would not result in an impact associated with known hazardous materials sites.

e) For a project located within an airport land use plan or, where such a plan had not been adopted, within 2 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?

No Impact. The Proposed Project site is located approximately 1.5 miles southeast of Long Beach Municipal Airport. The Proposed Project site is not located within the Airport Influence Area or a Runway Protection Zone for the Long Beach Municipal (LACALUC 2003). Therefore, implementation of the Proposed Project would not result in an impact associated with a public airport.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The Proposed Project site and surrounding areas are currently developed. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC and accessibility upgrades. These activities would not create interference with established emergency response or emergency evacuation plans as there is no proposed alteration of infrastructure identified in an evacuation plan; therefore, implementation of the Proposed Project would result in a less than significant impact associated with an emergency evacuation plan.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. The Proposed Project site is identified as a Non-Very High Fire Hazard Safety Zone (CALFIRE 2007). Additionally, the Proposed Project is not located within or adjacent to wildlands or identified Very High Fire Hazard Safety Zones. Therefore, implementation of the Proposed Project would not result in an impact associated with wildland fires.

3.10 HYDROLOGY AND WATER QUALITY

Hydrology is the study of the movement, distribution, and quality of water throughout the Earth, and thus addresses both the hydrologic cycle and water resources. Water quality is the physical, chemical, and biological characteristics of water, characterized through the methods of hydrometry. The primary bases for such characterization are parameters which relate to drinking water, safety of human contact, and the health of ecosystems.

A seiche is a standing wave in an enclosed or partially enclosed body of water. A tsunami is a series of waves created when a body of water, such as an ocean, is rapidly displaced. A mudflow or mudslide is the most rapid (up to 80 kilometers per hour) and fluid type of downhill mass wasting.

10.	HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water 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 a 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 flood 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?	☐	☐	☒	☐
(f)	Potentially impact stormwater runoff from construction activities?	☐	☐	☒	☐
(g)	Potentially impact stormwater runoff from post-construction activities?	☐	☐	☒	☐
(h)	Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?	☐	☐	☒	☐

10.	HYDROLOGY AND WATER QUALITY. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(i)	Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters?	☐	☐	☒	☐
(j)	Create the potential for significant changes in the flow velocity or volume of stormwater runoff to cause environmental harm?	☐	☐	☒	☐
(k)	Create significant increases in erosion of the project site or surrounding areas?	☐	☐	☒	☐

3.10.1 Impact Analysis

a) Would the project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC and accessibility upgrades at Gant Elementary School. Although the majority of work would occur indoors and on existing buildings, accessibility upgrades would involve soil disturbance. The disturbance would result in short-term impacts to site drainage during construction periods. If soil is not contained and is directly exposed to rain, soil erosion and sediment could flow into the storm drain system, resulting in the potential degradation of water quality; however, the likelihood of a violation of water quality standards or waste discharge requirements would be reduced due to compliance with the site-specific Storm Water Pollution Prevention Plan (SWPPP) and implementation of BMPs.

BMPs reduce the potential for erosion by implementing erosion and sediment control measures that regulate the amount and quality of runoff from a construction site. Due to most of the work associated with the Proposed Project occurring indoors and on existing buildings and required compliance with the SWPPP, the impacts associated with water quality standards or waste discharge requirements are not considered significant. BMPs that would be utilized include but are not limited to minimizing soil compaction, implementing good housekeeping practices and treatment controls, and controlling runoff. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with water quality standards or waste discharge requirements.

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?

No Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC, and accessibility upgrades at Gant Elementary school. The Proposed Project site is currently developed and located in an urbanized area. The Proposed Project would not substantially increase the amount of impervious surface and would not interfere with groundwater recharge. Additionally, the Proposed Project would not increase the number of students or staff; and additional water resources would not be required to accommodate any such growth. Therefore, implementation of the Proposed Project would not result in impacts associated with groundwater recharge or groundwater depletion.

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:

i) result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. The Proposed Project site is in an urbanized location and is currently developed. Ground-disturbing activities would result due to the proposed accessibility improvements; however, the Proposed Project would not substantially increase the area of impervious surfaces at the Proposed Project site. In addition, any construction which would result in ground-disturbing activities would be required to comply with the SWPPP and implement BMPs from the City's MS4 Permit that would reduce any potential erosions or siltation on or off site. Further, the drainage pattern of the Proposed Project site and surrounding area is well established, and no streams or rivers are located on the Proposed Project site. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with the existing drainage pattern.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No Impact. As mentioned above in Section 4.10.1 Impact (c(i)), the Proposed Project site is in an urbanized location and does not include any streams or rivers on the site; therefore, implementation of the Proposed Project would not result in impacts associated with stream course alteration or increase runoff rates.

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources or polluted runoff?

Less Than Significant Impact. The Proposed Project would not create or contribute significant runoff from the Proposed Project site. The Proposed Project site is in an urbanized location, and the site is currently developed. Runoff from the Proposed Project site following construction would be similar to the pre-project runoff volumes; therefore, the Proposed Project is not expected to create or contribute surface runoff volume that would exceed the capacity of the existing stormwater drainage systems. Implementation of the Proposed Project would result in a less than significant impact associated with stormwater drainage systems.

iv) impede or redirect flood flows?

No Impact. The Proposed Project is not located within a Federal Emergency Management Agency (FEMA) identified 100-year flood hazard area (FEMA 2008); therefore, implementation of the Proposed Project would not result in an impact associated with flood flows.

d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. Seiches or mudflows are not hazards in the Proposed Project area. Tsunamis have the potential to impact the coastal area; however, the Proposed Project site is located approximately 1.6 miles inland and is not located in an inundation or tsunami hazard area (City of Long Beach 1988). Additionally, no lakes are located within the immediate vicinity of the Proposed Project area. Therefore,

implementation of the Proposed Project would not result in an impact associated with inundation by seiche, tsunami, or mudflow.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. As discussed above, the Proposed Project would comply with the SWPPP and implement appropriate BMPs from the City's MS4 Permit. The identification and implementation of BMPs identified in the SWPPP would reduce any impacts associated with water quality to less than significant. Additionally, the Proposed Project would not use groundwater for construction or operation of the Proposed Project. Impacts associated with water quality and groundwater plans are less than significant.

f) Potentially impact stormwater runoff from construction activities?

Less than Significant Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC and accessibility upgrades at Gant Elementary School. As discussed above in Section 4.10.1 Impact (c(i-iv)), the drainage site would not be substantially altered from existing conditions; and the Proposed Project is not anticipated to significantly impact stormwater runoff. BMPs would reduce any impacts associated with stormwater runoff; therefore, implementation of the Proposed Project would result in a less than significant impact associated with stormwater runoff from construction activities.

g) Potentially impact stormwater runoff from post-construction activities?

Less Than Significant Impact. The Proposed Project site is in an urbanized location, and stormwater drainage systems are already located in the vicinity of the Proposed Project site. The Proposed Project would not significantly increase the amount of impervious surface on site, and any increase in stormwater runoff would be accommodated by the existing stormwater system. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with runoff from post-construction activities.

h) Result in a potential for discharge of stormwater pollutants from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous materials handling or storage, delivery areas, loading docks or other outdoor work areas?

Less than Significant Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC and accessibility upgrades at Gant Elementary School. The drainage site would not be substantially altered from existing conditions, and the Proposed Project is not anticipated to result in a potential for discharge of stormwater pollutants. The implementation of BMPs would reduce any potential impacts associated with pollutant discharge from areas of material storage, vehicle or equipment fueling, vehicle or equipment maintenance, waste handling, delivery areas, loading docks, or other outdoor work areas; therefore, this impact would be less than significant.

i) Result in the potential for discharge of stormwater to affect the beneficial uses of the receiving waters?

Less than Significant Impact. The Proposed Project would result in a less than significant impact associated with stormwater discharge during construction. The short-term construction impacts would be reduced with the implementation of BMPs; therefore, implementation of the Proposed Project would result in a less than significant impact associated with downstream beneficial uses of receiving water.

j) Create the potential for significant changes in the flow velocity or volume of stormwater runoff to cause environmental harm?

Less than Significant Impact. Impervious surfaces such as buildings and paved areas can increase runoff rates through impeding infiltration of rainfall and increasing overland flow velocities. The Proposed Project site is currently developed, and the Proposed Project would not significantly increase the amount of impervious surface on site. Implementation of the Proposed Project would not generate substantial additional sources of polluted runoff. The Proposed Project is not anticipated to create or contribute surface runoff volume that would exceed the capacity of the existing stormwater drainage systems; therefore, implementation of the Proposed Project would result in less than significant impacts associated with changes in the flow velocity or volume of stormwater runoff to cause environmental harm.

k) Create significant increases in erosion of the project site or surrounding areas?

Less Than Significant Impact. The locations of the proposed facility repairs and upgrades and utility upgrades would occur in areas that are currently paved and developed. In addition, the relatively flat nature of the Proposed Project site limits susceptibility to erosion; however, construction of accessibility upgrades would require ground disruption activities which would require the preparation of a SWPPP and implementation of BMPs. Due to past development of the area and implementation of the City's MS4 Permit and BMPs, erosion would be minimized and not substantial; therefore, implementation of the Proposed Project would result in less than significant impacts associated with erosion.

3.11 LAND USE AND PLANNING

Cities and counties "plan" in order to identify important community issues (such as new growth, housing needs, and environmental protection), project future demand for services (such as sewer, water, roads, etc.), anticipate potential problems (such as overloaded sewer facilities or crowded roads), and establish goals and policies for directing and managing growth. Local governments use a variety of tools in the planning process including the general plan, specific plans, zoning, and the subdivision ordinance.

The Proposed Project site is located within an area designated by the City of Long Beach General Plan as Institutional, which allows educational land uses. The zoning for the Proposed Project site is Institutional, which also allows public and private educational land uses by right (without a Conditional Use Permit). Land use designations adjacent to the Proposed Project site include Moderate and low Density Residential. In the November 2017 Draft General Plan Update, designations for zoning and land use will be referred to as 'Placetype' designations which will illustrate major physical planning concepts for the City (City of Long Beach 2017).

11.	LAND USE/PLANNING Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒

3.11.1 Impact Analysis

a) Would the project physically divide an established community?

No Impact. The Proposed Project would be located on a site that has been in use as a public school since 1915. The Proposed Project would continue the long-standing presence of an educational institution at the Proposed Project site. The Proposed Project would not change the land uses currently existing at the site or create an incompatible use. The continued use of the site as a school campus would not result in a new barrier in the community that would divide the established surrounding community; therefore, implementation of the Proposed Project would not result in an impact associated with the physical division of a community.

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?

No Impact. As described above, the Proposed Project site is located within an area designated by the General Plan as Institutional, which allows educational land uses. The zoning for the Proposed Project site is Institutional, which also allows public and private educational land uses by right (without a Conditional Use Permit). The Proposed Project would not result in a change to the existing land use or zoning designations. Therefore, implementation of the Proposed Project would not result in an impact associated with an applicable land use plan, policy, or regulation.

3.12 MINERAL RESOURCES

Mineral resources are commercially viable mineral or aggregate deposits such as sand, gravel, and other construction aggregate. California is the largest consumer of sand and gravel in the nation; but it is also a major provider, producing approximately one billion dollars' worth of mineral resources annually.

The California Geological Survey (CGS) provides objective geologic expertise and information about California's diverse non-fuel mineral resources. Maps, reports, and other data products developed by the

CGS staff assist governmental agencies, mining companies, consultants, and the public in recognizing, developing, and protecting important mineral resources. The California Department of Conservation protects mineral resources to ensure adequate supplies for future production. The California Surface Mining and Reclamation Act of 1975 (SMARA) was developed to encourage production and conservation of mineral resources, prevent or minimize adverse effects to the environment, and protect public health and safety.

12.	MINERAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒

3.12.1 Impact Analysis

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?

No Impact. The State of California Division of Mines and Geology classified the Proposed Project site as a Mineral Resource Zone 4 (MRZ-4). MRZ-4 zones are defined as areas where available information is inadequate for assignment to any other MRZ (CDMG 1982); however, Proposed Project activities would occur on previously disturbed soils and would not result in loss of a known mineral resource. Therefore, implementation of the Proposed Project would not result in an impact associated with mineral resources.

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?

No Impact. No existing or historic mineral resource sites are in or around the Proposed Project site; therefore, implementation of the Proposed Project would not result in an impact associated with a mineral resource recovery site.

3.13 NOISE

3.13.1 Environmental Setting

The Proposed Project is located in the City of Long Beach. The primary noise sources in the Project vicinity are from the operation of vehicles on the nearby roads; however, traffic noise at the Proposed Project site is minimal and the proposed activities will not involve roadway widening or construction that would exacerbate existing traffic noise. A Noise Technical Memo was prepared for the Proposed Project and is included as Appendix B.

City of Long Beach Noise Standards

For construction activities within the City of Long Beach, Section 8.80.202 of the Municipal Code exempts construction noise from the City's exterior and interior noise standards between 7:00 a.m. and 7:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays.

Since some construction activities could result in noise levels that could cause harm to the nearby residents, a noise threshold utilizing the OSHA agency limits of noise exposure is used. The use of a significance threshold using an OSHA standard is considered conservative. The OSHA standard is limiting noise exposure of workers to 90 decibels (dB) or less over eight continuous hours. Typical construction activities result in a range of noise levels from operating various pieces of equipment. Typical equipment operating cycles may be used at a full power setting followed by a lower setting. Therefore, noise levels fluctuate during construction activities. For the purpose of this noise impact analysis, noise levels that could expose residents or workers to more than 90 dB for over eight continuous hours are considered a significant noise impact.

13.	NOISE Would the project result in:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☐

3.13.2 Impact Analysis`

a) *Would the project result in 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?*

Less Than Significant Impact. The Proposed Project would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies..

Construction-Related Noise

The construction activities for the Proposed Project are anticipated to include site preparation and grading the drop off area on Britton Drive and onsite areas for the new paths of travel, upgrading permanent buildings A through D, paving of the new drop off area and new paths of travel, and application of architectural coatings. Noise impacts from construction activities associated with the Proposed Project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

Section 8.80.202 of the City's Noise Ordinance restricts construction activities from occurring between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between 6:00 p.m. and 9:00 a.m. on Saturdays, or anytime on Sundays or federal holidays. Through adherence to the construction-related noise requirements provided in the City's Noise Ordinance, construction-related noise levels would not exceed any noise standards established in the General Plan or Noise Ordinance. However, the General Plan Noise Element details that the federal standards may be used when local criteria are not established. As such, the FTA construction noise level standard of 90 dBA at the nearby homes have been utilized for this analysis.

Construction noise levels to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of the Noise Technical Memo (Table D – Construction Equipment Noise Emissions and Usage Factors). The results are shown below in Table F and the RCNM printouts are provided in Appendix B.

As show in Table F of the Noise Technical Memo (Appendix B), the greatest noise impacts would occur during the grading phase, with a noise level as high as 69 dBA Leq at the nearest homes to the north. All calculated construction noise levels are within the FTA daytime construction noise standard of 90 dBA. Therefore, through adherence to allowable construction times provided in Section 8.80.202 of the Municipal Code, the construction activities for the Proposed Project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operational-Related Noise

The Proposed Project would consist of upgrading the permanent buildings A through D, a new drop off area on Britton Drive and new paths of travel and utility systems upgrades. The Proposed Project would not result in an increase in student enrollment and is not anticipated to generate any new vehicle trips to the Project site. As such, no roadway noise impacts are anticipated to be created from operation of the Proposed Project. Potential noise impacts associated with the operations of the Proposed Project would limited to new onsite noise sources that would include new HVAC units and a new vehicle parking drop-off area. Section 8.80.160 of the Municipal Code limits onsite noise sources at the property lines of the nearby homes to 50 dBA between 7 a.m. and 10 p.m. and 45 dBA between 10 p.m. and 7 a.m.

In order to determine the noise impacts from the operation of the HVAC units and the drop off area, reference noise measurements were taken of each source and are shown in the Noise Technical Memo Table G and the reference noise measurement printouts are provided in Appendix D of the Noise Technical Memo.

Table G of the Noise Technical Memo shows that the Proposed Project's worst-case (i.e., during school drop-off and pickup times) operational noise from the simultaneous operation of all noise sources on the Project site would create a noise level of 44.8 dBA at the nearest homes to each source, which would be within the City's daytime noise standards of 50 dBA between 7 a.m. and 10 p.m. and the City's nighttime noise standard of 45 dBA between 10 p.m. and 7 a.m. Therefore, the operational activities for the Proposed Project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Potentially Significant Impact.

Construction-Related Vibration Impacts

The construction activities for the Proposed Project are anticipated to include site preparation and grading the drop off area on Britton Drive and onsite areas for the new paths of travel, upgrading permanent buildings A through D, paving of the new drop off area and new paths of travel, and application of architectural coatings. Vibration impacts from construction activities associated with the Proposed Project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors are the homes to the north, which are located as near as 20 feet from where heavy off-road equipment would operate onsite.

Section 8.80.200(G) of the City's Municipal Code limits vibration impacts to the nearby single-family homes to 0.001 g's in the frequency range of 0 to 30 hertz and 0.003 g's in the frequency range of 30 to 100 hertz. The acceleration of gravity (g), which is 32.2 feet per second can be converted into peak particle velocity by multiplying 0.001 g's by 32.2 and then converting to inch per second, which results in a threshold of 0.386 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table E above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest homes (20 feet away) would be 0.114 inch per second PPV. The vibration level at the nearest homes to where heavy off-road equipment would operate would be below the 0.386 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The Proposed Project would consist of upgrading the permanent school buildings as well as a new drop off area on Britton Drive and accessibility and utility systems upgrades. The on-going operation of the Proposed Project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

3.14 POPULATION AND HOUSING

Population refers to the occupants of housing projects, population indirectly associated with workers or proposed nonresidential projects, or changes in the amount and distribution of population and employment permitted by adoption or revision to a land use plan. Important areas include changes in the number, characteristics, geographical distribution, and timing of new residents directly or indirectly resulting from a project and the degree to which project-related changes are consistent with city, regional or other adopted population growth policies. Other issues are the degree to which project-related population is already present in the area under analysis (i.e., already residing or working in the area) or whether they represent immigrants.

Housing impacts may result directly from a project, which includes housing units, or indirectly from revisions to the Housing Element in a General Plan or changes in housing demand associated with new non-residential development projects.

A project would have a significant adverse impact if it would induce substantial population growth in an area, either directly by proposing new homes and businesses or indirectly through the extension of roads or other infrastructure; displaced housing units causing the construction of replacement housing somewhere else; or displaced people causing the construction of replacement housing somewhere else.

14.	POPULATION AND HOUSING. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒

3.14.1 Impact Analysis

a) Would the project 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)?

No Impact. The Proposed Project is limited to facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC, and accessibility upgrades at Gant Elementary. The Proposed Project would not induce population growth in the areas surrounding the Proposed Project site nor would it create the need for additional housing. Additionally, implementation of the Proposed Project would not increase the capacity of Gant Elementary School or result in an increase in student enrollment. The Proposed Project would not result in the creation of housing or businesses that would induce or accelerate population growth. Further, the Proposed Project would be located on an existing school site and adjacent to a number of roadways that currently serve the site. The Proposed Project site is already served by utilities infrastructure, and utility upgrades associated with the Proposed Project are strictly related to HVAC operations. Therefore, the implementation of the Proposed Project would not result in an impact associated with population growth.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The Proposed Project site does not contain any residences or housing units and does not accommodate residential use; therefore, implementation of the Proposed Project would not result in an impact associated with the displacement of people or housing.

3.15 PUBLIC SERVICES

Public services include fire, police, schools, parks, and libraries. A project would impact a public service if it would result in an increased demand for that service or if the project would result in a hindrance to that service.

15.	**PUBLIC SERVICES.** **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:**	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(a)	Fire Protection?	☐	☐	☐	☒
(b)	Police Protection?	☐	☐	☐	☒
(c)	Schools?	☐	☐	☒	☐
(d)	Parks?	☐	☐	☐	☒
(e)	Other public facilities?	☐	☐	☐	☒

3.15.1 Impact Analysis

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 fire protection?

No Impact. The Proposed Project would not result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities. Fire protection services would be provided by the City of Long Beach Fire Department. Fire Station No. 22 is located approximately 0.5 mile east of Gant Elementary and would serve as the primary responder to the Proposed Project site (Google Earth 2018). Fire protection service needs are generally related to the size of the population and geographic area served, the number and types of calls for service, and other community and physical characteristics. Because land uses at the Proposed Project site would remain the same as under current conditions, an increase in the demand for fire services resulting from the Proposed Project is not anticipated. The Proposed Project site is located in an urbanized area that is void of any wildlands that may create significant fire risks to the Proposed Project site. In addition, to ensure conformance with State Fire Codes, the Proposed Project would not result in street closures that would result in inadequate access to the Proposed Project site. Therefore, implementation of the Proposed Project would not result in an impact associated with fire protection.

b) 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 police protection?

No Impact. The Proposed Project would not result in adverse physical impacts associated with the provision of new or physically altered facilities to maintain acceptable service ratios for police protection. The District maintains its own safety department to provide security for the schools within its jurisdiction. The District's School Safety and Emergency Preparedness Department would provide on-campus security for the Proposed Project. The City of Long Beach Police Department would be the secondary provider of law enforcement services to the Proposed Project and would supplement the District's School Safety and Emergency Preparedness Department as needed. The police substation nearest to the Proposed Project

site is located at 4645 E Anaheim Street, approximately 1.26 mile southwest of the Proposed Project site (Google Earth 2018). The Proposed Project would not rely primarily on the City of Long Beach Police Department police protection services and would not induce population growth resulting in the need for additional police services. Therefore, implementation of the Proposed Project would not result in an impact associated with police protection.

c) *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 schools?*

Less than Significant Impact. Implementation of the Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC, and accessibility upgrades at Gant Elementary School. During construction, portions of the buildings would not be available for school use. The potential limitation of use will be short-term, and following construction the Proposed Project site would return to its fully functioning existing uses. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with schools.

d) *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 parks?*

No Impact. The Proposed Project would not result in adverse physical impacts associated with the provision of new or physically altered facilities to maintain acceptable opportunities for parks. The closest park (Whaley Park) is located approximately 0.2 mile west of the Proposed Project site. The Proposed Project would not induce population growth and therefore will not create new residents. Therefore, implementation of the Proposed Project would not result in an impact associated with parks.

e) *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 other public facilities?*

No Impact. Implementation of the Proposed Project is not anticipated to impact any other public facilities as it would not induce population growth directly or indirectly.

3.16 RECREATION

Recreational facilities include active and passive facilities. Active recreational facilities include parks, tennis and basketball courts, pools, golf courses, and various other facilities. Passive recreational facilities include plazas and other public places.

A project would result in a significant impact on recreational facilities if it would increase the use of existing parks and facilities such that substantial physical deterioration of the facility would occur or be accelerated, or if the project included recreational facilities or required construction that might have an adverse physical effect on the environment.

16.	RECREATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒
(b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Impact Analysis

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?

No Impact. Implementation of the Proposed Project would not increase the use of existing neighborhood and regional parks or any other recreational facilities. The closest park (Whaley Park) is located approximately 0.2 mile west of the Proposed Project site. Physical impacts to existing recreational facilities are usually associated with population growth. The Proposed Project would neither directly increase the local population nor would it indirectly induce population growth in the future; therefore, implementation of the Proposed Project would not result in an impact associated with the deterioration of recreational facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Proposed Project site is located at Gant Elementary School, which provides students with on-campus recreational facilities. Implementation of the Proposed Project would not require the construction or expansion of off-site recreational facilities. The Proposed Project is intended to repair and upgrade school facilities for an existing student population and would not burden any facility beyond capacity by generating additional recreational users. Therefore, implementation of the Proposed Project would not result in an impact associated with the construction or expansion of recreational facilities.

3.17 TRANSPORTATION

A Traffic Analysis was prepared for the Proposed Project and is included as Appendix C.

17.	TRANSPORTATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?	☐	☐	☒	☐

17.	TRANSPORTATION. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(b)	For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(1)?	☐	☐	☐	☒
(c)	For a transportation project, would the project conflict with or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)(2)?	☐	☐	☐	☒
(d)	Substantially increase hazards due to a geometric design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
(e)	Result in inadequate emergency access?	☐	☐	☐	☒

3.17.1 Impact Analysis

a) Would the project conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?

Less than Significant Impact. The Proposed Project would generate minor increases in traffic associated with the short-term construction activities, which involve facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC, and accessibility upgrades. Additionally the new dop-off/pick-up location will help ease congestion along Britton Drive during morning and afternoon hours. No increase in operation and maintenance traffic is anticipated. In addition, the Proposed Project would not cause an increase in the number of students attending the school. The temporary and limited increase in construction traffic would not conflict with any applicable plans, ordinances, or policies establishing measures of effectiveness for the circulation systems. Therefore, implementation of the Proposed Project would result in less than significant impacts associated with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

b) For a land use project, would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact. Implementation of the Proposed Project would not change activities that currently occur on the existing school campuses, and student capacity and number of employees would not increase. Land use would remain the same, and no changes to the existing circulation system are proposed. Therefore, no change to vehicle miles travelled would result due to implementation of the Proposed Project. No impact would occur.

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)?

No Impact. The Proposed Project would include accessibility upgrades and development of a new pick-up/drop-off area along Britton Drive. The new drop-off/pick-up area will create a safer environment for children coming and going from school by easing congestion during morning and afternoon hours;

therefore, implementation of the Proposed Project would not result in an impact associated with road hazards.

d) Would the project result in inadequate emergency access?

No Impact. Gant Elementary School campus and does not include changes to emergency access routes. Additionally, the proposed new drop-off/pick-up area would create a more efficient emergency access route to the school campus. All lanes in the vicinity of the Proposed Project would remain open for emergency use; therefore, implementation of the Proposed Project would not result in an impact associated with emergency access.

3.18 TRIBAL CULTURAL RESOURCES

This section describes the potential tribal cultural resources effects from implementation of the Proposed Project.

18.	TRIBAL CULTURAL RESOURCES. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Would the project 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:				
	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.	☐	☐	☐	☒

3.18.1 Impact Analysis

i) Would the project cause a substantial adverse change in a 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)?

No Impact. See Section 4.5.1 Impact (a). The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC and accessibility upgrades at Gant Elementary School. Further, ground disturbance of any native soils or soils not previously disturbed

will not occur as part of the Proposed Project. Therefore, the Proposed Project would not result in an impact associated with tribal cultural resources.

ii) Would the project cause a substantial adverse change in 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?

No Impact. The Proposed Project involves facility repairs and upgrades, classroom technology upgrades, utility upgrades and installation of HVAC/accessibility upgrades at Gant Elementary School. Further, ground disturbance of any native soils or soils not previously disturbed will not occur as part of the Proposed Project. Therefore, the Proposed Project would not result in an impact associated with tribal cultural resources.

3.19 UTILITIES AND SERVICE SYSTEMS

Utilities and service systems include potable water and wastewater treatment. The quantity of water consumed, and wastewater generated by a project is determined by several factors, including the size, type, and characteristics of the project. The need for construction of new or replacement water and wastewater treatment facilities (e.g., reservoirs, storage tanks, water mains, filtration plants, pumps, wells, and other connections or distribution facilities) would depend on the existing capacity and anticipated demand for the Proposed Project site.

19.	UTILITIES/SERVICE SYSTEMS. Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☒	☐
(e)	Negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
(f)	Comply with federal, state, and local management and reduction statutes and regulations related to solid wastes?	☐	☐	☒	☐

3.19.1 Impact Analysis

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or expansion of which could cause significant environmental effects?

Less Than Significant Impact. Implementation of the Proposed Project would not require the relocation or construction of utilities that serve the Proposed Project site. The Proposed Project would not result in an increase in student or staff population. After construction, the use of utilities on site would be similar to existing conditions; however, campus upgrade and technological improvements would likely require less energy to operate. Therefore, implementation of the Proposed Project would result in a less than significant impact associated with relocation or construction of utility infrastructure.

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?

No Impact. Long Beach Water Department is responsible for supplying water to the Proposed Project site and for ensuring that the delivered water meets applicable California Department of Health Services standards for drinking water. The Proposed Project does not involve increases in student or staff population, and no substantial increase in water supply requirements is anticipated. In addition, the District would comply with local, regional, and State water conservation policies and would follow standard BMPs, including Title 22 regulations, in order to reduce water consumption. The Proposed Project would result in no need for new or expanded entitlements; therefore, implementation of the Proposed Project would not result in an impact associated with sufficient water supplies.

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?

No Impact. It is anticipated that no net increase in wastewater generation for the region would occur. Furthermore, the Proposed Project would be located on an existing developed site with established sewer line connections that are currently serviced by the City of Long Beach. Therefore, implementation of the Proposed Project would not result in an impact associated with new or expanded wastewater treatment facilities.

d) Would the project generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure?

Less than Significant Impact. The Sanitation Districts of Los Angeles County (LACSD) and private waste management collectors and disposal facilities manage solid waste in the county. The LACSD operates a comprehensive solid waste management system that includes three active sanitary landfills, three closed landfills, two materials recovery/transfer stations, three gas-to-energy facilities, a clean-fuel facility, two full-service recycle centers, multiple landfill recycling programs, and, in conjunction with the County's Department of Public Works, an extensive program of household hazardous waste and electronic waste collection round-ups.

The active landfills and the materials recovery/transfer stations receive approximately 19,000 tons of nonhazardous solid waste per day, of which approximately 15,500 tons per day is disposed, with the

remainder being reused or recycled. This disposal represents approximately 40 percent of the total solid waste disposed of by the residents and businesses of the county. The remaining 60 percent is disposed of at privately owned landfills. In general, solid waste is hauled directly to Class III landfills, transfer stations, resource recovery centers, and refuse-to-energy facilities.

The Proposed Project will not involve an increase in student or staff population and would not result in an operational increase in waste generation; however, construction of the Proposed Project would result in the generation of solid waste including scrap lumber, concrete, residual waste, packaging material, plastics, and vegetation. To ensure optimal diversion of solid waste resources by a project, the District requires its contractors to recycle or salvage nonhazardous waste materials generated during demolition and/or construction, to foster material recovery and re-use, and to minimize disposal in landfills. Furthermore, impacts from construction activities will be short-term and intermittent and will be mitigated by BMPs and compliance with existing State solid waste reduction statutes. With the incorporation of these requirements into the Proposed Project, implementation of the Proposed Project would result in a less than significant impact associated with sufficient landfill capacity.

e) Would the project negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?

Less Than Significant Impact. As noted above in Section 4.19.1 Impact (d), the Proposed Project will not involve an increase in student or staff population and would not result in an operational increase in waste generation; however, construction of the Proposed Project would result in the generation of solid waste including scrap lumber, concrete, residual waste, packaging material, plastics, and vegetation. As operation of the Proposed Project would not result in an increase in solid waste generation beyond the existing condition, implementation of the Proposed Project would result in a less than significant impact associated with solid waste reduction goals.

f) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. During construction and operation of the Proposed Project, the District would comply with all city, county, and State solid waste diversion, reduction, and recycling mandates, including compliance with the county-wide Integrated Waste Management Plan (IWMP). Therefore, implementation of the Proposed Project would result in a less than significant impact associated with waste regulations.

3.20 WILDFIRE

20.	WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	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 a wildfire?	☐	☐	☐	☒

20.	WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(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?	☐	☐	☐	☒

3.20.1 Impact Analysis

a) Would the project impair an adopted emergency response plan or emergency evacuation plan?

No Impact. As discussed in Section 4.9.1 Impact (g), the Proposed Project site is not located in VHFHSZ. The Proposed Project site is located in a built-out, urbanized community that is not considered at high risk for wildfire. All Proposed Project activities will occur within the existing school boundary, and operation of the Proposed Project would continue to operate as an existing school. No impact would occur.

b) Would the project, 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?

No Impact. The school campus is located within an established and built-out urban community that is at low risk for wildfire. The school campus is relatively flat and not located within a VHFHSZ. Additionally, Proposed Project activities would all occur within the existing school campus and would not include the installation or maintenance of associated infrastructure (such as road, fuel breaks, emergency water sources, or other utilities) that may exacerbate a fire risk. No impact would occur.

c) Would the project 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?

No Impact. As discussed above in Section 4.20.1 Impact (b), the school campus is not located within a VHFHSZ. Additionally, Proposed Project activities would all occur within the existing school campus and would not include the installation or maintenance of associated infrastructure (such as road, fuel breaks, emergency water sources, or other utilities) that may exacerbate a fire risk. No impact would occur.

d) Would the project 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?

No Impact. The school campus is not located within a VHFHSZ. Additionally, the school campus is relatively flat and not at risk of post-fire-induced landslide. No impact would occur.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

21.	MANDATORY FINDINGS OF SIGNIFICANCE.	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
(a)	Does the project have 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 animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
(b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)	☐	☐	☒	☐
(c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 Impact Analysis

a) Does the project have 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 animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact. The Proposed Project is located within an operational school within an urbanized area. No habitats or sensitive natural communities are within the Proposed Project site. The Proposed Project would not substantially reduce or eliminate plant or animal communities. No known paleontological resources occur within the Proposed Project site. If any are encountered during construction activities, construction BMPs will be implemented. Impacts would be less than significant.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)

Less than Significant Impact. The Proposed Project would not include any significant improvements that would result in cumulative impacts in addition to projects occurring within the vicinity of Proposed Project area. The Proposed Project involves facility repairs that would occur within the existing campus. Impacts would be less than significant.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The Proposed Project would not result in substantial adverse effects on humans directly or indirectly. While the analysis to resource areas identified above have the potential to impact nearby residents and other sensitive receptors, compliance with standard construction regulations would result in impacts less than significant.

SECTION 4.0 – REFERENCES

California Air Resources Board (CARB)

2017 California's 2017 Climate Change Scoping Plan. November. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.

California Department of Conservation (Department of Conservation)

2016a California Important Farmland Finder. Online URL: http://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx.

2016b Los Angeles County Williamson Act Contract Lands. Online URL: http://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx.

California Department of Forestry and Fire Protection (CALFIRE)

2007 Fire Hazard Safety Zone Map. Online URL: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps.

California Department of Mines and Geology (CDMG)

1982 Mineral Lands Classification Database. Online URL: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_143/PartIV/Plate_4-1.pdf.

California Department of Transportation (Caltrans)

2018 California Scenic Highway Mapping System. Online URL: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

California Geological Survey (CGS)

1999 Earthquake Zones of Required Investigation Long Beach Quadrangle

2016 CGS Information Warehouse: Regulatory Maps. Online URL: http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps.

City of Long Beach

1988 City of Long Beach General Plan – Seismic Safety Element. Department of Planning and Building. Online URL: http://www.lbds.info/civica/filebank/blobdload.asp?BlobID=2544.

2017 General Plan Land Use Element.Online URL: http://www.longbeach.gov/globalassets/city-news/media-library/documents/lue/november-2017/draft_longbeachlanduseelement_11-2017_sml

2018 Long Beach Municipal Code. Chapter 14.28 – Trees and Shrubs.https://library.municode.com/ca/long_beach/codes/municipal_code?nodeId=16115.

2019 Capital Improvement Plan. Online URL: http://www.longbeach.gov/globalassets/pw/media-library/documents/resources/general/capital-improvement-plan/capital-improvement-plan/fy-19-adopted-cip-book.

Department of Toxic Substances Control (DTSC)
2018 EnviroStor Database. Online URL: https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=washington+middle+school.

Google Earth
2018 Online URL: https://earth.google.com/web/.

Long Beach Unified School District (LBUSD)
2017a Cultural Resource Assessment for Long Beach Unified School District. Online URL: http://lbschoolbonds.net/pdfs/lbusd-part1-historic-resources-report-20170206-web.pdf.

2017b Archaeological and Paleontological Resources Assessment. Online URL: http://lbschoolbonds.net/pdfs/lbusd-part1-historic-resources-report-20170206-web.pdf.

Los Angeles County Airport Land Use Compatibility (LACALUC)
2003 Long Beach Airport: Airport Influence Area. Online URL: http://planning.lacounty.gov/aluc/airports.

South Coast Air Quality Management District (SCAQMD)
2017 SCAQMD Final Air Quality Management Plan. Online URL: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

State Water Resources Control Board (SWRCB)
2018 GeoTracker Database. Online URL: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=washington+middle+school+long+beach.

United States Department of Agriculture (USDA)
2018 Natural Resources Conservation Service (NRCS) Web Soil Survey. Online URL: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of Homeland Security, Federal Emergency Management Agency (FEMA)
2008 FEMA Flood Map Database. Online URL: https://msc.fema.gov/portal.

United States Fish and Wildlife Service (USFWS)
2018a Environmental Conservation Online System - U.S. FWS Threatened & Endangered Species Active Critical Habitat Report. Online URL: https://ecos.fws.gov/ecp/report/table/critical-habitat.html.

2018b National Wetlands Inventory – Wetlands Mapper. Online URL: https://www.fws.gov/wetlands/data/Mapper.html.

Western Regional Climate Center (WRCC)
2016 Long Beach Daugherty Field, California Monthly Climate. Online URL: https://wrcc.dri.edu/Climsum.html.

Weeks, Kay D., and Anne E. Grimmer
1995 The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Washington, D.C.: U.S. Department of the Interior, National Park Service.

December 18, 2023

Thomas Strand
Chambers Group, Inc.
3151 Airway Avenue, Suite F208
Costa Mesa, CA 92626

Subject: **Long Beach Unified School District – Gant Elementary School HVAC Modernization Project Air Quality and Greenhouse Gas Emissions Technical Memorandum.**

Dear Mr. Strand:

Vista Environmental has conducted an analysis to evaluate whether the proposed Gant Elementary School HVAC Modernization Project (proposed project) would cause significant air quality or greenhouse gas impacts. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the South Coast Air Quality Management District (SCAQMD) recommendations for quantification of emissions and evaluation of potential air quality and greenhouse gas impacts.

Site Location and Study Area

Gant Elementary School (School) is located at 1854 North Britton Drive in the City of Long Beach (City). The grades served at the School are Transitional Kindergarten through 5th grade, with an enrollment of 656 students during the 2022-2023 school year. The campus consists of 42,399 square feet of single-story permanent buildings A through D and 10,560 square feet of relocatable buildings (portables).

The approximately 11-acre project site is bounded by single-family homes on the north and east, Atherton Street and California State University Long Beach to the south, and Britton Drive and single-family homes to the west.

Nearby Sensitive Receptors

The nearest sensitive receptors to the project site are single-family homes located adjacent to the north and east sides of the project site, with the nearest homes located as near as 12 feet from the east property line.

Project Description

The proposed project would consist of the following improvements to the School:

- HVAC installation in all classrooms, offices and support spaces (including Auditorium, Cafeteria and Kitchen) located in permanent buildings on site.
- Accessibility upgrades to path of travel, parking, restrooms and drinking fountain per current building code.
- Utility systems upgrades (e.g. electrical, low voltage, water, sewer, etc.) as required to support HVAC installation.
- Hardware upgrades (e.g. LED lighting, Extron audio-visual system, overhead projectors, etc.).

- Upgrades to building finishes (e.g. new ceilings, flooring, painting)
- New tactile signage required throughout the campus for rooms and exits. The entire campus will undergo building/room re-numbering per current District standards.
- Window and/or door replacement as required.
- Campus-wide Fire Alarm upgrades.
- Site improvements including a potential new drop off area on the west side of campus along Britton Drive at Gant Elementary School.

Air Quality Settings

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographical features. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine their movement and dispersal, and consequently, their effect on air quality. The combination of topography and inversion layers generally prevents dispersion of air pollutants in the South Coast Air Basin (Air Basin).

The climate of south coastal Los Angeles County is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. Although the Air Basin is semi-arid, the air near the surface in south coastal Los Angeles County is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the Air Basin by offshore winds, the ocean effect is dominant. Periods of heavy fog are frequent and low stratus clouds, often referred to as “high fog” are a characteristic feature.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western Riverside County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern and northern edges of the Air Basin.

Monitored Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. SCAQMD has divided the Air Basin into 38 air-monitoring areas. The project site is located in Air Monitoring Area 4, which covers the south coastal Los Angeles County. The nearest air monitoring station to the project site is the Long Beach-Signal Hill Monitoring Station (Signal Hill Station), which is located approximately three miles west of the project sites at 1710 E 20th Street, Signal Hill. The monitoring data is presented in Table A and shows the most recent three years of monitoring data from CARB.

Table A – Local Area Air Quality Monitoring Summary

Pollutant (Standard)	Year[1] 2020	2021	2022
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.105	0.086	0.108
Days > CAAQS (0.09 ppm)	4	0	1
Maximum 8-Hour Concentration (ppm)	0.083	0.064	0.077
Days > NAAQS (0.070 ppm)	4	0	1
Days > CAAQs (0.070 ppm)	4	0	1
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	75.3	59.0	58.1
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) :			
Maximum 24-Hour National Measurement (ug/m^3)	ND	ND	57.9
Days > NAAQS (150 ug/m^3)	ND	ND	0
Days > CAAQS (50 ug/m^3)	ND	ND	0
Annual Arithmetic Mean (AAM) (ug/m^3)	ND	ND	25.1
Annual > NAAQS (50 ug/m^3)	ND	ND	No
Annual > CAAQS (20 ug/m^3)	ND	ND	Yes
Ultra-Fine Particulates (PM2.5):[2]			
Maximum 24-Hour National Measurement (ug/m^3)	ND	ND	26.7
Days > NAAQS (35 ug/m^3)	ND	ND	0
Annual Arithmetic Mean (AAM) (ug/m^3)	ND	ND	ND
Annual > NAAQS and CAAQS (12 ug/m^3)	ND	ND	ND

Notes: CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.

[1] Data obtained from the Signal Hill Station.

Source: http://www.arb.ca.gov/adam/

Thresholds of Significance

Regional Air Quality

To estimate if the proposed parking lot may adversely affect the air quality in the region, the SCAQMD has prepared the CEQA Air Quality Handbook (SCAQMD 1993) to provide guidance to those who analyze the air quality impacts of proposed projects. The SCAQMD CEQA Air Quality Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes of

this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table B.

Table B – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Construction	75	100	550	150	150	55
Operation	55	55	550	150	150	55

Source: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

Local Air Quality

Project-related construction and operational air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided Final Localized Significance Threshold Methodology (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The Look-Up Tables include site acreage sizes of 1-acre, 2-acres and 5-acres. It is anticipated that slightly more than an acre of the project site would be disturbed as part of the proposed project. As such, the 1-acre project site thresholds have been utilized in this analysis. As detailed above, the project site is located in Air Monitoring Area 4, which covers the south coastal Los Angeles County. The nearest sensitive receptors to the project site are single-family homes located as near as 12 feet (3.6 meters) east of the project site. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. Table C below shows the NOx, CO, PM10, and PM2.5 for both construction and operational activities.

Table C – SCAQMD Local Air Quality Thresholds of Significance

	Allowable Emissions[1] (pounds/day)			
Activity	NOx	CO	PM10	PM2.5
Construction	57	585	4	3
Operation	57	585	1	1

Notes:
[1] The nearest sensitive receptors to the project site are single-family homes located as near as 12 feet (3.6 meters) east of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25 meter threshold.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 4, South Coastal Los Angeles County.

Greenhouse Gas Emissions

The City of Long Beach has adopted the *Long Beach Climate Action Plan* (LB CAP), August 2022. The LB CAP has been included as a mitigation measure in the General Plan Land Use Element Update and the LB CAP has been prepared to use as the basis future assessments of consistency with this Plan in lieu of a project-specific GHG CEQA analysis for projects in the City. A project-specific environmental document that relies on this plan for its cumulative impacts analysis would identify specific reduction measures applicable to the project that are consistent with the LB CAP; it would also describe how the project

incorporates those measures. If the measures are not otherwise binding and enforceable, they must be incorporated as mitigation measures or project conditions of approval, or some other mechanism to ensure implementation.

As such, this analysis has quantified GHG emission for informational purposes only and determination of significance will be based on consistency with the applicable measures in the LB CAP.

Project Impacts

Compliance with SCAQMD Air Quality Plan

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The CEQA Handbooks provide the following two criteria to determine if a project is consistent with the AQMP:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Criterion 1 – Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis contained in this letter, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance or local thresholds of significance. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 Exceed Assumptions in the AQMP

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of Long Beach General Plan's Land Use Plan defines the assumptions that are represented in AQMP.

The project site is currently designated as Founding and Contemporary Neighborhood (FCN) in the General Plan and is zoned Institutional (I). The proposed school improvements project is an allowed use within the existing land use designation and zoning. As such, the proposed project is consistent with the current

land use designation and zoning and is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

Short-Term Construction-Related Air Quality Impacts

Construction of the proposed project would create air emissions from the operation of construction equipment as well as from fugitive dust generated from the movement of dirt onsite. Construction of the proposed project is anticipated to start early 2024 and would take approximately six months to complete.

The criteria air pollution impacts created by the proposed project have been analyzed through use of CalEEMod Version 2022.1.21. CalEEMod is a computer model published by the California Air Pollution Control Officers Association (CAPCOA) for estimating air pollutant and GHG emissions. The CalEEMod 2022.1 program uses the EMFAC2021 computer program to calculate the emission rates specific for the South Coast Air Basin portion of Los Angeles County for employee, vendor and haul truck vehicle trips and the OFFROAD2007 and OFFROAD2011 computer programs to calculate emission rates for heavy equipment operations. EMFAC2021, OFFROAD2007 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles.

The 42,399 square feet of permanent buildings A through D was entered into CalEEMod and analyzed as new construction, which results in a conservative analysis, since the proposed project only consists of upgrades to these buildings. In addition, it was estimated that the new drop off area on Britton Drive would require the grading and paving of roads and new sidewalks on approximately 4,600 square feet of area and the accessibility upgrades to path of travel on the campus would require the paving of an additional 400 square feet for a total of 5,000 square feet of new paved area that was entered into CalEEMod. Construction is anticipated to start June 17, 2024 and be completed by August 16, 2025, which was entered into CalEEMod.

The CalEEMod model has been utilized to calculate the construction-related emissions from the proposed project and the CalEEMod output files are attached to this Memo. The daily construction-related criteria pollutant emissions from the proposed project is shown below in Table D.

Table D – Construction-Related Criteria Pollutant Emissions

Season and Year of Construction	Maximum Daily Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Summer 2024	1.7	15.9	16.2	0.02	2.72	1.60
Winter 2024	1.22	9.81	11.4	0.02	0.67	0.42
Summer 2025	26.4	9.27	11.4	0.02	0.62	0.37
Winter 2025	1.15	9.29	11.2	0.02	0.62	0.37
Maximum Daily Construction Emissions	**26.4**	**9.81**	**16.2**	**0.02**	**2.72**	**1.60**
SCQAMD Regional Thresholds	75	100	550	150	150	55
SCAQMD Local Thresholds[1]	--	212	1,746	--	4	3
Exceeds Thresholds?	No	No	No	No	No	No

Notes:
[1] The nearest sensitive receptors to the project site are single-family homes located as near as 12 feet (3.6 meters) east of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25 meter threshold. Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 4, South Coastal Los Angeles County.
Source: CalEEMod Version 2022.1.

Table D shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during construction of the proposed project. Therefore, a less than significant regional or local air quality impact would occur from construction of the proposed project.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0, Tier 1 or Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. Therefore, due to the limitations in off-road construction equipment DPM emissions from implementation of Section 2448, a less than significant short-term TAC impacts would occur during construction of the proposed project from DPM emissions.

Long-Term Operational Air Quality Impacts

The proposed project would consist of operation of the upgraded permanent school buildings. The proposed project would generate air emissions from area sources and energy usage. The air quality impacts created by operation of the proposed project have been analyzed through use of the CalEEMod model. The proposed project would not increase the capacity of the school and would not increase the vehicle trips generated by the school. As such, the trip generation rate was set to zero in CalEEMod. No other changes were made to the operational perimeters entered into the CalEEMod model. CalEEMod calculates maximum daily emissions for the summer and winter periods. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations are summarized below in Table E and the CalEEMod printouts are attached to this Memo.

Table E – Operations-Related Criteria Pollutant Emissions

Emissions Source	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO_2	PM10	PM2.5
Area Sources[1]	1.22	0.01	1.26	<0.01	<0.01	<0.01
Energy Usage[2]	0.01	0.24	0.20	<0.01	0.02	0.02
Mobile Sources[3]	0	0	0	0	0	0
Total Operational Emissions	1.024	0.25	1.46	<0.01	0.02	0.02
SCAQMD Regional Thresholds	55	55	550	150	150	55
SCAQMD Local Thresholds	--	57	585	--	1	1
Exceeds Thresholds?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of emissions from natural gas usage.
[3] Mobile sources consist of emissions from vehicles and road dust. The proposed project would not generate any additional vehicle trips.
[4] The nearest sensitive receptors to the project site are single-family homes located as near as 12 feet (3.6 meters) east of the project site. According to SCAQMD methodology, all receptors closer than 25 meters are based on the 25 meter threshold. Calculated from SCAQMD's Mass Rate Look-up Tables for one acre in Air Monitoring Area 4, South Coastal Los Angeles County.
Source: CalEEMod Version 2022.1

The data provided in Table E above shows that none of the analyzed criteria pollutants would exceed either the regional or local emissions thresholds during operation of the proposed project. Therefore, a less than significant regional and local air quality impacts would occur from operation of the proposed project.

Odor Emissions

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of upgrading the permanent school buildings as well as a new drop off area on Britton Drive and accessibility and utility systems upgrades. The proposed project would not include operation of any known odor sources. As such, no odor impacts are anticipated to be created from operation of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Generation of Greenhouse Gas Emissions

The proposed project would result in upgrading the permanent school buildings as well as a new drop off area on Britton Drive and accessibility and utility systems upgrades. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, off-road equipment, waste disposal, water usage, and construction equipment.

The LB CAP (City of Long Beach, 2022) is the applicable plan for the project area for reducing GHG emissions. According to the LB CAP, if a project can show that the applicable GHG reduction measures in the LB CAP would be implemented as part of the proposed project, the project would be considered consistent with the LB CAP and would result in a less than significant. As such, this analysis has quantified GHG emission for informational purposes only and determination of significance will be based on consistency with the applicable measures in the LB CAP. The project's GHG emissions have been calculated with the CalEEMod model and the results is shown below in Table F.

Table F – Project Related Greenhouse Gas Annual Emissions

Category	Greenhouse Gas Emissions (Metric Tons per Year)			
	CO_2	CH_4	N_2O	CO_2e
Mobile Sources[1]	0	0	0	0
Area Sources[2]	0.86	<0.01	<0.01	0.86
Energy Usage[3]	89.1	0.01	<0.01	89.5
Water and Wastewater[4]	1.72	0.04	<0.01	3.00
Solid Waste[5]	4.87	0.49	0.00	17.0
Refrigeration[6]	--	--	--	0.03
Construction[7]	9.70	<0.01	<0.01	9.83
Proposed Project Total GHG Emissions	106	0.54	<0.01	120

Notes:

[1] Mobile sources consist of GHG emissions from vehicles. The proposed project would not generate any additional vehicle trips.

[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.

[3] Energy usage consists of GHG emissions from electricity and natural gas usage.
[4] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[5] Solid Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Refrigeration includes GHG emissions from refrigerants.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2022.1.

The data provided in Table F above shows that the proposed project would create 120 $MTCO_2e$ per year. As detailed below, the proposed project would be implement the applicable measures in the LB CAP. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The applicable plan for the proposed project would be the LB CAP (City of Long Beach, 2022). The proposed project's consistency with the Priority Mitigation Actions in the CAAP is shown in Table G.

Table G – Consistency with the City of Long Beach Climate Action Plan

Priority Mitigation Actions	Project Consistency
BE-1: Provide access to renewably generated electricity	**Not Applicable**. This policy is only applicable to Southern California Edison, which is the electrical provider for the City.
BE-2: Develop a home energy assessment program	**Not Applicable**. The policy is only applicable to the City to implement.
BE-3: Provide access to energy efficiency financing, rebates, and incentives for building owners	**Not Applicable**. The policy is only applicable to the City to implement.
BE-4: Promote community solar and microgrids	**Not Applicable**. The policy is only applicable to the City to implement.
BE-5: Perform municipal energy audits	**Not Applicable**. This policy is only applicable to the City to implement.
T-1: Increase frequency, connectivity, and safety of transit options.	**Not Applicable**. This action is applicable to Long Beach Transit.
T-2: Increase employment and residential development along primary transit corridors	**Not Applicable**. The proposed project would not increase employment or residential development.
T-3: Implement the Port of Long Beach Clean Air Action Plan	**Not Applicable**. This action is applicable to the Port of Long Beach.
T-4: Increase bikeway infrastructure	**Consistent**. The proposed project would improve onsite access routes that would be bike accessible.
T-5: Expand/improve pedestrian infrastructure citywide	**Consistent**. The proposed project would improve onsite access routes.
T-6: Develop an Electric Vehicle Infrastructure Master Plan	**Not Applicable**. This action is only applicable to the City to implement.
T-7: Update the Transportation Demand Management Ordinance	**Not Applicable**. This action is only applicable to the City to implement.

Priority Mitigation Actions	Project Consistency
T-8: Increase density and mixing of land uses	**Not Applicable**. This action is only applicable to the City to implement.
T-9: Integrate SB 743 planning with CAAP process	**Not Applicable**. This action is only applicable to the City to implement.
T-10: Identify and implement short-term measures to reduce emissions related to oil and gas extraction	**Not Applicable**. No oil and gas extraction is part of the proposed project.
W-1: Ensure compliance with state law recycling program requirements for multi-family residential and commercial property	**Not Applicable**. This policy is only applicable to the City to implement. However, the proposed project will commercial property recycling program.
W-2: Develop a residential organic waste collection program	**Not Applicable**. This policy is only applicable to the City to implement.
W-3: Ensure compliance with state law organic waste diversion requirements for multi-family residential and commercial	**Not Applicable**. This policy is only applicable to the City to implement.
W-4: Identify organic waste management options	**Not Applicable**. This policy is only applicable to the City to implement.

Source: City of Long Beach, LB CAP found at: https://www.longbeach.gov/lbcd/planning/caap/

As shown in Table G with implementation of statewide regulatory requirements including the CalGreen building standards, the proposed project would be consistent with all applicable policies of the CAAP. Therefore, implementation of the proposed project would not conflict with any applicable plan that reduces GHG emissions.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality and greenhouse gas emissions checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

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?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

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

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

Please let me know if you have any questions or need additional information with regard to the above analysis. I can be reached at (949) 510-5355, or email me at greg@vistalb.com.

Sincerely,

Greg Tonkovich, AICP
Senior Analyst
Vista Environmental
949 510 5355

Encl.: CalEEMod Model Printouts

Gant ES HVAC Modernization Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

1.2. Land Use Types

1.3. User-Selected Emission Reduction Measures by Emissions Sector

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

2.2. Construction Emissions by Year, Unmitigated

2.4. Operations Emissions Compared Against Thresholds

2.5. Operations Emissions by Sector, Unmitigated

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

3.3. Grading (2024) - Unmitigated

3.5. Building Construction (2024) - Unmitigated

3.7. Building Construction (2025) - Unmitigated

3.9. Paving (2025) - Unmitigated

3.11. Architectural Coating (2025) - Unmitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Gant ES HVAC Modernization
Construction Start Date	5/27/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.30
Precipitation (days)	18.4
Location	33.78998399841974, -118.11846894700943
County	Los Angeles-South Coast
City	Long Beach
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	4745
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Long Beach Gas & Oil
App Version	2022.1.1.21

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

Elementary School	42.0	1000sqft	0.96	42,399	948	948	—	—
Other Asphalt Surfaces	5.00	1000sqft	0.11	0.00	230	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	26.4	15.9	16.2	0.02	2.72	1.60	2,595	0.11	0.05	1.60	2,605
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.22	9.81	11.4	0.02	0.67	0.42	2,264	0.09	0.05	0.04	2,282
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.53	3.97	4.56	0.01	0.31	0.19	890	0.04	0.02	0.26	897
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.28	0.72	0.83	< 0.005	0.06	0.03	147	0.01	< 0.005	0.04	149
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—	—	—	—	—
Unmit.	No	No	No	No	No	No	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—
Threshold	75.0	100	550	150	150	55.0	—	—	—	—	—

Unmit.	No	No	No	No	No	No	—	—	—	—	—

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	1.70	15.9	16.2	0.02	2.72	1.60	2,595	0.11	0.05	1.60	2,605
2025	26.4	9.27	11.4	0.02	0.62	0.37	2,268	0.09	0.05	1.50	2,288
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	1.22	9.81	11.4	0.02	0.67	0.42	2,264	0.09	0.05	0.04	2,282
2025	1.15	9.29	11.2	0.02	0.62	0.37	2,255	0.09	0.05	0.04	2,274
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	0.49	3.97	4.56	0.01	0.31	0.19	890	0.04	0.02	0.26	897
2025	1.53	3.60	4.43	0.01	0.24	0.15	873	0.04	0.02	0.25	880
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.09	0.72	0.83	< 0.005	0.06	0.03	147	0.01	< 0.005	0.04	149
2025	0.28	0.66	0.81	< 0.005	0.04	0.03	144	0.01	< 0.005	0.04	146

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.33	0.25	2.04	< 0.005	0.02	0.02	586	3.23	0.01	0.16	669
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Unmit.	1.03	0.24	0.20	< 0.005	0.02	0.02	578	3.23	0.01	0.16	662
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.24	0.25	1.46	< 0.005	0.02	0.02	583	3.23	0.01	0.16	667
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.23	0.05	0.27	< 0.005	< 0.005	< 0.005	96.6	0.53	< 0.005	0.03	110
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—	—	—	—	—
Unmit.	No	No	No	No	No	No	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—
Threshold	55.0	55.0	550	150	150	55.0	—	—	—	—	—
Unmit.	No	No	No	No	No	No	—	—	—	—	—

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.32	0.02	1.84	< 0.005	< 0.005	< 0.005	7.58	< 0.005	< 0.005	—	7.61
Energy	0.01	0.24	0.20	< 0.005	0.02	0.02	538	0.05	< 0.005	—	541
Water	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Waste	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	1.33	0.25	2.04	< 0.005	0.02	0.02	586	3.23	0.01	0.16	669
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.02	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.24	0.20	< 0.005	0.02	0.02	538	0.05	< 0.005	—	541
Water	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Waste	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	1.03	0.24	0.20	< 0.005	0.02	0.02	578	3.23	0.01	0.16	662
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	1.22	0.01	1.26	< 0.005	< 0.005	< 0.005	5.19	< 0.005	< 0.005	—	5.21
Energy	0.01	0.24	0.20	< 0.005	0.02	0.02	538	0.05	< 0.005	—	541
Water	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Waste	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Refrig.	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	1.24	0.25	1.46	< 0.005	0.02	0.02	583	3.23	0.01	0.16	667
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.22	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.86	< 0.005	< 0.005	—	0.86
Energy	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	89.1	0.01	< 0.005	—	89.5
Water	—	—	—	—	—	—	1.72	0.04	< 0.005	—	3.00
Waste	—	—	—	—	—	—	4.87	0.49	0.00	—	17.0
Refrig.	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	0.23	0.05	0.27	< 0.005	< 0.005	< 0.005	96.6	0.53	< 0.005	0.03	110

3. Construction Emissions Details

3.1. Site Preparation (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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	13.7	12.9	0.02	0.65	0.59	2,064	0.08	0.02	—	2,071
Dust From Material Movement	—	—	—	—	1.63	0.78	—	—	—	—	—
Onsite truck	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	0.11	0.11	< 0.005	0.01	< 0.005	17.0	< 0.005	< 0.005	—	17.0
Dust From Material Movement	—	—	—	—	0.01	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	2.81	< 0.005	< 0.005	—	2.82
Dust From Material Movement	—	—	—	—	< 0.005	< 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
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.57	0.00	0.10	0.02	106	< 0.005	< 0.005	0.42	107
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.84	< 0.005	< 0.005	< 0.005	0.85
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.14	< 0.005	< 0.005	< 0.005	0.14
Vendor	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

3.3. 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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.65	15.9	15.4	0.02	0.74	0.68	2,454	0.10	0.02	—	2,462
Dust From Material Movement	—	—	—	—	1.84	0.89	—	—	—	—	—
Onsite truck	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	0.03	0.26	0.25	< 0.005	0.01	0.01	40.3	< 0.005	< 0.005	—	40.5

Dust From Material Movement	—	—	—	—	0.03	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	6.68	< 0.005	< 0.005	—	6.70
Dust From Material Movement	—	—	—	—	0.01	< 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
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.75	0.00	0.13	0.03	141	0.01	< 0.005	0.56	143
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	2.23	< 0.005	< 0.005	< 0.005	2.26
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37	< 0.005	< 0.005	< 0.005	0.37
Vendor	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

3.5. 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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	0.34	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	10.1	0.02	0.37	0.34	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	3.45	3.70	0.01	0.14	0.12	659	0.03	0.01	—	661
Onsite truck	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	0.08	0.63	0.67	< 0.005	0.02	0.02	109	< 0.005	< 0.005	—	110
Onsite truck	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	0.08	0.09	1.34	0.00	0.23	0.05	251	0.01	0.01	0.99	255
Vendor	0.01	0.26	0.13	< 0.005	0.06	0.02	224	0.01	0.03	0.61	234
Hauling	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	0.08	0.10	1.14	0.00	0.23	0.05	238	0.01	0.01	0.03	241
Vendor	0.01	0.27	0.13	< 0.005	0.06	0.02	224	0.01	0.03	0.02	234

Hauling	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	0.44	0.00	0.08	0.02	88.5	< 0.005	< 0.005	0.16	89.7
Vendor	< 0.005	0.10	0.05	< 0.005	0.02	0.01	82.1	< 0.005	0.01	0.10	85.6
Hauling	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	0.08	0.00	0.02	< 0.005	14.7	< 0.005	< 0.005	0.03	14.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	13.6	< 0.005	< 0.005	0.02	14.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - 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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	8.95	10.0	0.02	0.33	0.30	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	8.95	10.0	0.02	0.33	0.30	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.39	3.24	3.63	0.01	0.12	0.11	652	0.03	0.01	—	654
Onsite truck	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	0.59	0.66	< 0.005	0.02	0.02	108	< 0.005	< 0.005	—	108
Onsite truck	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	0.08	0.08	1.24	0.00	0.23	0.05	246	0.01	0.01	0.90	250
Vendor	0.01	0.25	0.12	< 0.005	0.06	0.02	220	0.01	0.03	0.60	231
Hauling	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	0.08	0.09	1.05	0.00	0.23	0.05	233	0.01	0.01	0.02	236
Vendor	0.01	0.26	0.12	< 0.005	0.06	0.02	221	0.01	0.03	0.02	230
Hauling	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	0.03	0.40	0.00	0.08	0.02	85.7	< 0.005	< 0.005	0.14	86.9
Vendor	< 0.005	0.10	0.04	< 0.005	0.02	0.01	79.8	< 0.005	0.01	0.09	83.3
Hauling	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	0.07	0.00	0.02	< 0.005	14.2	< 0.005	< 0.005	0.02	14.4
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	13.2	< 0.005	< 0.005	0.02	13.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2025) - 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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.49	4.63	6.50	0.01	0.20	0.19	992	0.04	0.01	—	995
Paving	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.27	< 0.005	0.01	0.01	40.8	< 0.005	< 0.005	—	40.9
Paving	< 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
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.05	< 0.005	< 0.005	< 0.005	6.75	< 0.005	< 0.005	—	6.77
Paving	< 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
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.87	0.00	0.16	0.04	173	0.01	0.01	0.63	175
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.01	< 0.005	6.83	< 0.005	< 0.005	0.01	6.92
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.13	< 0.005	< 0.005	< 0.005	1.15

Vendor	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

3.11. Architectural Coating (2025) - 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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.88	1.14	< 0.005	0.03	0.03	134	0.01	< 0.005	—	134
Architectural Coatings	26.3	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.05	< 0.005	< 0.005	< 0.005	5.49	< 0.005	< 0.005	—	5.51
Architectural Coatings	1.08	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.91	< 0.005	< 0.005	—	0.91
Architectural Coatings	0.20	—	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.02	0.02	0.25	0.00	0.05	0.01	49.2	< 0.005	< 0.005	0.18	50.0
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	< 0.005	< 0.005	1.95	< 0.005	< 0.005	< 0.005	1.97
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.32	< 0.005	< 0.005	< 0.005	0.33
Vendor	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

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Total	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)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	253	0.02	< 0.005	—	255
Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	253	0.02	< 0.005	—	255
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	253	0.02	< 0.005	—	255

Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	253	0.02	< 0.005	—	255
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	41.9	< 0.005	< 0.005	—	42.2
Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	41.9	< 0.005	< 0.005	—	42.2

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.01	0.24	0.20	< 0.005	0.02	0.02	285	0.03	< 0.005	—	286
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.24	0.20	< 0.005	0.02	0.02	285	0.03	< 0.005	—	286
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	0.01	0.24	0.20	< 0.005	0.02	0.02	285	0.03	< 0.005	—	286
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.24	0.20	< 0.005	0.02	0.02	285	0.03	< 0.005	—	286
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	47.2	< 0.005	< 0.005	—	47.3

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.04	0.04	< 0.005	< 0.005	< 0.005	47.2	< 0.005	< 0.005	—	47.3

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.91	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.30	0.02	1.84	< 0.005	< 0.005	< 0.005	7.58	< 0.005	< 0.005	—	7.61
Total	1.32	0.02	1.84	< 0.005	< 0.005	< 0.005	7.58	< 0.005	< 0.005	—	7.61
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.91	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	—	—	—	—	—	—	—	—	—	—
Total	1.02	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.17	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.86	< 0.005	< 0.005	—	0.86

Total	0.22	< 0.005	0.23	< 0.005	< 0.005	< 0.005	0.86	< 0.005	< 0.005	—	0.86

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Other Asphalt Surfaces	—	—	—	—	—	—	0.02	< 0.005	< 0.005	—	0.02
Total	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Other Asphalt Surfaces	—	—	—	—	—	—	0.02	< 0.005	< 0.005	—	0.02
Total	—	—	—	—	—	—	10.4	0.24	0.01	—	18.1
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	1.72	0.04	< 0.005	—	3.00
Other Asphalt Surfaces	—	—	—	—	—	—	< 0.005	< 0.005	< 0.005	—	< 0.005
Total	—	—	—	—	—	—	1.72	0.04	< 0.005	—	3.00

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	29.4	2.94	0.00	—	103
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	4.87	0.49	0.00	—	17.0
Other Asphalt Surfaces	—	—	—	—	—	—	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	4.87	0.49	0.00	—	17.0

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	—	—	—	—	—	—	—	—	—	0.16	0.16
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	—	—	—	—	—	—	—	—	—	0.16	0.16
Annual	—	—	—	—	—	—	—	—	—	—	—
Elementary School	—	—	—	—	—	—	—	—	—	0.03	0.03
Total	—	—	—	—	—	—	—	—	—	0.03	0.03

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	PM10T	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

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	PM10T	PM2.5T	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	PM10T	PM2.5T	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	PM10T	PM2.5T	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	PM10T	PM2.5T	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	PM10T	PM2.5T	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
Site Preparation	Site Preparation	6/17/2024	6/19/2024	5.00	3.00	—
Grading	Grading	6/20/2024	6/27/2024	5.00	6.00	—
Building Construction	Building Construction	6/28/2024	7/4/2025	5.00	266	—
Paving	Paving	7/7/2025	7/25/2025	5.00	15.0	—
Architectural Coating	Architectural Coating	7/28/2025	8/16/2025	5.00	15.0	—

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
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
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	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37
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
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
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	17.8	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	6.95	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	3.56	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

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	63,599	21,200	300

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)
Site Preparation	—	—	2.81	0.00	—
Grading	—	—	6.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.11

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Elementary School	0.00	0%
Other Asphalt Surfaces	0.11	100%

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	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005

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
Elementary School	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

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	63,599	21,200	300

5.10.3. Landscape Equipment

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)
Elementary School	265,178	349	0.0330	0.0040	889,526
Other Asphalt Surfaces	0.00	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Elementary School	1,217,871	29,545
Other Asphalt Surfaces	0.00	3,226

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Elementary School	54.6	—
Other Asphalt Surfaces	0.00	—

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
Elementary School	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Elementary School	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Elementary School	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Elementary School	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

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

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. Biomass Cover Type

5.18.1.1. Unmitigated

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)

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	7.09	annual days of extreme heat
Extreme Precipitation	3.75	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.40	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 (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
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	24.9

AQ-PM	62.8
AQ-DPM	23.7
Drinking Water	34.7
Lead Risk Housing	65.2
Pesticides	0.00
Toxic Releases	97.8
Traffic	58.5
Effect Indicators	—
CleanUp Sites	58.2
Groundwater	44.3
Haz Waste Facilities/Generators	74.1
Impaired Water Bodies	0.00
Solid Waste	0.00
Sensitive Population	—
Asthma	14.5
Cardio-vascular	51.6
Low Birth Weights	0.30
Socioeconomic Factor Indicators	—
Education	15.2
Housing	32.3
Linguistic	3.74
Poverty	17.7
Unemployment	29.4

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	83.8829719
Employed	66.08494803
Median HI	81.61170281
Education	—
Bachelor's or higher	82.04799179
High school enrollment	100
Preschool enrollment	95.7141024
Transportation	—
Auto Access	92.6344155
Active commuting	20.0436289
Social	—
2-parent households	88.77197485
Voting	24.76581548
Neighborhood	—
Alcohol availability	41.10098807
Park access	81.35506224
Retail density	87.47593995
Supermarket access	87.88656487
Tree canopy	52.13653279
Housing	—
Homeownership	82.0993199
Housing habitability	79.019633
Low-inc homeowner severe housing cost burden	84.48607725
Low-inc renter severe housing cost burden	31.19466188
Uncrowded housing	96.93314513
Health Outcomes	—

Insured adults	80.68779674
Arthritis	44.8
Asthma ER Admissions	78.3
High Blood Pressure	53.6
Cancer (excluding skin)	17.3
Asthma	80.2
Coronary Heart Disease	57.7
Chronic Obstructive Pulmonary Disease	71.2
Diagnosed Diabetes	80.8
Life Expectancy at Birth	69.2
Cognitively Disabled	74.6
Physically Disabled	69.8
Heart Attack ER Admissions	57.8
Mental Health Not Good	78.4
Chronic Kidney Disease	73.0
Obesity	69.5
Pedestrian Injuries	58.4
Physical Health Not Good	76.2
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	24.0
Current Smoker	80.3
No Leisure Time for Physical Activity	88.8
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	45.9

Elderly	45.2
English Speaking	80.4
Foreign-born	6.8
Outdoor Workers	55.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	49.5
Traffic Density	45.0
Traffic Access	69.9
Other Indices	—
Hardship	22.7
Other Decision Support	—
2016 Voting	66.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	16.0
Healthy Places Index Score for Project Location (b)	85.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
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	Total disturbed area 0.96 acre for buildings and 0.11 acre for paved area. 20% landscaped
Construction: Construction Phases	No Demolition, remaining phases extended to match applicant timeline
Operations: Vehicle Data	Project will not change enrollment or generate any additional operational trips

NOISE IMPACT ANALYSIS

GANT ELEMENTARY SCHOOL HVAC MODERNIZATION PROJECT

CITY OF LONG BEACH

Lead Agency:

Long Beach Unified School District
Facilities and Planning Branch
2425 Webster Avenue
Long Beach, CA 90810

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, California 92651
949 510 5355
Greg Tonkovich, INCE

Project No. 23049

December 20, 2023

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Purpose of Analysis and Study Objectives 1
1.2 Site Location and Study Area 1
1.3 Proposed Project Description 1
1.4 Standard Noise Regulatory Conditions 2
1.5 Summary of Analysis Results 2
1.6 Mitigation Measures for the Proposed Project 3

2.0 Noise Fundamentals 6

2.1 Noise Descriptors 6
2.2 Tone Noise 6
2.3 Noise Propagation 6
2.4 Ground Absorption 7

3.0 Ground-Borne Vibration Fundamentals 8

3.1 Vibration Descriptors 8
3.2 Vibration Perception 8
3.3 Vibration Propagation 8

4.0 Regulatory Setting 9

4.1 Federal Regulations 9
4.2 State Regulations 10
4.3 Local Regulations 12

5.0 Existing Noise Conditions 16

5.1 Noise Measurements taken in Project Vicinity 16

6.0 Modeling Parameters and Assumptions 20

6.1 Construction Noise 20
6.2 Vibration 21

7.0 Impact Analysis 22

7.1 CEQA Thresholds of Significance 22
7.2 Generation of Noise Levels in Excess of Standards 22
7.3 Generation of Excessive Groundborne Vibration 24
7.4 Aircraft Noise 25

8.0 References 26

TABLE OF CONTENTS CONTINUED

APPENDICES

Appendix A – Field Noise Measurements Photo Index

Appendix B – Field Noise Measurements Printouts

Appendix C – RCNM Model Construction Noise Calculations

Appendix D – Operational Reference Noise Measurements

LIST OF FIGURES

Figure 1 – Project Location Map 4
Figure 2 – Proposed Site Plan 5
Figure 3 – City of Long Beach Land Use Compatibility Matrix 11
Figure 4 – Field Noise Monitoring Locations 18
Figure 5 – Field Noise Measurements Graph 19

LIST OF TABLES

Table A – FTA General Assessment Construction Noise Criteria 10
Table B – City of Long Beach Municipal Code Exterior Noise Standards 15
Table C – Existing (Ambient) Noise Level Measurements 17
Table D – Construction Equipment Noise Emissions and Usage Factors 20
Table E – Vibration Source Levels for Construction Equipment 21
Table F – Construction Noise Levels at the Nearby Sensitive Receptors 23
Table G – Operational Noise Levels at the Nearest Homes 23

ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Long Beach
CMU	Concrete Masonry Unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
FTES	Full Time Equivalent Students
HVAC	Heating Ventilation & Air Conditioning System
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Gant Elementary School HVAC Modernization project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise impacts from the proposed project; and,
- An analysis of long-term operations-related noise impacts from the proposed project.

1.2 Site Location and Study Area

Gant Elementary School (School) is located at 1854 North Britton Drive in the City of Long Beach (City). The grades served at the School are Transitional Kindergarten through 5th grade, with an enrollment of 656 students during the 2022-2023 school year. The campus consists of 42,399 square feet of single-story permanent buildings A through D and 10,560 square feet of relocatable buildings (portables).

The approximately 11-acre project site is bounded by single-family homes on the north and east, Atherton Street and California State University Long Beach to the south, and Britton Drive and single-family homes to the west. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are single-family homes located adjacent to the north and east sides of the project site, with the nearest homes located as near as 12 feet from the east property line.

1.3 Proposed Project Description

The proposed project would consist of the following improvements to the School:

- HVAC installation in all classrooms, offices and support spaces (including Auditorium, Cafeteria and Kitchen) located in permanent buildings on site.
- Accessibility upgrades to path of travel, parking, restrooms and drinking fountain per current building code.
- Utility systems upgrades (e.g. electrical, low voltage, water, sewer, etc.) as required to support HVAC installation.
- Hardware upgrades (e.g. LED lighting, Extron audio-visual system, overhead projectors, etc.).
- Upgrades to building finishes (e.g. new ceilings, flooring, painting)

- New tactile signage required throughout the campus for rooms and exits. The entire campus will undergo building/room re-numbering per current District standards.
- Window and/or door replacement as required.
- Campus-wide Fire Alarm upgrades.
- Site improvements including a potential new drop off area on the west side of campus along Britton Drive at Gant Elementary School.

A layout of the proposed project is shown in Figure 2, Proposed Site Plan.

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City of Long Beach and State of California.

City of Long Beach Municipal Code

The following lists the noise and vibration regulations from the Municipal Code that are applicable, but not limited to the proposed project.

- Section 8.80.160 Exterior Noise Standards at Nearby Residential Uses
- Section 8.80.202 Construction activities
- Section 8.80.200(G) Vibration

State of California Rules

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 2700-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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?

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

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?

Less than significant impact.

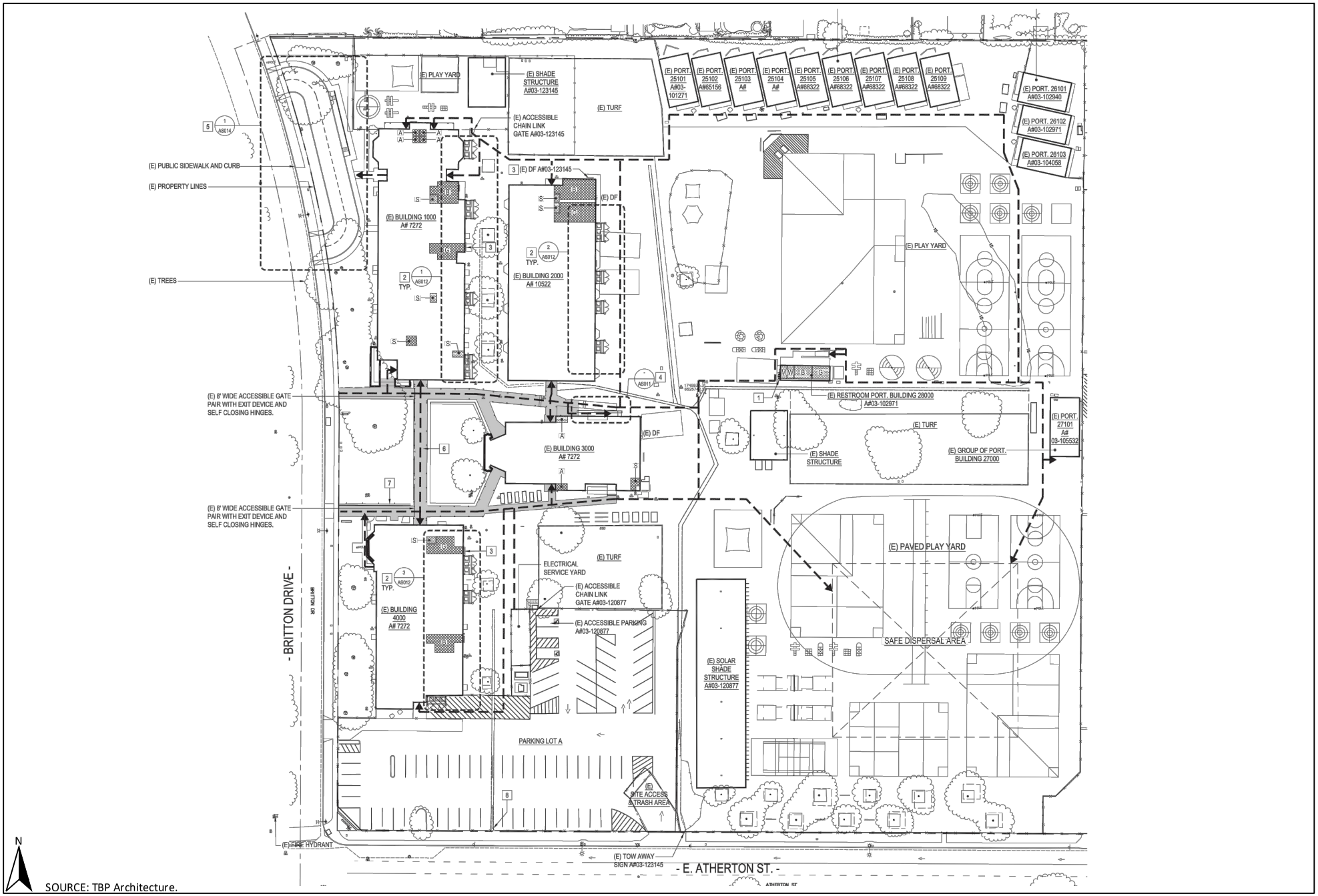
1.6 Mitigation Measures for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above were adequate to limit all noise and vibration impacts to less than significant levels. No mitigation measures are required for the proposed project with respect to noise and vibration impacts.

SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map



SOURCE: TBP Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason, the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Long Beach relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound

from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB", which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Long Beach. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the FTA, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is a guidance document from a government agency that provides specific guidance for construction noise and is referenced in the *City of Long Beach General Plan Noise Element*, June 2023, which details that the federal standards may be used when local criteria are not established. The FTA recommends developing construction noise criteria on a project-specific basis that utilizes local noise ordinances if possible. However, local noise ordinances usually relates to nuisance and hours of allowed activity and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the noise impacts of a construction project. Project construction noise criteria should take into account the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land uses. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings for a general construction noise assessment are provided below in Table A.

Table A – FTA General Assessment Construction Noise Criteria

Land Use	Day (dBA $Leq_{(1\text{-hour})}$)	Night (dBA $Leq_{(1\text{-hour})}$)
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise. The Land Use Compatibility Matrix that was adopted by the City is shown in Figure 4.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

Table N-2: Land Use Compatibility Guidelines for Noise Exposure

Land Use Type	Community Noise Exposure L_{dn} or CNEL, dB						
	55	60	65	70	75	80	85
Residential - Low Density Single Family Duplex, Mobile Homes							
Residential - Multi-Family							
Transient Lodging - Hotels, Motels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings - Business, Commercial & Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Normally Acceptable	*Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*
Conditionally Acceptable	*New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*
Normally Unacceptable	*New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*
Clearly Unacceptable	*New construction or development should generally not be undertaken.*

Source: California Office of Planning and Research, General Plan Guidelines (2017), Appendix D.

SOURCE: City of Long Beach General Plan Noise Element, June 2023.

VISTA ENVIRONMENTAL

Figure 3
City of Long Beach Land Use Compatibility Matrix

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation and Construction Vibration Guidance Manual*, April 2020. The Manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The *City of Long Beach General Plan Noise Element*, June 2023 and Municipal Code establishes the following applicable policies related to noise and vibration.

City of Long Beach General Plan Noise Element

Strategy No. 1 Apply site planning and other design strategies to reduce noise impacts, especially within the Founding and Contemporary Neighborhoods, Multifamily Residential—Low and Moderate, and Neighborhood-Serving Centers and Corridors – Low and Moderate PlaceTypes.

Policy N 1-1 Integrate noise considerations into the land use planning process in order to prevent new land use noise conflicts.

Policy N 1-2 Require noise attenuation measures to be incorporated into all development and redevelopment of sensitive receptor uses, including residential, health care facilities, schools, libraries, senior facilities, and churches in close proximity to existing or known planned rail lines.

Policy N 1-3 Ensure development and redevelopment is considerate of the natural shape and contours of a site in order to reduce noise impacts.

Policy N 1-4 Encourage developer or landowners to incorporate noise reduction features in the site planning process.

Policy N 1-5 Incorporate urban design strategies such as courtyards, paseos, alleys, plazas and open space areas to provide a buffer to noise sensitive uses.

Policy N 1-6 Ensure that project site design and function minimize the potential adverse impacts of noise.

Policy N 1-7 Encourage educational facilities to locate playgrounds, sports fields, and other outdoor activity areas away from residential areas.

Policy N 1-8 Require new development to provide facilities which support the use of multimodal transportation, including, walking, bicycling, carpooling and transit.

Policy N 1-9 Utilize noise barriers after all practical design-related noise measures have been integrated into the project. In instances where sound walls are necessary, they should be incorporated into the architectural and site character of the development and pedestrian access should be integrated.

Strategy No. 4 Protect and buffer noise sensitive areas and uses through effective building design and material selection.

Policy N 4-1 Encourage developers to utilize noise absorbing materials.

Policy N 4-5 Encourage building design that incorporates varying and/or angled wall articulation to disperse noise.

Policy N 4-6 Promote building design best practices such as staggering wall studs to minimize transmission of noise between rooms.

Policy N 4-7 Consider use of decorative walls and/or dense landscaping to further buffer noise between uses.

Strategy No. 6 Minimize vehicular traffic noise in residential areas and near noise-sensitive land uses.

Policy N 6-1 Ensure noise-compatible land uses along existing and future roadways, highways, and freeways.

Policy N 6-2 Use the "Land Use Compatibility Guidelines" and established Noise Standards or other measures that are acceptable to the City, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter within a line-of-sight of freeways, major highways, or truck haul routes.

Policy N 6-4 Work toward understanding and reducing traffic noise in residential neighborhoods with a focus on analyzing the effects of traffic noise exposure throughout the City.

Policy N 6-6 For future noise sensitive land uses proposed within the 65 dBA Ldn noise contours, a qualified acoustical consultant shall conduct a noise analysis to determine appropriate measures are implemented to meet the necessary exterior and interior noise standards.

Policy N 6-9 Encourage site planning and building design measures that minimize the effects of traffic noise in residential zones.

Strategy No. 7 Promote multimodal mobility to reduce noise generated from vehicular traffic.

Policy N 7-1 Encourage the use of active transportation modes (walking, bicycling), micro-mobility (electric vehicles) and transit as stipulated in the Mobility Element to minimize traffic noise in the City.

Strategy No. 10 While the operations of airports and airport related uses are noisy by nature, the adverse effects of aircraft-related noise should be minimized.

Policy N 10-1 Ensure that new development can be made compatible with the noise environment by using noise/land use compatibility standards and the airport noise contour maps as guides to future planning and development decisions.

Strategy No. 12 Minimize construction noise and vibration levels in residential areas and in other locations near noise-sensitive uses where possible.

Policy N 12-1 Reduce construction, maintenance, and nuisance noise at the source, when possible, to reduce noise conflicts.

Policy N 12-2 Limit the allowable hours for construction activities and maintenance operations near sensitive uses.

Policy N 12-3 As part of the City's Municipal Code, establish noise levels standards based on PlaceType and time of day, to which construction noise shall conform.

Policy N 12-4 Encourage off-site fabrication to reduce needed onsite construction activities and corresponding noise levels and duration.

Policy N 12-5 Encourage the following construction best practices:

- Schedule high-noise and vibration-producing activities to a shorter window of time during the day outside early morning hours to minimize disruption to sensitive uses.
- Grading and construction contractors should use equipment that generates lower noise and vibration levels, such as rubber-tired equipment rather than metal-tracked equipment.
- Construction haul truck and materials delivery traffic should avoid residential areas whenever feasible.
- The construction contractor should place noise- and vibration-generating construction equipment and locate construction staging areas away from sensitive uses whenever feasible.
- The construction contractor should use on-site electrical sources to power equipment rather than diesel generators where feasible.
- All residential units located within 500 ft of a construction site should be sent a notice regarding the construction schedule. A sign legible at a distance of 50 ft should also be posted at the construction site. All notices and the signs should indicate the dates and durations of construction activities, as well as provide a telephone number for a "noise disturbance coordinator."

- A "noise disturbance coordinator" should be established. The disturbance coordinator should be responsible for responding to any local complaints about construction noise. The disturbance coordinator should determine the cause of the noise complaint (e.g., starting too early, bad muffler) and should be required to implement reasonable measures to reduce noise levels.

City of Long Beach Municipal Code

The City's Municipal Code identifies standards for noise intrusion from non-transportation sources within various Noise Districts. The proposed project is located in District One. Table B summarizes the applicable standards in Noise District One.

Table B – City of Long Beach Municipal Code Exterior Noise Standards

Noise level that may not be exceeded for more than…	Daytime[a] 7 a.m. – 10 p.m.	Nighttime[a] 10 p.m. – 7 a.m.
30 minutes in any hour	50 dB(A)	45 dB(A)
15 minutes in any hour	55 dB(A)	50 dB(A)
5 minutes in any hour	60 dB(A)	55 dB(A)
1 minute in any hour	65 dB(A)	60 dB(A)
Any time	70 dB(A)	65 dB(A)

Notes:

a) In the event that the alleged offensive noise contains a steady audible tone such as a whine, screech, or hum, or is a repetitive noise such as hammering or riveting or contains music or speech conveying informational content, the specified noise limits are reduced by 5 dB(A).

Source: City of Long Beach Municipal Code Chapter 8.80.160.

Section 8.80.202 of the City's Noise Ordinance regulates noise from construction activities. These regulations limit the permissible hours of construction to between 7:00 a.m. and 7:00 p.m. on weekdays or federal holidays and between 9:00 a.m. and 6:00 p.m. on Saturdays. Construction is generally prohibited on Sundays. The Noise Ordinance also limits hours of operation for mechanically powered tools (e.g., saws, sanders, drills, grinders, lawnmowers, and garden tools) from 7:00 a.m. to 10:00 p.m. Leaf blowers have more stringent standards and can only be used between 8:00 a.m. and 8:00 p.m. on weekdays, 9:00 a.m. and 5:00 p.m. on Saturdays, and 11:00 a.m. and 5:00 p.m. on Sundays.

The Noise Ordinance also provides standards for vibration (Section 8.80.200(G)). It is a violation to operate or permit the operation of any device that creates vibration that is above the vibration perception threshold of an individual at or beyond the property boundary of the source. The Noise Ordinance defines the perception threshold as 0.001 g's in the frequency range of 0-30 hertz and 0.003 g's in the frequency range between 30 and 100 hertz. It should be noted that this perception threshold is only applicable to vibration caused during the operation of the proposed project.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Atherton Street that is adjacent to the south side of the School and on Britton Drive that is adjacent to the west side of the project site. Aircraft noise from planes landing at Long Beach Airport that is as near as 1.5 mile northwest of the project site also contributed to the noise environment at the project site.

5.1 Noise Measurements taken in Project Vicinity

The following describes the measurement procedures, measurement locations, and noise measurement results of the noise measurements taken in the project vicinity.

Noise Measurement Equipment

The noise measurements were taken using two Larson Davis Model LXT1 Class 1 sound level meters programmed in "slow" mode to record the sound pressure level at 1-second intervals for 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded with the three sound level meters. The sound level meters and microphones were mounted on fences, were placed approximately five feet above the ground and were equipped with windscreens during all measurements. The noise meters were calibrated before and after the monitoring using a Larson Davis Cal200 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (ANSI S1.4-2014 standard).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels at the nearest residential uses to the project site. Descriptions of the noise monitoring sites are provided below in Table B and are shown in Figure 4. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:45 p.m. on Thursday, November 16, 2023 and 12:54 p.m. on Friday, November 17, 2023. At the start of the noise measurements, the sky was partly cloudy, the temperature was 72 degrees Fahrenheit, the humidity was 62 percent, barometric pressure was 29.95 inches of mercury, and the wind was blowing around two miles per hour. Overnight, the temperature dropped to 52 degrees Fahrenheit and the humidity peaked at 97 percent. At the conclusion of the noise measurements, the sky was partly cloudy, the temperature was 71 degrees Fahrenheit, the humidity was 66 percent, barometric pressure was 29.92 inches of mercury, and the wind was blowing around five miles per hour.

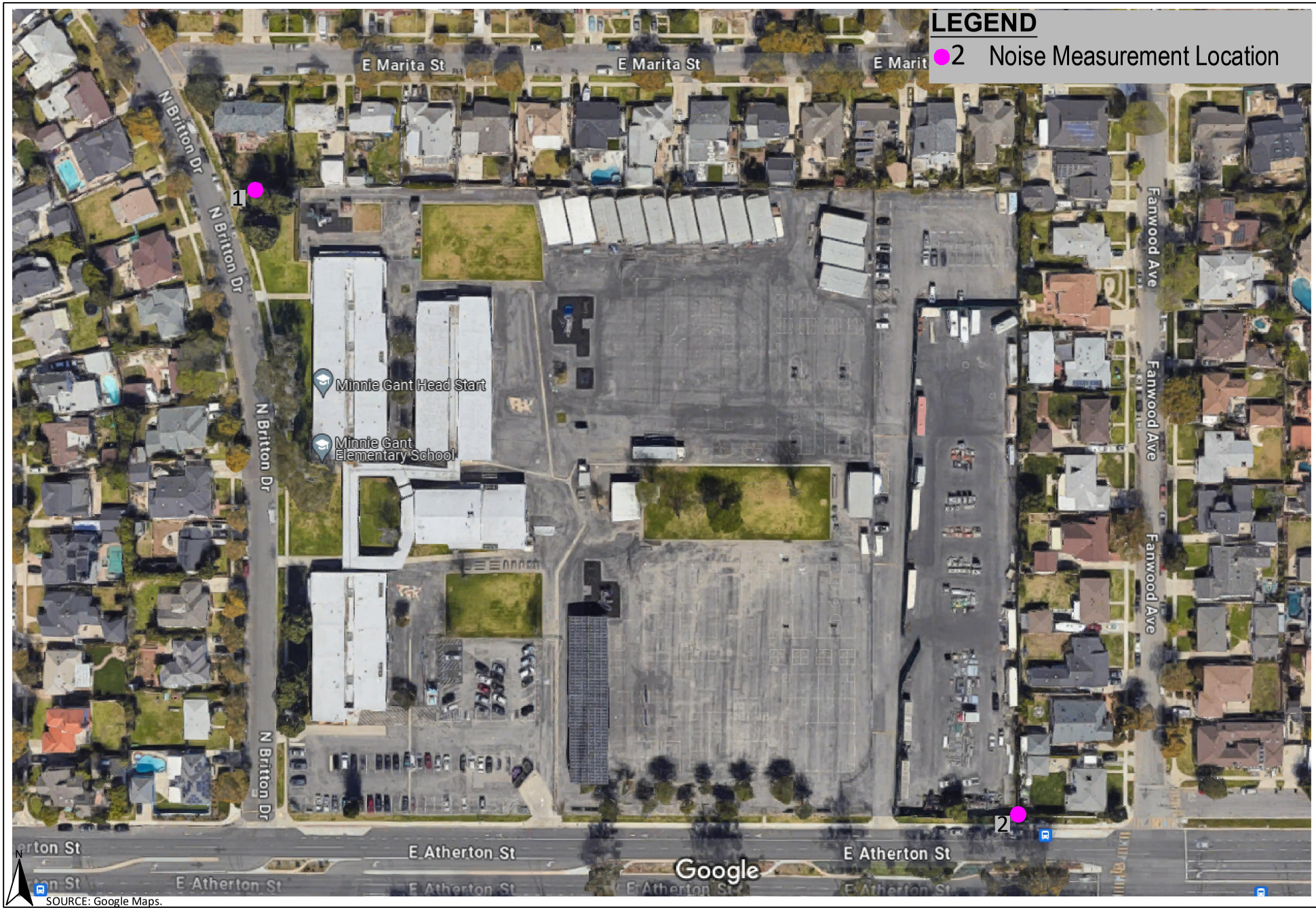
Noise Measurement Results

The results of the noise level measurements are presented in Table B. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table B also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The CNEL was calculated through use of the hourly Leq that was entered into Equation 2-23 from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. The noise monitoring data printouts are included in Appendix B. Figure 5 shows a graph of the 24-hour noise measurements.

Table C – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L_{eq})		1-hr Average (dBA L_{eq}/Time)		24-hour dBA CNEL
		Daytime[1]	Nighttime[2]	Minimum	Maximum	
1	Located near northwest corner of project site on north property line fence, approximately 50 feet east of Britton Drive centerline.	59.7	51.3	44.9 3:57 a.m.	63.6 11:24 a.m.	61.0
2	Located at southeast corner of project site on a fence, approximately 50 feet north of Atherton Street centerline.	69.5	63.4	53.5 4:46 a.m.	72.8 11:27 a.m.	72.1

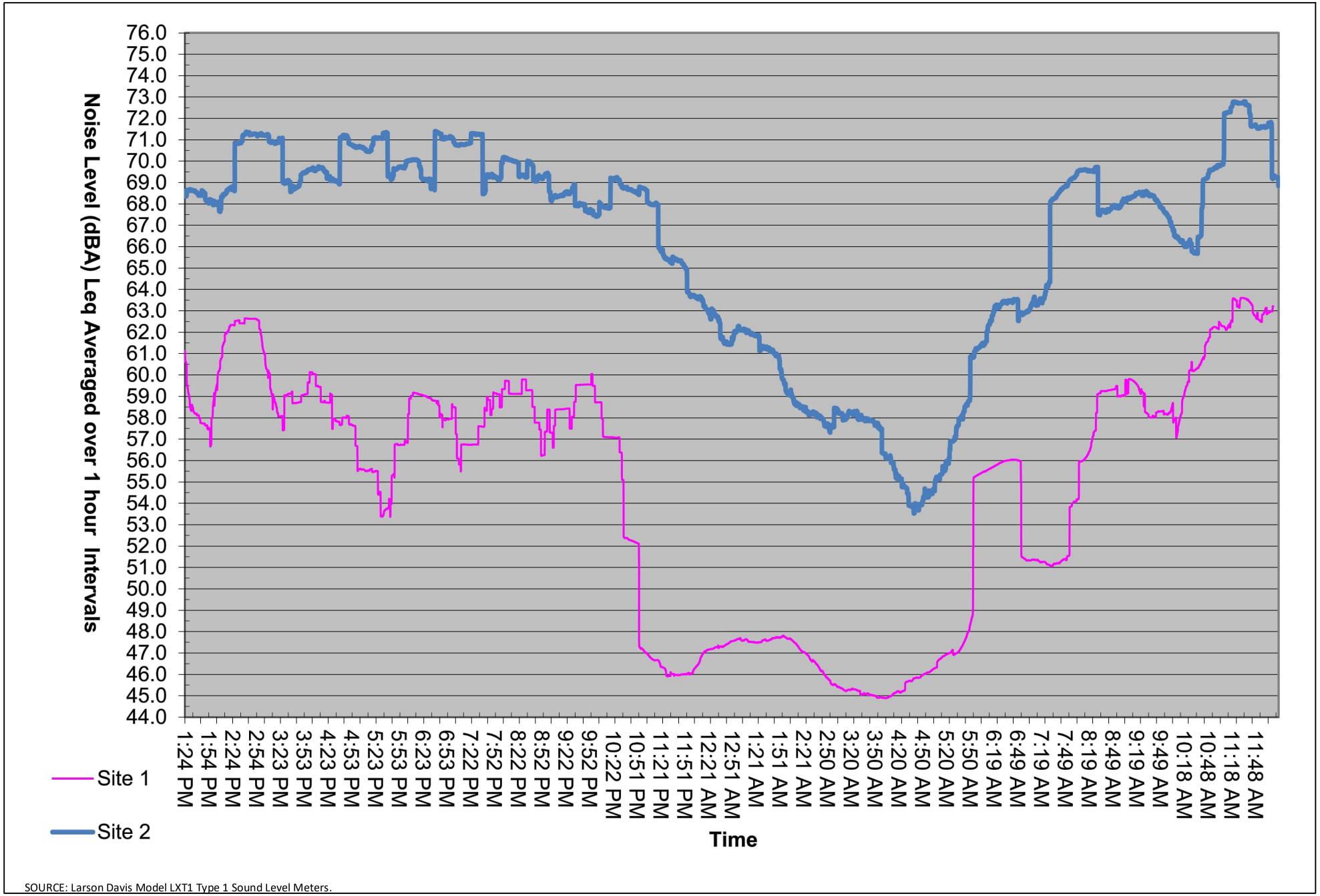
Notes:
[1] Daytime defined as 7:00 a.m. to 10:00 p.m. (Section 8.80.160 of the Municipal Code)
[2] Nighttime define as 10:00 p.m. to 7:00 a.m. (Section8.80.160 of the Municipal Code)
Source: Noise measurements taken between Thursday, November 16, 2023 and Friday, November 17, 2023.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Monitoring Locations



SOURCE: Larson Davis Model LXT1 Type 1 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 5
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table D below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Long Beach Unified School District – Gant Elementary School HVAC Modernization Project Air Quality and Greenhouse Gas Emissions Technical Memorandum* (Air Quality Memo), prepared by Vista Environmental, December 18, 2021.

Table D – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet4 (dBA, slow3)
Site Preparation				
Grader	1	40	85	83
Rubber Tired Dozers	1	40	85	82
Tractors/Loaders/Backhoes	1	40	84	N/A
Grading				
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoe[5]	2	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	1	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Welders	3	40	73	74
Paving				
Cement & Mortar Mixer[6]	1	50	80	80
Paver	1	50	85	77
Paving Equipment	1	50	85	77
Roller	1	20	85	80
Tractor, Loader or Backhoe[5]	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
[5] For the tractor/loader/backhoe, the tractor noise level was utilized first, since it is the loudest of the three types of equipment.
[6] For the cement & mortar mixer, the concrete mixer truck noise level was utilized.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table D also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table D and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual. The RCNM model printouts are provided in Appendix C.

6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table E gives approximate vibration levels for particular construction activities. The data in Table E provides a reasonable estimate for a wide range of soil conditions.

Table E – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Vibratory Roller		0.210	94
Hoe Ram		0.089	87
Large bulldozer		0.089	87
Caisson drill		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58

Source: Federal Transit Administration, 2020.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table E and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table D.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

- 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;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- 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.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not 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. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include site preparation and grading the drop off area on Britton Drive and onsite areas for the new paths of travel, upgrading permanent buildings A through D, paving of the new drop off area and new paths of travel, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

Section 8.80.202 of the City's Noise Ordinance restricts construction activities from occurring between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between 6:00 p.m. and 9:00 a.m. on Saturdays, or anytime on Sundays or federal holidays. Through adherence to the construction-related noise requirements provided in the City's Noise Ordinance, construction-related noise levels would not exceed any noise standards established in the General Plan or Noise Ordinance. However, as detailed above in Section 4.1, the General Plan Noise Element details that the federal standards may be used when local criteria are not established. As such, the FTA construction noise level standard of 90 dBA at the nearby homes have been utilized in this analysis.

Construction noise levels to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table D – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table F and the RCNM printouts are provided in Appendix C.

Table F – Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Homes to North	Homes to East[2]	Homes to West[3]
Site Preparation	68	67	66
Grading	69	68	67
Building Construction	68	67	66
Paving	66	65	64
Painting	57	56	55
FTA Construction Noise Threshold[3]	**90**	**90**	**90**
Exceed Thresholds?	**No**	**No**	**No**

[1] The homes to the west are located as near as 677 feet from center of project site.
[2] The homes to the north are located as near as 1,020 feet from center of project site.
[3] The FTA Construction noise thresholds are detailed above in **Error! Reference source not found.**.
Source: RCNM, Federal Highway Administration, 2006

Table F shows that the greatest noise impacts would occur during the grading phase, with a noise level as high as 69 dBA Leq at the nearest homes to the north. All calculated construction noise levels shown in Table F are within the FTA daytime construction noise standard of 90 dBA. Therefore, through adherence to allowable construction times provided in Section 8.80.202 of the Municipal Code, the construction activities for the proposed project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of upgrading the permanent buildings A through D, a new drop off area on Britton Drive and new paths of travel and utility systems upgrades. The proposed project would not result in an increase in student enrollment and is not anticipated to generate any new vehicle trips to the School. As such, no roadway noise impacts are anticipated to be created from operation of the proposed project. Potential noise impacts associated with the operations of the proposed project would limited to new onsite noise sources that would include new HVAC units and a new vehicle parking drop-off area. Section 8.80.160 of the Municipal Code limits onsite noise sources at the property lines of the nearby homes to 50 dBA between 7 a.m. and 10 p.m. and 45 dBA between 10 p.m. and 7 a.m..

In order to determine the noise impacts from the operation of the HVAC units and the drop off area, reference noise measurements were taken of each source and are shown in Table G and the reference noise measurement printouts are provided in Appendix D.

Table G – Operational Noise Levels at the Nearest Homes

Noise Source	Reference Noise Measurements[1]		Calculated Noise Levels at Nearest Homes	
	Distance Receptor to Source (feet)	Reference Noise Level (dBA Leq)	Distance to Homes (feet)	Noise Level[2] (dBA Leq)
Rooftop Equipment	6	65.1	80	42.6
Drop off Area	5	63.1	65	40.8
			Noise Level from All Sources Combined	**44.8**
			City Noise Standards (day/night)	**50/45**
			Exceed City Noise Standards (day/night)?	**No/No**

Notes:
[1] The reference noise measurements printouts are provided in Appendix D.
[2] Noise levels calculated through standard geometric spreading of noise, which results in a 6 dB drop in noise when distance is doubled.

Table G shows that the proposed project's worst-case (i.e., during school drop-off and pickup times) operational noise from the simultaneous operation of all noise sources on the project site would create a noise level of 44.8 dBA at the nearest homes to each source, which would be within the City's daytime noise standards of 50 dBA between 7 a.m. and 10 p.m. and the City's nighttime noise standard of 45 dBA between 10 p.m. and 7 a.m.. Therefore, the operational activities for the proposed project would not create a substantial temporary increase in ambient noise levels that are in excess of applicable noise standards. Impacts would be less than significant.

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include site preparation and grading the drop off area on Britton Drive and onsite areas for the new paths of travel, upgrading permanent buildings A through D, paving of the new drop off area and new paths of travel, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors are the homes to the north, which are located as near as 20 feet from where heavy off-road equipment would operate onsite.

Section 8.80.200(G) of the City's Municipal Code limits vibration impacts to the nearby single-family homes to 0.001 g's in the frequency range of 0 to 30 hertz and 0.003 g's in the frequency range of 30 to 100 hertz. The acceleration of gravity (g), which is 32.2 feet per second can be converted into peak particle velocity by multiplying 0.001 g's by 32.2 and then converting to inch per second, which results in a threshold of 0.386 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table E above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest homes (20 feet away) would be 0.114 inch per second PPV. The vibration level at the nearest homes to where heavy off-road equipment would operate would be below the 0.386 inch per second PPV threshold detailed above. Impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of upgrading the permanent school buildings as well as a new drop off area on Britton Drive and accessibility and utility systems upgrades. The on-going operation of the proposed project would not include the operation of any known vibration sources. Therefore, a less than significant vibration impact is anticipated from the operation of the proposed project.

Level of Significance

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is Long Beach Airport that is located approximately 1.5 miles northwest of the project site. The project site is located outside of the 60 dBA CNEL noise contours of Long Beach Airport. A less than significant impact would occur from aircraft noise.

Level of Significance

Less than significant impact.

8.0 REFERENCES

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

City of Long Beach, *City of Long Beach General Plan Noise Element*, June, 2023.

City of Long Beach, *A Codification of the General Ordinances of Long Beach, California*, November 22, 2023.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* September 2018.

General Technologies and Solutions, *Gant Elementary School Modernization Project Drop-off / Pick-up Traffic Analysis – Draft,* November 9, 2023.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

Vista Environmental, *Long Beach Unified School District – Gant Elementary School HVAC Modernization Project Air Quality and Greenhouse Gas Emissions Technical Memorandum,* December 18, 2023.

APPENDIX A

Field Noise Measurements Photo Index

Noise Measurement Site 1 - looking north


Noise Measurement Site 1 - looking northeast


Noise Measurement Site 1 - looking east


Noise Measurement Site 1 - looking southeast


Noise Measurement Site 1 - looking south


Noise Measurement Site 1 - looking southwest


Noise Measurement Site 1 - looking west


Noise Measurement Site 1 - looking northwest

Noise Measurement Site 2 - looking north

Noise Measurement Site 2 - looking northeast

Noise Measurement Site 2 - looking east

Noise Measurement Site 2 - looking southeast

Noise Measurement Site 2 - looking south

Noise Measurement Site 2 - looking southwest

Noise Measurement Site 2 - looking west

Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Near Northwest Corner of Project Site

November 16, 2023 12:45:19 PM Leq Daytime = 59.6
Sampling Time = 1 sec Freq Weighting=A Leq Nighttime = 51.3
Record Num = 86402 CNEL(24hr)= 61.0
Leq = 58.0 Ldn(24hr)= 60.3
Min = 40.4 Min Leq hr at 3:57 AM 44.9
Max = 83.7 Max Leq hr at 11:24 AM 63.6

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
63.4	12:45:19		63.4	63.4
69.5	12:45:20		69.5	69.5
71.3	12:45:21		71.3	71.3
68.6	12:45:22		68.6	68.6
63.0	12:45:23		63.0	63.0
67.9	12:45:24		67.9	67.9
65.2	12:45:25		65.2	65.2
71.2	12:45:26		71.2	71.2
70.0	12:45:27		70.0	70.0
67.9	12:45:28		67.9	67.9
63.8	12:45:29		63.8	63.8
60.3	12:45:30		60.3	60.3
63.8	12:45:31		63.8	63.8
71.8	12:45:32		71.8	71.8
71.1	12:45:33		71.1	71.1
69.4	12:45:34		69.4	69.4
66.4	12:45:35		66.4	66.4
63.7	12:45:36		63.7	63.7
61.8	12:45:37		61.8	61.8
60.3	12:45:38		60.3	60.3
60.4	12:45:39		60.4	60.4
61.0	12:45:40		61.0	61.0
61.2	12:45:41		61.2	61.2
64.9	12:45:42		64.9	64.9
62.7	12:45:43		62.7	62.7
59.2	12:45:44		59.2	59.2
56.4	12:45:45		56.4	56.4
54.1	12:45:46		54.1	54.1
58.3	12:45:47		58.3	58.3
67.2	12:45:48		67.2	67.2
66.5	12:45:49		66.5	66.5
64.2	12:45:50		64.2	64.2
61.9	12:45:51		61.9	61.9
64.7	12:45:52		64.7	64.7
70.2	12:45:53		70.2	70.2
68.5	12:45:54		68.5	68.5
66.9	12:45:55		66.9	66.9
66.7	12:45:56		66.7	66.7
64.8	12:45:57		64.8	64.8
61.6	12:45:58		61.6	61.6
61.5	12:45:59		61.5	61.5
64.0	12:46:00		64.0	64.0
62.7	12:46:01		62.7	62.7
64.9	12:46:02		64.9	64.9
63.5	12:46:03		63.5	63.5
60.5	12:46:04		60.5	60.5
58.3	12:46:05		58.3	58.3
56.5	12:46:06		56.5	56.5
55.6	12:46:07		55.6	55.6
56.7	12:46:08		56.7	56.7
56.5	12:46:09		56.5	56.5
60.2	12:46:10		60.2	60.2
61.1	12:46:11		61.1	61.1
60.7	12:46:12		60.7	60.7
60.6	12:46:13		60.6	60.6
67.2	12:46:14		67.2	67.2
65.9	12:46:15		65.9	65.9
64.0	12:46:16		64.0	64.0
61.3	12:46:17		61.3	61.3
59.5	12:46:18		59.5	59.5
62.1	12:46:19		62.1	62.1
65.2	12:46:20		65.2	65.2
67.9	12:46:21		67.9	67.9
69.3	12:46:22		69.3	69.3
68.1	12:46:23		68.1	68.1
66.3	12:46:24		66.3	66.3
65.2	12:46:25		65.2	65.2
66.7	12:46:26		66.7	66.7
65.8	12:46:27		65.8	65.8
65.7	12:46:28		65.7	65.7
66.1	12:46:29		66.1	66.1
63.4	12:46:30		63.4	63.4
61.7	12:46:31		61.7	61.7
59.5	12:46:32		59.5	59.5
56.6	12:46:33		56.6	56.6
55.5	12:46:34		55.5	55.5
57.3	12:46:35		57.3	57.3
57.4	12:46:36		57.4	57.4
60.0	12:46:37		60.0	60.0
65.0	12:46:38		65.0	65.0
63.9	12:46:39		63.9	63.9
61.2	12:46:40		61.2	61.2
58.7	12:46:41		58.7	58.7
58.2	12:46:42		58.2	58.2
57.3	12:46:43		57.3	57.3
54.6	12:46:44		54.6	54.6
52.7	12:46:45		52.7	52.7
56.7	12:46:46		56.7	56.7
54.9	12:46:47		54.9	54.9
52.6	12:46:48		52.6	52.6
50.0	12:46:49		50.0	50.0
48.1	12:46:50		48.1	48.1
47.6	12:46:51		47.6	47.6
48.6	12:46:52		48.6	48.6
48.0	12:46:53		48.0	48.0
48.9	12:46:54		48.9	48.9
53.6	12:46:55		53.6	53.6
52.3	12:46:56		52.3	52.3
52.6	12:46:57		52.6	52.6
53.1	12:46:58		53.1	53.1
51.9	12:46:59		51.9	51.9
51.6	12:47:00		51.6	51.6
52.0	12:47:01		52.0	52.0
51.9	12:47:02		51.9	51.9
51.6	12:47:03		51.6	51.6
50.4	12:47:04		50.4	50.4
49.5	12:47:05		49.5	49.5
51.2	12:47:06		51.2	51.2
49.5	12:47:07		49.5	49.5
47.6	12:47:08		47.6	47.6
48.0	12:47:09		48.0	48.0
49.7	12:47:10		49.7	49.7
49.6	12:47:11		49.6	49.6
48.9	12:47:12		48.9	48.9
48.1	12:47:13		48.1	48.1
48.2	12:47:14		48.2	48.2
49.6	12:47:15		49.6	49.6
50.3	12:47:16		50.3	50.3
51.0	12:47:17		51.0	51.0
51.4	12:47:18		51.4	51.4
52.9	12:47:19		52.9	52.9
53.4	12:47:20		53.4	53.4
54.1	12:47:21		54.1	54.1
54.4	12:47:22		54.4	54.4
54.0	12:47:23		54.0	54.0
55.7	12:47:24		55.7	55.7
54.9	12:47:25		54.9	54.9
52.6	12:47:26		52.6	52.6
52.1	12:47:27		52.1	52.1
53.1	12:47:28		53.1	53.1
54.7	12:47:29		54.7	54.7
53.0	12:47:30		53.0	53.0
51.9	12:47:31		51.9	51.9
51.6	12:47:32		51.6	51.6
53.5	12:47:33		53.5	53.5
57.1	12:47:34		57.1	57.1
58.0	12:47:35		58.0	58.0
57.3	12:47:36		57.3	57.3
57.6	12:47:37		57.6	57.6
59.3	12:47:38		59.3	59.3
59.8	12:47:39		59.8	59.8
62.5	12:47:40		62.5	62.5
63.7	12:47:41		63.7	63.7
64.8	12:47:42		64.8	64.8
67.4	12:47:43		67.4	67.4
68.2	12:47:44		68.2	68.2
69.4	12:47:45		69.4	69.4
70.4	12:47:46		70.4	70.4
71.8	12:47:47		71.8	71.8
64.2	12:47:48		64.2	64.2
66.4	12:47:49		66.4	66.4
68.5	12:47:50		68.5	68.5
69.2	12:47:51		69.2	69.2
69.0	12:47:52		69.0	69.0
67.7	12:47:53		67.7	67.7
65.5	12:47:54		65.5	65.5
62.6	12:47:55		62.6	62.6
60.0	12:47:56		60.0	60.0
67.6	12:47:57		67.6	67.6
65.7	12:47:58		65.7	65.7
63.6	12:47:59		63.6	63.6
61.2	12:48:00		61.2	61.2
59.9	12:48:01		59.9	59.9
58.6	12:48:02		58.6	58.6
57.5	12:48:03		57.5	57.5
55.7	12:48:04		55.7	55.7
54.6	12:48:05		54.6	54.6
53.4	12:48:06		53.4	53.4
52.4	12:48:07		52.4	52.4
52.4	12:48:08		52.4	52.4

Site 2 - Southwest Corner of Project Site

November 16, 2023 12:54:28 PM Leq Daytime = 69.5
Sampling Time = 1 sec Freq Weighting=A Leq Nighttime = 63.4
Record Num = 86402 CNEL(24hr)= 72.1
Leq = 68.1 Ldn(24hr)= 71.4
Min = 43.2 Min Leq hr at 4:46 AM 53.5
Max = 97.6 Max Leq hr at 11:27 AM 72.8

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
69.1	12:54:28		69.1	69.1
72.5	12:54:29		72.5	72.5
74.3	12:54:30		74.3	74.3
73.9	12:54:31		73.9	73.9
75.4	12:54:32		75.4	75.4
73.7	12:54:33		73.7	73.7
72.2	12:54:34		72.2	72.2
70.3	12:54:35		70.3	70.3
68.2	12:54:36		68.2	68.2
71.4	12:54:37		71.4	71.4
69.9	12:54:38		69.9	69.9
68.2	12:54:39		68.2	68.2
68.7	12:54:40		68.7	68.7
69.4	12:54:41		69.4	69.4
70.9	12:54:42		70.9	70.9
70.9	12:54:43		70.9	70.9
70.0	12:54:44		70.0	70.0
69.6	12:54:45		69.6	69.6
69.4	12:54:46		69.4	69.4
70.3	12:54:47		70.3	70.3
70.8	12:54:48		70.8	70.8
69.5	12:54:49		69.5	69.5
68.5	12:54:50		68.5	68.5
67.6	12:54:51		67.6	67.6
67.1	12:54:52		67.1	67.1
66.0	12:54:53		66.0	66.0
65.3	12:54:54		65.3	65.3
63.5	12:54:55		63.5	63.5
62.1	12:54:56		62.1	62.1
60.5	12:54:57		60.5	60.5
58.9	12:54:58		58.9	58.9
57.6	12:54:59		57.6	57.6
56.6	12:55:00		56.6	56.6
55.6	12:55:01		55.6	55.6
55.3	12:55:02		55.3	55.3
55.7	12:55:03		55.7	55.7
55.5	12:55:04		55.5	55.5
58.1	12:55:05		58.1	58.1
58.3	12:55:06		58.3	58.3
57.7	12:55:07		57.7	57.7
67.6	12:55:08		67.6	67.6
69.3	12:55:09		69.3	69.3
68.3	12:55:10		68.3	68.3
68.7	12:55:11		68.7	68.7
68.3	12:55:12		68.3	68.3
67.0	12:55:13		67.0	67.0
66.7	12:55:14		66.7	66.7
66.1	12:55:15		66.1	66.1
66.3	12:55:16		66.3	66.3
67.4	12:55:17		67.4	67.4
66.1	12:55:18		66.1	66.1
64.5	12:55:19		64.5	64.5
63.0	12:55:20		63.0	63.0
61.7	12:55:21		61.7	61.7
60.9	12:55:22		60.9	60.9
59.3	12:55:23		59.3	59.3
60.5	12:55:24		60.5	60.5
70.8	12:55:25		70.8	70.8
67.4	12:55:26		67.4	67.4
63.5	12:55:27		63.5	63.5
60.2	12:55:28		60.2	60.2
59.1	12:55:29		59.1	59.1
58.3	12:55:30		58.3	58.3
58.0	12:55:31		58.0	58.0
57.4	12:55:32		57.4	57.4
56.1	12:55:33		56.1	56.1
54.9	12:55:34		54.9	54.9
55.5	12:55:35		55.5	55.5
65.6	12:55:36		65.6	65.6
73.0	12:55:37		73.0	73.0
74.0	12:55:38		74.0	74.0
70.5	12:55:39		70.5	70.5
66.4	12:55:40		66.4	66.4
62.4	12:55:41		62.4	62.4
58.7	12:55:42		58.7	58.7
55.5	12:55:43		55.5	55.5
53.5	12:55:44		53.5	53.5
52.4	12:55:45		52.4	52.4
53.1	12:55:46		53.1	53.1
55.1	12:55:47		55.1	55.1
59.2	12:55:48		59.2	59.2
58.9	12:55:49		58.9	58.9
57.2	12:55:50		57.2	57.2
57.7	12:55:51		57.7	57.7
66.1	12:55:52		66.1	66.1
65.1	12:55:53		65.1	65.1
65.0	12:55:54		65.0	65.0
66.8	12:55:55		66.8	66.8
63.6	12:55:56		63.6	63.6
61.2	12:55:57		61.2	61.2
59.6	12:55:58		59.6	59.6
58.6	12:55:59		58.6	58.6
56.9	12:56:00		56.9	56.9
56.0	12:56:01		56.0	56.0
56.0	12:56:02		56.0	56.0
56.8	12:56:03		56.8	56.8
63.8	12:56:04		63.8	63.8
67.9	12:56:05		67.9	67.9
72.3	12:56:06		72.3	72.3
74.9	12:56:07		74.9	74.9
73.2	12:56:08		73.2	73.2
75.5	12:56:09		75.5	75.5
78.2	12:56:10		78.2	78.2
75.4	12:56:11		75.4	75.4
73.7	12:56:12		73.7	73.7
72.2	12:56:13		72.2	72.2
74.7	12:56:14		74.7	74.7
75.0	12:56:15		75.0	75.0
78.0	12:56:16		78.0	78.0
76.0	12:56:17		76.0	76.0
72.6	12:56:18		72.6	72.6
70.6	12:56:19		70.6	70.6
68.5	12:56:20		68.5	68.5
66.5	12:56:21		66.5	66.5
65.3	12:56:22		65.3	65.3
66.1	12:56:23		66.1	66.1
68.8	12:56:24		68.8	68.8
67.6	12:56:25		67.6	67.6
65.3	12:56:26		65.3	65.3
62.4	12:56:27		62.4	62.4
68.0	12:56:28		68.0	68.0
69.2	12:56:29		69.2	69.2
69.1	12:56:30		69.1	69.1
66.7	12:56:31		66.7	66.7
63.4	12:56:32		63.4	63.4
67.7	12:56:33		67.7	67.7
67.8	12:56:34		67.8	67.8
64.1	12:56:35		64.1	64.1
61.4	12:56:36		61.4	61.4
58.5	12:56:37		58.5	58.5
62.2	12:56:38		62.2	62.2
64.5	12:56:39		64.5	64.5
62.6	12:56:40		62.6	62.6
60.1	12:56:41		60.1	60.1
58.3	12:56:42		58.3	58.3
58.0	12:56:43		58.0	58.0
58.1	12:56:44		58.1	58.1
58.5	12:56:45		58.5	58.5
60.5	12:56:46		60.5	60.5
62.2	12:56:47		62.2	62.2
64.2	12:56:48		64.2	64.2
66.3	12:56:49		66.3	66.3
71.9	12:56:50		71.9	71.9
72.7	12:56:51		72.7	72.7
73.9	12:56:52		73.9	73.9
72.2	12:56:53		72.2	72.2
69.9	12:56:54		69.9	69.9
68.3	12:56:55		68.3	68.3
67.4	12:56:56		67.4	67.4
67.3	12:56:57		67.3	67.3
67.8	12:56:58		67.8	67.8
68.1	12:56:59		68.1	68.1
67.9	12:57:00		67.9	67.9
68.3	12:57:01		68.3	68.3
66.5	12:57:02		66.5	66.5
65.6	12:57:03		65.6	65.6
65.3	12:57:04		65.3	65.3
66.9	12:57:05		66.9	66.9
68.8	12:57:06		68.8	68.8
68.9	12:57:07		68.9	68.9
68.5	12:57:08		68.5	68.5
67.3	12:57:09		67.3	67.3
66.0	12:57:10		66.0	66.0
65.3	12:57:11		65.3	65.3
66.1	12:57:12		66.1	66.1
68.5	12:57:13		68.5	68.5
72.4	12:57:14		72.4	72.4
71.3	12:57:15		71.3	71.3
69.1	12:57:16		69.1	69.1
66.9	12:57:17		66.9	66.9

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
53.7	12:48:09		53.7	53.7
54.6	12:48:10		54.6	54.6
53.5	12:48:11		53.5	53.5
52.6	12:48:12		52.6	52.6
52.6	12:48:13		52.6	52.6
54.6	12:48:14		54.6	54.6
56.1	12:48:15		56.1	56.1
55.2	12:48:16		55.2	55.2
53.1	12:48:17		53.1	53.1
50.4	12:48:18		50.4	50.4
48.9	12:48:19		48.9	48.9
48.5	12:48:20		48.5	48.5
49.4	12:48:21		49.4	49.4
50.2	12:48:22		50.2	50.2
51.4	12:48:23		51.4	51.4
52.5	12:48:24		52.5	52.5
52.3	12:48:25		52.3	52.3
53.1	12:48:26		53.1	53.1
52.7	12:48:27		52.7	52.7
52.5	12:48:28		52.5	52.5
54.8	12:48:29		54.8	54.8
56.5	12:48:30		56.5	56.5
54.6	12:48:31		54.6	54.6
53.2	12:48:32		53.2	53.2
53.7	12:48:33		53.7	53.7
52.5	12:48:34		52.5	52.5
51.9	12:48:35		51.9	51.9
52.1	12:48:36		52.1	52.1
52.2	12:48:37		52.2	52.2
50.7	12:48:38		50.7	50.7
49.7	12:48:39		49.7	49.7
49.2	12:48:40		49.2	49.2
49.2	12:48:41		49.2	49.2
51.5	12:48:42		51.5	51.5
51.1	12:48:43		51.1	51.1
50.0	12:48:44		50.0	50.0
49.8	12:48:45		49.8	49.8
51.4	12:48:46		51.4	51.4
54.4	12:48:47		54.4	54.4
57.3	12:48:48		57.3	57.3
56.8	12:48:49		56.8	56.8
56.2	12:48:50		56.2	56.2
55.2	12:48:51		55.2	55.2
53.9	12:48:52		53.9	53.9
52.4	12:48:53		52.4	52.4
51.6	12:48:54		51.6	51.6
51.2	12:48:55		51.2	51.2
51.6	12:48:56		51.6	51.6
51.4	12:48:57		51.4	51.4
50.7	12:48:58		50.7	50.7
51.3	12:48:59		51.3	51.3
51.1	12:49:00		51.1	51.1
51.4	12:49:01		51.4	51.4
51.9	12:49:02		51.9	51.9
53.0	12:49:03		53.0	53.0
53.9	12:49:04		53.9	53.9
54.0	12:49:05		54.0	54.0
54.2	12:49:06		54.2	54.2
55.4	12:49:07		55.4	55.4
53.2	12:49:08		53.2	53.2
51.0	12:49:09		51.0	51.0
50.4	12:49:10		50.4	50.4
50.1	12:49:11		50.1	50.1
49.7	12:49:12		49.7	49.7
49.1	12:49:13		49.1	49.1
48.7	12:49:14		48.7	48.7
48.4	12:49:15		48.4	48.4
48.1	12:49:16		48.1	48.1
49.2	12:49:17		49.2	49.2
47.8	12:49:18		47.8	47.8
47.0	12:49:19		47.0	47.0
47.2	12:49:20		47.2	47.2
47.6	12:49:21		47.6	47.6
48.2	12:49:22		48.2	48.2
49.4	12:49:23		49.4	49.4
49.8	12:49:24		49.8	49.8
50.5	12:49:25		50.5	50.5
49.7	12:49:26		49.7	49.7
49.0	12:49:27		49.0	49.0
49.1	12:49:28		49.1	49.1
48.6	12:49:29		48.6	48.6
47.1	12:49:30		47.1	47.1
48.2	12:49:31		48.2	48.2
47.6	12:49:32		47.6	47.6
49.7	12:49:33		49.7	49.7
49.4	12:49:34		49.4	49.4
48.3	12:49:35		48.3	48.3
49.5	12:49:36		49.5	49.5
47.8	12:49:37		47.8	47.8
46.6	12:49:38		46.6	46.6
46.3	12:49:39		46.3	46.3
48.9	12:49:40		48.9	48.9
48.7	12:49:41		48.7	48.7
47.6	12:49:42		47.6	47.6
47.1	12:49:43		47.1	47.1
46.8	12:49:44		46.8	46.8
46.9	12:49:45		46.9	46.9
47.2	12:49:46		47.2	47.2
47.2	12:49:47		47.2	47.2
47.8	12:49:48		47.8	47.8
47.9	12:49:49		47.9	47.9
48.5	12:49:50		48.5	48.5
50.1	12:49:51		50.1	50.1
48.6	12:49:52		48.6	48.6
47.4	12:49:53		47.4	47.4
49.0	12:49:54		49.0	49.0
49.2	12:49:55		49.2	49.2
48.7	12:49:56		48.7	48.7
48.6	12:49:57		48.6	48.6
49.0	12:49:58		49.0	49.0
51.1	12:49:59		51.1	51.1
51.8	12:50:00		51.8	51.8
50.7	12:50:01		50.7	50.7
49.3	12:50:02		49.3	49.3
49.5	12:50:03		49.5	49.5
49.5	12:50:04		49.5	49.5
50.5	12:50:05		50.5	50.5
50.0	12:50:06		50.0	50.0
50.1	12:50:07		50.1	50.1
50.0	12:50:08		50.0	50.0
49.6	12:50:09		49.6	49.6
49.3	12:50:10		49.3	49.3
50.2	12:50:11		50.2	50.2
50.2	12:50:12		50.2	50.2
49.4	12:50:13		49.4	49.4
49.5	12:50:14		49.5	49.5
49.8	12:50:15		49.8	49.8
49.7	12:50:16		49.7	49.7
50.8	12:50:17		50.8	50.8
52.1	12:50:18		52.1	52.1
52.4	12:50:19		52.4	52.4
51.7	12:50:20		51.7	51.7
51.1	12:50:21		51.1	51.1
50.0	12:50:22		50.0	50.0
49.3	12:50:23		49.3	49.3
49.1	12:50:24		49.1	49.1
50.3	12:50:25		50.3	50.3
51.9	12:50:26		51.9	51.9
51.3	12:50:27		51.3	51.3
50.9	12:50:28		50.9	50.9
52.3	12:50:29		52.3	52.3
52.4	12:50:30		52.4	52.4
50.9	12:50:31		50.9	50.9
50.3	12:50:32		50.3	50.3
54.5	12:50:33		54.5	54.5
54.2	12:50:34		54.2	54.2
52.5	12:50:35		52.5	52.5
51.4	12:50:36		51.4	51.4
51.6	12:50:37		51.6	51.6
51.3	12:50:38		51.3	51.3
51.3	12:50:39		51.3	51.3
51.0	12:50:40		51.0	51.0
50.4	12:50:41		50.4	50.4
50.6	12:50:42		50.6	50.6
50.8	12:50:43		50.8	50.8
53.4	12:50:44		53.4	53.4
58.1	12:50:45		58.1	58.1
57.2	12:50:46		57.2	57.2
56.3	12:50:47		56.3	56.3
56.1	12:50:48		56.1	56.1
56.9	12:50:49		56.9	56.9
56.1	12:50:50		56.1	56.1
58.1	12:50:51		58.1	58.1
59.5	12:50:52		59.5	59.5
59.2	12:50:53		59.2	59.2
59.7	12:50:54		59.7	59.7
58.5	12:50:55		58.5	58.5
57.2	12:50:56		57.2	57.2
57.6	12:50:57		57.6	57.6
58.8	12:50:58		58.8	58.8
60.4	12:50:59		60.4	60.4
62.1	12:51:00		62.1	62.1
62.8	12:51:01		62.8	62.8
64.4	12:51:02		64.4	64.4
66.3	12:51:03		66.3	66.3
69.6	12:51:04		69.6	69.6
70.4	12:51:05		70.4	70.4
67.9	12:51:06		67.9	67.9
64.9	12:51:07		64.9	64.9
62.1	12:51:08		62.1	62.1
59.6	12:51:09		59.6	59.6
57.5	12:51:10		57.5	57.5

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
67.9	12:57:18		67.9	67.9
71.3	12:57:19		71.3	71.3
70.0	12:57:20		70.0	70.0
66.9	12:57:21		66.9	66.9
63.9	12:57:22		63.9	63.9
61.5	12:57:23		61.5	61.5
59.2	12:57:24		59.2	59.2
57.6	12:57:25		57.6	57.6
57.0	12:57:26		57.0	57.0
56.8	12:57:27		56.8	56.8
57.0	12:57:28		57.0	57.0
57.4	12:57:29		57.4	57.4
58.1	12:57:30		58.1	58.1
58.7	12:57:31		58.7	58.7
59.7	12:57:32		59.7	59.7
62.3	12:57:33		62.3	62.3
64.1	12:57:34		64.1	64.1
64.8	12:57:35		64.8	64.8
66.6	12:57:36		66.6	66.6
64.7	12:57:37		64.7	64.7
62.5	12:57:38		62.5	62.5
60.5	12:57:39		60.5	60.5
59.0	12:57:40		59.0	59.0
58.3	12:57:41		58.3	58.3
58.2	12:57:42		58.2	58.2
58.7	12:57:43		58.7	58.7
59.0	12:57:44		59.0	59.0
58.6	12:57:45		58.6	58.6
57.8	12:57:46		57.8	57.8
56.4	12:57:47		56.4	56.4
54.9	12:57:48		54.9	54.9
53.8	12:57:49		53.8	53.8
53.7	12:57:50		53.7	53.7
53.9	12:57:51		53.9	53.9
54.0	12:57:52		54.0	54.0
54.1	12:57:53		54.1	54.1
58.2	12:57:54		58.2	58.2
59.1	12:57:55		59.1	59.1
59.4	12:57:56		59.4	59.4
60.7	12:57:57		60.7	60.7
63.9	12:57:58		63.9	63.9
67.6	12:57:59		67.6	67.6
67.9	12:58:00		67.9	67.9
66.1	12:58:01		66.1	66.1
65.0	12:58:02		65.0	65.0
66.6	12:58:03		66.6	66.6
66.9	12:58:04		66.9	66.9
66.8	12:58:05		66.8	66.8
66.1	12:58:06		66.1	66.1
64.3	12:58:07		64.3	64.3
62.7	12:58:08		62.7	62.7
61.4	12:58:09		61.4	61.4
60.5	12:58:10		60.5	60.5
60.5	12:58:11		60.5	60.5
60.3	12:58:12		60.3	60.3
59.8	12:58:13		59.8	59.8
60.1	12:58:14		60.1	60.1
60.4	12:58:15		60.4	60.4
59.8	12:58:16		59.8	59.8
59.4	12:58:17		59.4	59.4
58.0	12:58:18		58.0	58.0
57.0	12:58:19		57.0	57.0
56.8	12:58:20		56.8	56.8
56.5	12:58:21		56.5	56.5
56.6	12:58:22		56.6	56.6
56.7	12:58:23		56.7	56.7
57.0	12:58:24		57.0	57.0
57.1	12:58:25		57.1	57.1
57.1	12:58:26		57.1	57.1
56.7	12:58:27		56.7	56.7
57.4	12:58:28		57.4	57.4
58.8	12:58:29		58.8	58.8
62.9	12:58:30		62.9	62.9
65.2	12:58:31		65.2	65.2
63.7	12:58:32		63.7	63.7
62.2	12:58:33		62.2	62.2
60.9	12:58:34		60.9	60.9
59.7	12:58:35		59.7	59.7
58.8	12:58:36		58.8	58.8
57.9	12:58:37		57.9	57.9
57.1	12:58:38		57.1	57.1
56.7	12:58:39		56.7	56.7
56.5	12:58:40		56.5	56.5
56.4	12:58:41		56.4	56.4
56.4	12:58:42		56.4	56.4
56.7	12:58:43		56.7	56.7
57.1	12:58:44		57.1	57.1
57.1	12:58:45		57.1	57.1
57.3	12:58:46		57.3	57.3
56.9	12:58:47		56.9	56.9
56.3	12:58:48		56.3	56.3
56.1	12:58:49		56.1	56.1
55.5	12:58:50		55.5	55.5
55.3	12:58:51		55.3	55.3
55.9	12:58:52		55.9	55.9
57.6	12:58:53		57.6	57.6
60.3	12:58:54		60.3	60.3
63.8	12:58:55		63.8	63.8
67.8	12:58:56		67.8	67.8
68.1	12:58:57		68.1	68.1
69.3	12:58:58		69.3	69.3
68.8	12:58:59		68.8	68.8
68.8	12:59:00		68.8	68.8
70.2	12:59:01		70.2	70.2
70.2	12:59:02		70.2	70.2
71.3	12:59:03		71.3	71.3
72.1	12:59:04		72.1	72.1
72.4	12:59:05		72.4	72.4
71.7	12:59:06		71.7	71.7
72.0	12:59:07		72.0	72.0
74.3	12:59:08		74.3	74.3
77.3	12:59:09		77.3	77.3
78.5	12:59:10		78.5	78.5
78.1	12:59:11		78.1	78.1
76.8	12:59:12		76.8	76.8
77.4	12:59:13		77.4	77.4
78.8	12:59:14		78.8	78.8
79.7	12:59:15		79.7	79.7
79.5	12:59:16		79.5	79.5
79.1	12:59:17		79.1	79.1
79.0	12:59:18		79.0	79.0
79.7	12:59:19		79.7	79.7
81.8	12:59:20		81.8	81.8
81.7	12:59:21		81.7	81.7
80.0	12:59:22		80.0	80.0
77.8	12:59:23		77.8	77.8
75.3	12:59:24		75.3	75.3
73.1	12:59:25		73.1	73.1
71.2	12:59:26		71.2	71.2
70.0	12:59:27		70.0	70.0
69.8	12:59:28		69.8	69.8
70.8	12:59:29		70.8	70.8
73.7	12:59:30		73.7	73.7
73.3	12:59:31		73.3	73.3
72.9	12:59:32		72.9	72.9
73.1	12:59:33		73.1	73.1
72.3	12:59:34		72.3	72.3
71.2	12:59:35		71.2	71.2
69.7	12:59:36		69.7	69.7
69.4	12:59:37		69.4	69.4
70.7	12:59:38		70.7	70.7
69.0	12:59:39		69.0	69.0
66.4	12:59:40		66.4	66.4
63.8	12:59:41		63.8	63.8
62.1	12:59:42		62.1	62.1
61.6	12:59:43		61.6	61.6
62.8	12:59:44		62.8	62.8
66.4	12:59:45		66.4	66.4
68.8	12:59:46		68.8	68.8
71.2	12:59:47		71.2	71.2
71.4	12:59:48		71.4	71.4
70.5	12:59:49		70.5	70.5
68.6	12:59:50		68.6	68.6
68.1	12:59:51		68.1	68.1
67.5	12:59:52		67.5	67.5
68.5	12:59:53		68.5	68.5
69.0	12:59:54		69.0	69.0
66.9	12:59:55		66.9	66.9
65.4	12:59:56		65.4	65.4
65.9	12:59:57		65.9	65.9
65.8	12:59:58		65.8	65.8
64.6	12:59:59		64.6	64.6
66.2	13:00:00		66.2	66.2
64.9	13:00:01		64.9	64.9
62.9	13:00:02		62.9	62.9
61.7	13:00:03		61.7	61.7
61.0	13:00:04		61.0	61.0
60.4	13:00:05		60.4	60.4
60.1	13:00:06		60.1	60.1
60.0	13:00:07		60.0	60.0
61.3	13:00:08		61.3	61.3
63.3	13:00:09		63.3	63.3
65.4	13:00:10		65.4	65.4
63.8	13:00:11		63.8	63.8
67.9	13:00:12		67.9	67.9
71.6	13:00:13		71.6	71.6
72.1	13:00:14		72.1	72.1
71.7	13:00:15		71.7	71.7
71.0	13:00:16		71.0	71.0
70.6	13:00:17		70.6	70.6
69.9	13:00:18		69.9	69.9
70.0	13:00:19		70.0	70.0

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
55.5	12:51:11		55.5	55.5
54.0	12:51:12		54.0	54.0
52.7	12:51:13		52.7	52.7
51.6	12:51:14		51.6	51.6
50.5	12:51:15		50.5	50.5
51.8	12:51:16		51.8	51.8
51.2	12:51:17		51.2	51.2
49.8	12:51:18		49.8	49.8
49.1	12:51:19		49.1	49.1
49.0	12:51:20		49.0	49.0
49.6	12:51:21		49.6	49.6
51.4	12:51:22		51.4	51.4
52.2	12:51:23		52.2	52.2
53.8	12:51:24		53.8	53.8
55.6	12:51:25		55.6	55.6
53.9	12:51:26		53.9	53.9
53.8	12:51:27		53.8	53.8
53.5	12:51:28		53.5	53.5
53.8	12:51:29		53.8	53.8
58.8	12:51:30		58.8	58.8
59.7	12:51:31		59.7	59.7
62.4	12:51:32		62.4	62.4
66.0	12:51:33		66.0	66.0
65.2	12:51:34		65.2	65.2
64.0	12:51:35		64.0	64.0
63.5	12:51:36		63.5	63.5
65.7	12:51:37		65.7	65.7
66.9	12:51:38		66.9	66.9
65.9	12:51:39		65.9	65.9
64.8	12:51:40		64.8	64.8
63.4	12:51:41		63.4	63.4
69.2	12:51:42		69.2	69.2
68.1	12:51:43		68.1	68.1
68.9	12:51:44		68.9	68.9
69.8	12:51:45		69.8	69.8
67.4	12:51:46		67.4	67.4
64.7	12:51:47		64.7	64.7
63.8	12:51:48		63.8	63.8
63.0	12:51:49		63.0	63.0
67.4	12:51:50		67.4	67.4
67.7	12:51:51		67.7	67.7
65.7	12:51:52		65.7	65.7
67.0	12:51:53		67.0	67.0
68.2	12:51:54		68.2	68.2
66.6	12:51:55		66.6	66.6
66.4	12:51:56		66.4	66.4
65.0	12:51:57		65.0	65.0
62.8	12:51:58		62.8	62.8
63.8	12:51:59		63.8	63.8
64.7	12:52:00		64.7	64.7
65.1	12:52:01		65.1	65.1
66.6	12:52:02		66.6	66.6
65.1	12:52:03		65.1	65.1
66.4	12:52:04		66.4	66.4
71.5	12:52:05		71.5	71.5
71.5	12:52:06		71.5	71.5
68.1	12:52:07		68.1	68.1
65.5	12:52:08		65.5	65.5
63.7	12:52:09		63.7	63.7
61.8	12:52:10		61.8	61.8
66.2	12:52:11		66.2	66.2
66.2	12:52:12		66.2	66.2
64.3	12:52:13		64.3	64.3
62.7	12:52:14		62.7	62.7
62.9	12:52:15		62.9	62.9
61.0	12:52:16		61.0	61.0
58.3	12:52:17		58.3	58.3
61.3	12:52:18		61.3	61.3
62.5	12:52:19		62.5	62.5
66.5	12:52:20		66.5	66.5
65.9	12:52:21		65.9	65.9
65.1	12:52:22		65.1	65.1
65.6	12:52:23		65.6	65.6
70.4	12:52:24		70.4	70.4
70.9	12:52:25		70.9	70.9
68.7	12:52:26		68.7	68.7
68.9	12:52:27		68.9	68.9
69.8	12:52:28		69.8	69.8
68.4	12:52:29		68.4	68.4
66.1	12:52:30		66.1	66.1
64.1	12:52:31		64.1	64.1
65.2	12:52:32		65.2	65.2
64.9	12:52:33		64.9	64.9
64.5	12:52:34		64.5	64.5
63.0	12:52:35		63.0	63.0
63.0	12:52:36		63.0	63.0
62.1	12:52:37		62.1	62.1
63.7	12:52:38		63.7	63.7
64.2	12:52:39		64.2	64.2
62.4	12:52:40		62.4	62.4
62.3	12:52:41		62.3	62.3
61.7	12:52:42		61.7	61.7
60.0	12:52:43		60.0	60.0
57.1	12:52:44		57.1	57.1
55.5	12:52:45		55.5	55.5
56.9	12:52:46		56.9	56.9
59.1	12:52:47		59.1	59.1
62.0	12:52:48		62.0	62.0
63.5	12:52:49		63.5	63.5
64.1	12:52:50		64.1	64.1
63.7	12:52:51		63.7	63.7
62.5	12:52:52		62.5	62.5
61.9	12:52:53		61.9	61.9
61.4	12:52:54		61.4	61.4
65.4	12:52:55		65.4	65.4
69.7	12:52:56		69.7	69.7
68.7	12:52:57		68.7	68.7
66.8	12:52:58		66.8	66.8
66.0	12:52:59		66.0	66.0
66.4	12:53:00		66.4	66.4
65.1	12:53:01		65.1	65.1
67.1	12:53:02		67.1	67.1
68.9	12:53:03		68.9	68.9
66.0	12:53:04		66.0	66.0
63.9	12:53:05		63.9	63.9
64.4	12:53:06		64.4	64.4
61.7	12:53:07		61.7	61.7
61.5	12:53:08		61.5	61.5
62.8	12:53:09		62.8	62.8
60.4	12:53:10		60.4	60.4
57.7	12:53:11		57.7	57.7
57.6	12:53:12		57.6	57.6
58.5	12:53:13		58.5	58.5
60.3	12:53:14		60.3	60.3
58.4	12:53:15		58.4	58.4
56.0	12:53:16		56.0	56.0
59.3	12:53:17		59.3	59.3
58.4	12:53:18		58.4	58.4
58.2	12:53:19		58.2	58.2
61.2	12:53:20		61.2	61.2
61.3	12:53:21		61.3	61.3
61.5	12:53:22		61.5	61.5
61.3	12:53:23		61.3	61.3
67.0	12:53:24		67.0	67.0
66.9	12:53:25		66.9	66.9
65.5	12:53:26		65.5	65.5
61.9	12:53:27		61.9	61.9
59.5	12:53:28		59.5	59.5
58.3	12:53:29		58.3	58.3
58.8	12:53:30		58.8	58.8
59.6	12:53:31		59.6	59.6
58.2	12:53:32		58.2	58.2
65.5	12:53:33		65.5	65.5
67.7	12:53:34		67.7	67.7
64.6	12:53:35		64.6	64.6
62.5	12:53:36		62.5	62.5
59.9	12:53:37		59.9	59.9
57.6	12:53:38		57.6	57.6
56.3	12:53:39		56.3	56.3
57.1	12:53:40		57.1	57.1
58.7	12:53:41		58.7	58.7
58.4	12:53:42		58.4	58.4
56.0	12:53:43		56.0	56.0
60.1	12:53:44		60.1	60.1
60.9	12:53:45		60.9	60.9
58.6	12:53:46		58.6	58.6
60.6	12:53:47		60.6	60.6
62.3	12:53:48		62.3	62.3
63.7	12:53:49		63.7	63.7
61.0	12:53:50		61.0	61.0
63.3	12:53:51		63.3	63.3
62.5	12:53:52		62.5	62.5
61.3	12:53:53		61.3	61.3
62.8	12:53:54		62.8	62.8
64.0	12:53:55		64.0	64.0
62.2	12:53:56		62.2	62.2
61.1	12:53:57		61.1	61.1
59.6	12:53:58		59.6	59.6
62.8	12:53:59		62.8	62.8
62.1	12:54:00		62.1	62.1
60.9	12:54:01		60.9	60.9
58.4	12:54:02		58.4	58.4
58.6	12:54:03		58.6	58.6
57.0	12:54:04		57.0	57.0
55.5	12:54:05		55.5	55.5
54.6	12:54:06		54.6	54.6
55.0	12:54:07		55.0	55.0
54.3	12:54:08		54.3	54.3
59.4	12:54:09		59.4	59.4
62.0	12:54:10		62.0	62.0
59.1	12:54:11		59.1	59.1
59.2	12:54:12		59.2	59.2
61.7	12:54:13		61.7	61.7
61.2	12:54:14		61.2	61.2
60.3	12:54:15		60.3	60.3
58.9	12:54:16		58.9	58.9
56.6	12:54:17		56.6	56.6
55.8	12:54:18		55.8	55.8
56.8	12:54:19		56.8	56.8

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
69.7	13:00:20		69.7	69.7
70.8	13:00:21		70.8	70.8
69.7	13:00:22		69.7	69.7
69.2	13:00:23		69.2	69.2
68.4	13:00:24		68.4	68.4
66.8	13:00:25		66.8	66.8
65.8	13:00:26		65.8	65.8
64.5	13:00:27		64.5	64.5
63.8	13:00:28		63.8	63.8
62.4	13:00:29		62.4	62.4
61.5	13:00:30		61.5	61.5
61.1	13:00:31		61.1	61.1
60.7	13:00:32		60.7	60.7
59.4	13:00:33		59.4	59.4
59.0	13:00:34		59.0	59.0
58.8	13:00:35		58.8	58.8
59.1	13:00:36		59.1	59.1
59.0	13:00:37		59.0	59.0
58.8	13:00:38		58.8	58.8
59.5	13:00:39		59.5	59.5
61.7	13:00:40		61.7	61.7
62.8	13:00:41		62.8	62.8
62.6	13:00:42		62.6	62.6
64.3	13:00:43		64.3	64.3
65.7	13:00:44		65.7	65.7
65.6	13:00:45		65.6	65.6
66.5	13:00:46		66.5	66.5
72.4	13:00:47		72.4	72.4
75.3	13:00:48		75.3	75.3
76.1	13:00:49		76.1	76.1
75.0	13:00:50		75.0	75.0
72.2	13:00:51		72.2	72.2
68.9	13:00:52		68.9	68.9
66.3	13:00:53		66.3	66.3
64.5	13:00:54		64.5	64.5
64.1	13:00:55		64.1	64.1
64.4	13:00:56		64.4	64.4
63.9	13:00:57		63.9	63.9
65.3	13:00:58		65.3	65.3
66.8	13:00:59		66.8	66.8
65.7	13:01:00		65.7	65.7
64.9	13:01:01		64.9	64.9
65.6	13:01:02		65.6	65.6
66.8	13:01:03		66.8	66.8
67.3	13:01:04		67.3	67.3
70.1	13:01:05		70.1	70.1
70.7	13:01:06		70.7	70.7
70.9	13:01:07		70.9	70.9
72.7	13:01:08		72.7	72.7
75.9	13:01:09		75.9	75.9
78.6	13:01:10		78.6	78.6
81.0	13:01:11		81.0	81.0
82.8	13:01:12		82.8	82.8
83.4	13:01:13		83.4	83.4
82.6	13:01:14		82.6	82.6
81.4	13:01:15		81.4	81.4
79.8	13:01:16		79.8	79.8
77.8	13:01:17		77.8	77.8
75.7	13:01:18		75.7	75.7
73.6	13:01:19		73.6	73.6
71.9	13:01:20		71.9	71.9
71.5	13:01:21		71.5	71.5
70.3	13:01:22		70.3	70.3
69.7	13:01:23		69.7	69.7
69.3	13:01:24		69.3	69.3
67.5	13:01:25		67.5	67.5
66.5	13:01:26		66.5	66.5
67.4	13:01:27		67.4	67.4
67.8	13:01:28		67.8	67.8
66.3	13:01:29		66.3	66.3
65.0	13:01:30		65.0	65.0
63.5	13:01:31		63.5	63.5
62.4	13:01:32		62.4	62.4
61.6	13:01:33		61.6	61.6
60.3	13:01:34		60.3	60.3
59.6	13:01:35		59.6	59.6
59.4	13:01:36		59.4	59.4
60.6	13:01:37		60.6	60.6
62.7	13:01:38		62.7	62.7
64.1	13:01:39		64.1	64.1
67.5	13:01:40		67.5	67.5
67.0	13:01:41		67.0	67.0
64.9	13:01:42		64.9	64.9
62.9	13:01:43		62.9	62.9
63.2	13:01:44		63.2	63.2
61.4	13:01:45		61.4	61.4
59.8	13:01:46		59.8	59.8
58.6	13:01:47		58.6	58.6
57.7	13:01:48		57.7	57.7
57.3	13:01:49		57.3	57.3
57.1	13:01:50		57.1	57.1
57.3	13:01:51		57.3	57.3
57.1	13:01:52		57.1	57.1
56.6	13:01:53		56.6	56.6
56.6	13:01:54		56.6	56.6
56.5	13:01:55		56.5	56.5
56.3	13:01:56		56.3	56.3
56.2	13:01:57		56.2	56.2
56.2	13:01:58		56.2	56.2
55.8	13:01:59		55.8	55.8
55.9	13:02:00		55.9	55.9
56.2	13:02:01		56.2	56.2
56.2	13:02:02		56.2	56.2
55.4	13:02:03		55.4	55.4
54.6	13:02:04		54.6	54.6
54.1	13:02:05		54.1	54.1
54.6	13:02:06		54.6	54.6
56.0	13:02:07		56.0	56.0
58.3	13:02:08		58.3	58.3
62.4	13:02:09		62.4	62.4
65.2	13:02:10		65.2	65.2
69.8	13:02:11		69.8	69.8
69.5	13:02:12		69.5	69.5
68.1	13:02:13		68.1	68.1
67.5	13:02:14		67.5	67.5
67.0	13:02:15		67.0	67.0
67.2	13:02:16		67.2	67.2
67.6	13:02:17		67.6	67.6
67.5	13:02:18		67.5	67.5
67.7	13:02:19		67.7	67.7
66.5	13:02:20		66.5	66.5
65.1	13:02:21		65.1	65.1
64.2	13:02:22		64.2	64.2
65.2	13:02:23		65.2	65.2
69.0	13:02:24		69.0	69.0
69.6	13:02:25		69.6	69.6
68.5	13:02:26		68.5	68.5
68.2	13:02:27		68.2	68.2
69.8	13:02:28		69.8	69.8
71.9	13:02:29		71.9	71.9
73.4	13:02:30		73.4	73.4
72.2	13:02:31		72.2	72.2
70.8	13:02:32		70.8	70.8
69.2	13:02:33		69.2	69.2
67.7	13:02:34		67.7	67.7
67.9	13:02:35		67.9	67.9
69.8	13:02:36		69.8	69.8
69.0	13:02:37		69.0	69.0
68.0	13:02:38		68.0	68.0
68.2	13:02:39		68.2	68.2
68.9	13:02:40		68.9	68.9
68.1	13:02:41		68.1	68.1
66.2	13:02:42		66.2	66.2
64.8	13:02:43		64.8	64.8
63.0	13:02:44		63.0	63.0
61.5	13:02:45		61.5	61.5
60.6	13:02:46		60.6	60.6
59.9	13:02:47		59.9	59.9
59.4	13:02:48		59.4	59.4
59.7	13:02:49		59.7	59.7
61.3	13:02:50		61.3	61.3
65.5	13:02:51		65.5	65.5
65.5	13:02:52		65.5	65.5
64.0	13:02:53		64.0	64.0
62.6	13:02:54		62.6	62.6
63.0	13:02:55		63.0	63.0
66.6	13:02:56		66.6	66.6
66.3	13:02:57		66.3	66.3
62.8	13:02:58		62.8	62.8
60.9	13:02:59		60.9	60.9
59.6	13:03:00		59.6	59.6
58.8	13:03:01		58.8	58.8
58.3	13:03:02		58.3	58.3
57.5	13:03:03		57.5	57.5
57.5	13:03:04		57.5	57.5
57.4	13:03:05		57.4	57.4
56.8	13:03:06		56.8	56.8
56.0	13:03:07		56.0	56.0
55.3	13:03:08		55.3	55.3
55.0	13:03:09		55.0	55.0
55.1	13:03:10		55.1	55.1
56.0	13:03:11		56.0	56.0
56.2	13:03:12		56.2	56.2
56.2	13:03:13		56.2	56.2
55.8	13:03:14		55.8	55.8
55.3	13:03:15		55.3	55.3
54.5	13:03:16		54.5	54.5
54.3	13:03:17		54.3	54.3
55.2	13:03:18		55.2	55.2
55.8	13:03:19		55.8	55.8
56.5	13:03:20		56.5	56.5
56.0	13:03:21		56.0	56.0
55.1	13:03:22		55.1	55.1
54.7	13:03:23		54.7	54.7
53.9	13:03:24		53.9	53.9
53.5	13:03:25		53.5	53.5
53.4	13:03:26		53.4	53.4
53.2	13:03:27		53.2	53.2
55.0	13:03:28		55.0	55.0

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
57.3	12:54:20		57.3	57.3
58.1	12:54:21		58.1	58.1
59.2	12:54:22		59.2	59.2
58.3	12:54:23		58.3	58.3
57.0	12:54:24		57.0	57.0
60.5	12:54:25		60.5	60.5
62.7	12:54:26		62.7	62.7
62.2	12:54:27		62.2	62.2
61.0	12:54:28		61.0	61.0
61.4	12:54:29		61.4	61.4
64.1	12:54:30		64.1	64.1
62.8	12:54:31		62.8	62.8
61.4	12:54:32		61.4	61.4
63.2	12:54:33		63.2	63.2
62.0	12:54:34		62.0	62.0
60.3	12:54:35		60.3	60.3
63.2	12:54:36		63.2	63.2
62.1	12:54:37		62.1	62.1
61.2	12:54:38		61.2	61.2
61.3	12:54:39		61.3	61.3
61.7	12:54:40		61.7	61.7
62.4	12:54:41		62.4	62.4
63.8	12:54:42		63.8	63.8
63.8	12:54:43		63.8	63.8
65.4	12:54:44		65.4	65.4
65.1	12:54:45		65.1	65.1
64.8	12:54:46		64.8	64.8
65.9	12:54:47		65.9	65.9
64.2	12:54:48		64.2	64.2
62.4	12:54:49		62.4	62.4
60.6	12:54:50		60.6	60.6
63.8	12:54:51		63.8	63.8
65.6	12:54:52		65.6	65.6
61.9	12:54:53		61.9	61.9
58.9	12:54:54		58.9	58.9
57.8	12:54:55		57.8	57.8
57.6	12:54:56		57.6	57.6
58.3	12:54:57		58.3	58.3
60.2	12:54:58		60.2	60.2
62.7	12:54:59		62.7	62.7
62.9	12:55:00		62.9	62.9
60.4	12:55:01		60.4	60.4
62.9	12:55:02		62.9	62.9
62.4	12:55:03		62.4	62.4
59.8	12:55:04		59.8	59.8
58.0	12:55:05		58.0	58.0
59.5	12:55:06		59.5	59.5
65.9	12:55:07		65.9	65.9
73.4	12:55:08		73.4	73.4
72.9	12:55:09		72.9	72.9
69.3	12:55:10		69.3	69.3
65.8	12:55:11		65.8	65.8
63.8	12:55:12		63.8	63.8
71.5	12:55:13		71.5	71.5
75.1	12:55:14		75.1	75.1
73.1	12:55:15		73.1	73.1
71.9	12:55:16		71.9	71.9
73.4	12:55:17		73.4	73.4
70.0	12:55:18		70.0	70.0
69.1	12:55:19		69.1	69.1
68.8	12:55:20		68.8	68.8
69.2	12:55:21		69.2	69.2
67.5	12:55:22		67.5	67.5
66.6	12:55:23		66.6	66.6
66.3	12:55:24		66.3	66.3
69.0	12:55:25		69.0	69.0
68.6	12:55:26		68.6	68.6
66.4	12:55:27		66.4	66.4
64.0	12:55:28		64.0	64.0
64.0	12:55:29		64.0	64.0
65.1	12:55:30		65.1	65.1
66.0	12:55:31		66.0	66.0
63.2	12:55:32		63.2	63.2
62.0	12:55:33		62.0	62.0
63.1	12:55:34		63.1	63.1
62.1	12:55:35		62.1	62.1
60.1	12:55:36		60.1	60.1
64.9	12:55:37		64.9	64.9
67.0	12:55:38		67.0	67.0
70.1	12:55:39		70.1	70.1
69.3	12:55:40		69.3	69.3
68.0	12:55:41		68.0	68.0
69.4	12:55:42		69.4	69.4
67.2	12:55:43		67.2	67.2
67.9	12:55:44		67.9	67.9
66.4	12:55:45		66.4	66.4
66.4	12:55:46		66.4	66.4
65.7	12:55:47		65.7	65.7
64.3	12:55:48		64.3	64.3
60.9	12:55:49		60.9	60.9
57.9	12:55:50		57.9	57.9
55.2	12:55:51		55.2	55.2
55.2	12:55:52		55.2	55.2
56.6	12:55:53		56.6	56.6
55.8	12:55:54		55.8	55.8
61.0	12:55:55		61.0	61.0
60.8	12:55:56		60.8	60.8
59.4	12:55:57		59.4	59.4
60.4	12:55:58		60.4	60.4
62.1	12:55:59		62.1	62.1
65.1	12:56:00		65.1	65.1
62.0	12:56:01		62.0	62.0
60.4	12:56:02		60.4	60.4
62.4	12:56:03		62.4	62.4
64.5	12:56:04		64.5	64.5
63.5	12:56:05		63.5	63.5
62.2	12:56:06		62.2	62.2
60.1	12:56:07		60.1	60.1
58.1	12:56:08		58.1	58.1
63.3	12:56:09		63.3	63.3
62.4	12:56:10		62.4	62.4
63.6	12:56:11		63.6	63.6
61.0	12:56:12		61.0	61.0
62.5	12:56:13		62.5	62.5
63.4	12:56:14		63.4	63.4
60.1	12:56:15		60.1	60.1
58.4	12:56:16		58.4	58.4
57.0	12:56:17		57.0	57.0
62.3	12:56:18		62.3	62.3
64.6	12:56:19		64.6	64.6
65.9	12:56:20		65.9	65.9
65.9	12:56:21		65.9	65.9
63.1	12:56:22		63.1	63.1
59.6	12:56:23		59.6	59.6
58.3	12:56:24		58.3	58.3
57.3	12:56:25		57.3	57.3
58.2	12:56:26		58.2	58.2
57.0	12:56:27		57.0	57.0
54.8	12:56:28		54.8	54.8
53.3	12:56:29		53.3	53.3
51.8	12:56:30		51.8	51.8
54.9	12:56:31		54.9	54.9
61.9	12:56:32		61.9	61.9
63.9	12:56:33		63.9	63.9
63.6	12:56:34		63.6	63.6
64.7	12:56:35		64.7	64.7
63.6	12:56:36		63.6	63.6
64.3	12:56:37		64.3	64.3
61.6	12:56:38		61.6	61.6
63.0	12:56:39		63.0	63.0
66.6	12:56:40		66.6	66.6
64.5	12:56:41		64.5	64.5
64.2	12:56:42		64.2	64.2
63.9	12:56:43		63.9	63.9
62.3	12:56:44		62.3	62.3
61.5	12:56:45		61.5	61.5
62.0	12:56:46		62.0	62.0
62.5	12:56:47		62.5	62.5
65.0	12:56:48		65.0	65.0
66.0	12:56:49		66.0	66.0
65.6	12:56:50		65.6	65.6
65.1	12:56:51		65.1	65.1
74.5	12:56:52		74.5	74.5
77.2	12:56:53		77.2	77.2
73.9	12:56:54		73.9	73.9
70.2	12:56:55		70.2	70.2
67.7	12:56:56		67.7	67.7
67.0	12:56:57		67.0	67.0
67.3	12:56:58		67.3	67.3
66.4	12:56:59		66.4	66.4
64.0	12:57:00		64.0	64.0
61.8	12:57:01		61.8	61.8
61.1	12:57:02		61.1	61.1
60.8	12:57:03		60.8	60.8
63.3	12:57:04		63.3	63.3
63.4	12:57:05		63.4	63.4
67.1	12:57:06		67.1	67.1
66.1	12:57:07		66.1	66.1
65.9	12:57:08		65.9	65.9
70.8	12:57:09		70.8	70.8
68.4	12:57:10		68.4	68.4
64.6	12:57:11		64.6	64.6
62.3	12:57:12		62.3	62.3
59.7	12:57:13		59.7	59.7
57.7	12:57:14		57.7	57.7
60.0	12:57:15		60.0	60.0
66.3	12:57:16		66.3	66.3
65.4	12:57:17		65.4	65.4
62.3	12:57:18		62.3	62.3
61.0	12:57:19		61.0	61.0
61.7	12:57:20		61.7	61.7
61.0	12:57:21		61.0	61.0
59.8	12:57:22		59.8	59.8
60.6	12:57:23		60.6	60.6
60.4	12:57:24		60.4	60.4
63.7	12:57:25		63.7	63.7
63.7	12:57:26		63.7	63.7
66.5	12:57:27		66.5	66.5
67.1	12:57:28		67.1	67.1
65.2	12:57:29		65.2	65.2
64.6	12:57:30		64.6	64.6
63.3	12:57:31		63.3	63.3
62.7	12:57:32		62.7	62.7
60.4	12:57:33		60.4	60.4
58.0	12:57:34		58.0	58.0
56.6	12:57:35		56.6	56.6
56.0	12:57:36		56.0	56.0
63.3	12:57:37		63.3	63.3
65.3	12:57:38		65.3	65.3
62.0	12:57:39		62.0	62.0
58.8	12:57:40		58.8	58.8
59.5	12:57:41		59.5	59.5
62.4	12:57:42		62.4	62.4
62.7	12:57:43		62.7	62.7
60.1	12:57:44		60.1	60.1
62.1	12:57:45		62.1	62.1

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
55.6	13:03:29		55.6	55.6
55.5	13:03:30		55.5	55.5
55.0	13:03:31		55.0	55.0
54.9	13:03:32		54.9	54.9
54.1	13:03:33		54.1	54.1
53.5	13:03:34		53.5	53.5
53.6	13:03:35		53.6	53.6
53.0	13:03:36		53.0	53.0
52.9	13:03:37		52.9	52.9
52.9	13:03:38		52.9	52.9
55.9	13:03:39		55.9	55.9
58.9	13:03:40		58.9	58.9
60.1	13:03:41		60.1	60.1
58.7	13:03:42		58.7	58.7
56.7	13:03:43		56.7	56.7
60.8	13:03:44		60.8	60.8
63.7	13:03:45		63.7	63.7
66.8	13:03:46		66.8	66.8
68.6	13:03:47		68.6	68.6
69.5	13:03:48		69.5	69.5
71.1	13:03:49		71.1	71.1
71.2	13:03:50		71.2	71.2
71.4	13:03:51		71.4	71.4
72.8	13:03:52		72.8	72.8
73.3	13:03:53		73.3	73.3
73.2	13:03:54		73.2	73.2
73.1	13:03:55		73.1	73.1
74.3	13:03:56		74.3	74.3
72.9	13:03:57		72.9	72.9
71.0	13:03:58		71.0	71.0
69.9	13:03:59		69.9	69.9
67.7	13:04:00		67.7	67.7
65.9	13:04:01		65.9	65.9
64.7	13:04:02		64.7	64.7
64.2	13:04:03		64.2	64.2
63.7	13:04:04		63.7	63.7
62.2	13:04:05		62.2	62.2
60.6	13:04:06		60.6	60.6
59.2	13:04:07		59.2	59.2
59.0	13:04:08		59.0	59.0
59.3	13:04:09		59.3	59.3
61.4	13:04:10		61.4	61.4
65.5	13:04:11		65.5	65.5
68.4	13:04:12		68.4	68.4
69.1	13:04:13		69.1	69.1
67.3	13:04:14		67.3	67.3
65.0	13:04:15		65.0	65.0
63.7	13:04:16		63.7	63.7
65.2	13:04:17		65.2	65.2
66.8	13:04:18		66.8	66.8
66.1	13:04:19		66.1	66.1
66.7	13:04:20		66.7	66.7
65.2	13:04:21		65.2	65.2
63.4	13:04:22		63.4	63.4
62.8	13:04:23		62.8	62.8
62.3	13:04:24		62.3	62.3
61.7	13:04:25		61.7	61.7
61.2	13:04:26		61.2	61.2
60.7	13:04:27		60.7	60.7
60.1	13:04:28		60.1	60.1
60.6	13:04:29		60.6	60.6
61.8	13:04:30		61.8	61.8
64.5	13:04:31		64.5	64.5
65.8	13:04:32		65.8	65.8
64.0	13:04:33		64.0	64.0
62.3	13:04:34		62.3	62.3
60.9	13:04:35		60.9	60.9
60.2	13:04:36		60.2	60.2
60.0	13:04:37		60.0	60.0
59.0	13:04:38		59.0	59.0
58.4	13:04:39		58.4	58.4
58.2	13:04:40		58.2	58.2
57.7	13:04:41		57.7	57.7
57.7	13:04:42		57.7	57.7
56.8	13:04:43		56.8	56.8
55.5	13:04:44		55.5	55.5
55.9	13:04:45		55.9	55.9
58.0	13:04:46		58.0	58.0
59.4	13:04:47		59.4	59.4
60.7	13:04:48		60.7	60.7
63.4	13:04:49		63.4	63.4
65.3	13:04:50		65.3	65.3
65.4	13:04:51		65.4	65.4
67.4	13:04:52		67.4	67.4
69.1	13:04:53		69.1	69.1
69.4	13:04:54		69.4	69.4
69.8	13:04:55		69.8	69.8
71.9	13:04:56		71.9	71.9
73.7	13:04:57		73.7	73.7
74.5	13:04:58		74.5	74.5
75.9	13:04:59		75.9	75.9
75.3	13:05:00		75.3	75.3
73.1	13:05:01		73.1	73.1
72.3	13:05:02		72.3	72.3
71.0	13:05:03		71.0	71.0
70.0	13:05:04		70.0	70.0
71.6	13:05:05		71.6	71.6
73.3	13:05:06		73.3	73.3
73.1	13:05:07		73.1	73.1
73.5	13:05:08		73.5	73.5
71.2	13:05:09		71.2	71.2
69.0	13:05:10		69.0	69.0
66.7	13:05:11		66.7	66.7
65.2	13:05:12		65.2	65.2
64.2	13:05:13		64.2	64.2
63.2	13:05:14		63.2	63.2
62.7	13:05:15		62.7	62.7
62.7	13:05:16		62.7	62.7
63.2	13:05:17		63.2	63.2
63.7	13:05:18		63.7	63.7
64.5	13:05:19		64.5	64.5
64.9	13:05:20		64.9	64.9
64.1	13:05:21		64.1	64.1
63.3	13:05:22		63.3	63.3
63.0	13:05:23		63.0	63.0
62.7	13:05:24		62.7	62.7
62.4	13:05:25		62.4	62.4
64.3	13:05:26		64.3	64.3
66.8	13:05:27		66.8	66.8
69.7	13:05:28		69.7	69.7
69.9	13:05:29		69.9	69.9
62.2	13:05:30		62.2	62.2
61.2	13:05:31		61.2	61.2
60.3	13:05:32		60.3	60.3
60.2	13:05:33		60.2	60.2
59.9	13:05:34		59.9	59.9
58.6	13:05:35		58.6	58.6
60.0	13:05:36		60.0	60.0
61.7	13:05:37		61.7	61.7
61.2	13:05:38		61.2	61.2
62.4	13:05:39		62.4	62.4
66.7	13:05:40		66.7	66.7
68.9	13:05:41		68.9	68.9
68.1	13:05:42		68.1	68.1
66.8	13:05:43		66.8	66.8
65.0	13:05:44		65.0	65.0
64.9	13:05:45		64.9	64.9
67.0	13:05:46		67.0	67.0
65.5	13:05:47		65.5	65.5
63.7	13:05:48		63.7	63.7
62.2	13:05:49		62.2	62.2
60.7	13:05:50		60.7	60.7
60.4	13:05:51		60.4	60.4
60.8	13:05:52		60.8	60.8
60.3	13:05:53		60.3	60.3
61.1	13:05:54		61.1	61.1
62.7	13:05:55		62.7	62.7
66.6	13:05:56		66.6	66.6
68.3	13:05:57		68.3	68.3
68.9	13:05:58		68.9	68.9
70.0	13:05:59		70.0	70.0
70.3	13:06:00		70.3	70.3
69.8	13:06:01		69.8	69.8
68.4	13:06:02		68.4	68.4
66.1	13:06:03		66.1	66.1
64.7	13:06:04		64.7	64.7
67.6	13:06:05		67.6	67.6
69.2	13:06:06		69.2	69.2
62.9	13:06:07		62.9	62.9
61.3	13:06:08		61.3	61.3
60.8	13:06:09		60.8	60.8
60.1	13:06:10		60.1	60.1
58.7	13:06:11		58.7	58.7
57.7	13:06:12		57.7	57.7
57.6	13:06:13		57.6	57.6
60.3	13:06:14		60.3	60.3
61.3	13:06:15		61.3	61.3
62.8	13:06:16		62.8	62.8
63.9	13:06:17		63.9	63.9
67.6	13:06:18		67.6	67.6
71.8	13:06:19		71.8	71.8
76.4	13:06:20		76.4	76.4
76.2	13:06:21		76.2	76.2
73.2	13:06:22		73.2	73.2
72.2	13:06:23		72.2	72.2
70.7	13:06:24		70.7	70.7
68.5	13:06:25		68.5	68.5
67.0	13:06:26		67.0	67.0
65.6	13:06:27		65.6	65.6
64.2	13:06:28		64.2	64.2
63.4	13:06:29		63.4	63.4
62.8	13:06:30		62.8	62.8
62.9	13:06:31		62.9	62.9
65.2	13:06:32		65.2	65.2
68.8	13:06:33		68.8	68.8
71.9	13:06:34		71.9	71.9
74.0	13:06:35		74.0	74.0
71.7	13:06:36		71.7	71.7
68.8	13:06:37		68.8	68.8
66.1	13:06:38		66.1	66.1
63.9	13:06:39		63.9	63.9
62.4	13:06:40		62.4	62.4
61.3	13:06:41		61.3	61.3
60.9	13:06:42		60.9	60.9
59.8	13:06:43		59.8	59.8
59.2	13:06:44		59.2	59.2
58.8	13:06:45		58.8	58.8
59.0	13:06:46		59.0	59.0
60.5	13:06:47		60.5	60.5
64.2	13:06:48		64.2	64.2
66.3	13:06:49		66.3	66.3
66.1	13:06:50		66.1	66.1
66.7	13:06:51		66.7	66.7
69.2	13:06:52		69.2	69.2
72.4	13:06:53		72.4	72.4
72.1	13:06:54		72.1	72.1

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
69.7	12:57:46		69.7	69.7
69.3	12:57:47		69.3	69.3
68.8	12:57:48		68.8	68.8
67.2	12:57:49		67.2	67.2
63.7	12:57:50		63.7	63.7
61.2	12:57:51		61.2	61.2
62.9	12:57:52		62.9	62.9
64.0	12:57:53		64.0	64.0
66.2	12:57:54		66.2	66.2
63.4	12:57:55		63.4	63.4
61.3	12:57:56		61.3	61.3
63.7	12:57:57		63.7	63.7
62.3	12:57:58		62.3	62.3
63.4	12:57:59		63.4	63.4
63.2	12:58:00		63.2	63.2
61.2	12:58:01		61.2	61.2
58.8	12:58:02		58.8	58.8
61.4	12:58:03		61.4	61.4
70.1	12:58:04		70.1	70.1
67.1	12:58:05		67.1	67.1
64.1	12:58:06		64.1	64.1
60.5	12:58:07		60.5	60.5
57.1	12:58:08		57.1	57.1
54.5	12:58:09		54.5	54.5
53.0	12:58:10		53.0	53.0
60.9	12:58:11		60.9	60.9
58.5	12:58:12		58.5	58.5
57.5	12:58:13		57.5	57.5
56.2	12:58:14		56.2	56.2
56.6	12:58:15		56.6	56.6
60.7	12:58:16		60.7	60.7
62.0	12:58:17		62.0	62.0
64.1	12:58:18		64.1	64.1
63.6	12:58:19		63.6	63.6
62.9	12:58:20		62.9	62.9
62.1	12:58:21		62.1	62.1
61.0	12:58:22		61.0	61.0
60.3	12:58:23		60.3	60.3
68.8	12:58:24		68.8	68.8
70.9	12:58:25		70.9	70.9
67.3	12:58:26		67.3	67.3
63.3	12:58:27		63.3	63.3
61.0	12:58:28		61.0	61.0
60.1	12:58:29		60.1	60.1
61.2	12:58:30		61.2	61.2
72.3	12:58:31		72.3	72.3
69.1	12:58:32		69.1	69.1
65.9	12:58:33		65.9	65.9
65.2	12:58:34		65.2	65.2
66.8	12:58:35		66.8	66.8
64.2	12:58:36		64.2	64.2
65.6	12:58:37		65.6	65.6
65.4	12:58:38		65.4	65.4
66.6	12:58:39		66.6	66.6
67.5	12:58:40		67.5	67.5
68.2	12:58:41		68.2	68.2
65.2	12:58:42		65.2	65.2
64.2	12:58:43		64.2	64.2
64.9	12:58:44		64.9	64.9
65.5	12:58:45		65.5	65.5
64.0	12:58:46		64.0	64.0
61.6	12:58:47		61.6	61.6
59.6	12:58:48		59.6	59.6
59.2	12:58:49		59.2	59.2
60.6	12:58:50		60.6	60.6
60.3	12:58:51		60.3	60.3
59.9	12:58:52		59.9	59.9
61.3	12:58:53		61.3	61.3
62.0	12:58:54		62.0	62.0
59.3	12:58:55		59.3	59.3
58.7	12:58:56		58.7	58.7
62.2	12:58:57		62.2	62.2
66.1	12:58:58		66.1	66.1
66.8	12:58:59		66.8	66.8
65.5	12:59:00		65.5	65.5
65.4	12:59:01		65.4	65.4
63.8	12:59:02		63.8	63.8
63.3	12:59:03		63.3	63.3
68.0	12:59:04		68.0	68.0
69.2	12:59:05		69.2	69.2
68.6	12:59:06		68.6	68.6
69.3	12:59:07		69.3	69.3
70.6	12:59:08		70.6	70.6
70.7	12:59:09		70.7	70.7
71.3	12:59:10		71.3	71.3
72.9	12:59:11		72.9	72.9
75.2	12:59:12		75.2	75.2
76.9	12:59:13		76.9	76.9
77.9	12:59:14		77.9	77.9
78.0	12:59:15		78.0	78.0
77.0	12:59:16		77.0	77.0
74.7	12:59:17		74.7	74.7
72.7	12:59:18		72.7	72.7
70.4	12:59:19		70.4	70.4
67.7	12:59:20		67.7	67.7
65.5	12:59:21		65.5	65.5
64.0	12:59:22		64.0	64.0
63.6	12:59:23		63.6	63.6
64.9	12:59:24		64.9	64.9
66.1	12:59:25		66.1	66.1
64.0	12:59:26		64.0	64.0
62.1	12:59:27		62.1	62.1
64.4	12:59:28		64.4	64.4
68.6	12:59:29		68.6	68.6
65.3	12:59:30		65.3	65.3
65.3	12:59:31		65.3	65.3
65.9	12:59:32		65.9	65.9
65.8	12:59:33		65.8	65.8
65.9	12:59:34		65.9	65.9
63.3	12:59:35		63.3	63.3
63.2	12:59:36		63.2	63.2
62.2	12:59:37		62.2	62.2
64.6	12:59:38		64.6	64.6
66.9	12:59:39		66.9	66.9
65.1	12:59:40		65.1	65.1
65.0	12:59:41		65.0	65.0
67.7	12:59:42		67.7	67.7
64.8	12:59:43		64.8	64.8
62.4	12:59:44		62.4	62.4
59.6	12:59:45		59.6	59.6
62.9	12:59:46		62.9	62.9
60.4	12:59:47		60.4	60.4
58.6	12:59:48		58.6	58.6
60.2	12:59:49		60.2	60.2
63.0	12:59:50		63.0	63.0
68.4	12:59:51		68.4	68.4
66.5	12:59:52		66.5	66.5
63.2	12:59:53		63.2	63.2
60.1	12:59:54		60.1	60.1
59.6	12:59:55		59.6	59.6
60.8	12:59:56		60.8	60.8
61.9	12:59:57		61.9	61.9
62.7	12:59:58		62.7	62.7
64.7	12:59:59		64.7	64.7
63.5	13:00:00		63.5	63.5
60.7	13:00:01		60.7	60.7
60.9	13:00:02		60.9	60.9
62.1	13:00:03		62.1	62.1
63.4	13:00:04		63.4	63.4
64.1	13:00:05		64.1	64.1
61.8	13:00:06		61.8	61.8
59.8	13:00:07		59.8	59.8
60.0	13:00:08		60.0	60.0
63.0	13:00:09		63.0	63.0
61.1	13:00:10		61.1	61.1
59.5	13:00:11		59.5	59.5
60.4	13:00:12		60.4	60.4
59.9	13:00:13		59.9	59.9
58.4	13:00:14		58.4	58.4
57.3	13:00:15		57.3	57.3
56.0	13:00:16		56.0	56.0
57.8	13:00:17		57.8	57.8
59.0	13:00:18		59.0	59.0
61.8	13:00:19		61.8	61.8
59.8	13:00:20		59.8	59.8
58.9	13:00:21		58.9	58.9
59.7	13:00:22		59.7	59.7
63.5	13:00:23		63.5	63.5
63.8	13:00:24		63.8	63.8
65.0	13:00:25		65.0	65.0
68.2	13:00:26		68.2	68.2
66.7	13:00:27		66.7	66.7
63.5	13:00:28		63.5	63.5
60.8	13:00:29		60.8	60.8
60.1	13:00:30		60.1	60.1
61.9	13:00:31		61.9	61.9
59.2	13:00:32		59.2	59.2
62.7	13:00:33		62.7	62.7
64.4	13:00:34		64.4	64.4
65.3	13:00:35		65.3	65.3
63.7	13:00:36		63.7	63.7
60.6	13:00:37		60.6	60.6
65.2	13:00:38		65.2	65.2
64.6	13:00:39		64.6	64.6

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
71.2	13:06:55		71.2	71.2
70.3	13:06:56		70.3	70.3
68.9	13:06:57		68.9	68.9
68.8	13:06:58		68.8	68.8
66.7	13:06:59		66.7	66.7
67.3	13:07:00		67.3	67.3
65.1	13:07:01		65.1	65.1
63.5	13:07:02		63.5	63.5
62.3	13:07:03		62.3	62.3
61.2	13:07:04		61.2	61.2
59.8	13:07:05		59.8	59.8
58.4	13:07:06		58.4	58.4
57.5	13:07:07		57.5	57.5
56.8	13:07:08		56.8	56.8
56.3	13:07:09		56.3	56.3
55.5	13:07:10		55.5	55.5
55.0	13:07:11		55.0	55.0
54.7	13:07:12		54.7	54.7
55.7	13:07:13		55.7	55.7
57.0	13:07:14		57.0	57.0
56.2	13:07:15		56.2	56.2
54.7	13:07:16		54.7	54.7
54.8	13:07:17		54.8	54.8
54.8	13:07:18		54.8	54.8
55.0	13:07:19		55.0	55.0
55.0	13:07:20		55.0	55.0
55.1	13:07:21		55.1	55.1
55.2	13:07:22		55.2	55.2
55.4	13:07:23		55.4	55.4
55.8	13:07:24		55.8	55.8
55.8	13:07:25		55.8	55.8
56.3	13:07:26		56.3	56.3
56.5	13:07:27		56.5	56.5
56.8	13:07:28		56.8	56.8
56.5	13:07:29		56.5	56.5
56.3	13:07:30		56.3	56.3
56.0	13:07:31		56.0	56.0
55.2	13:07:32		55.2	55.2
54.6	13:07:33		54.6	54.6
54.4	13:07:34		54.4	54.4
54.2	13:07:35		54.2	54.2
53.8	13:07:36		53.8	53.8
53.4	13:07:37		53.4	53.4
53.0	13:07:38		53.0	53.0
52.8	13:07:39		52.8	52.8
52.9	13:07:40		52.9	52.9
53.7	13:07:41		53.7	53.7
55.8	13:07:42		55.8	55.8
59.1	13:07:43		59.1	59.1
61.8	13:07:44		61.8	61.8
64.7	13:07:45		64.7	64.7
70.0	13:07:46		70.0	70.0
72.5	13:07:47		72.5	72.5
71.6	13:07:48		71.6	71.6
72.2	13:07:49		72.2	72.2
72.8	13:07:50		72.8	72.8
71.9	13:07:51		71.9	71.9
69.9	13:07:52		69.9	69.9
68.3	13:07:53		68.3	68.3
67.8	13:07:54		67.8	67.8
69.7	13:07:55		69.7	69.7
71.7	13:07:56		71.7	71.7
70.1	13:07:57		70.1	70.1
68.2	13:07:58		68.2	68.2
66.0	13:07:59		66.0	66.0
64.2	13:08:00		64.2	64.2
62.8	13:08:01		62.8	62.8
61.9	13:08:02		61.9	61.9
61.5	13:08:03		61.5	61.5
61.6	13:08:04		61.6	61.6
61.7	13:08:05		61.7	61.7
63.2	13:08:06		63.2	63.2
64.6	13:08:07		64.6	64.6
64.9	13:08:08		64.9	64.9
64.3	13:08:09		64.3	64.3
64.1	13:08:10		64.1	64.1
64.7	13:08:11		64.7	64.7
66.5	13:08:12		66.5	66.5
71.7	13:08:13		71.7	71.7
72.4	13:08:14		72.4	72.4
71.0	13:08:15		71.0	71.0
70.0	13:08:16		70.0	70.0
70.0	13:08:17		70.0	70.0
72.1	13:08:18		72.1	72.1
72.1	13:08:19		72.1	72.1
72.7	13:08:20		72.7	72.7
73.4	13:08:21		73.4	73.4
71.5	13:08:22		71.5	71.5
69.7	13:08:23		69.7	69.7
68.4	13:08:24		68.4	68.4
66.6	13:08:25		66.6	66.6
63.9	13:08:26		63.9	63.9
61.8	13:08:27		61.8	61.8
60.4	13:08:28		60.4	60.4
59.5	13:08:29		59.5	59.5
58.6	13:08:30		58.6	58.6
58.8	13:08:31		58.8	58.8
59.2	13:08:32		59.2	59.2
60.0	13:08:33		60.0	60.0
61.3	13:08:34		61.3	61.3
63.8	13:08:35		63.8	63.8
67.4	13:08:36		67.4	67.4
69.7	13:08:37		69.7	69.7
70.5	13:08:38		70.5	70.5
71.6	13:08:39		71.6	71.6
71.2	13:08:40		71.2	71.2
70.4	13:08:41		70.4	70.4
70.9	13:08:42		70.9	70.9
69.8	13:08:43		69.8	69.8
67.9	13:08:44		67.9	67.9
66.3	13:08:45		66.3	66.3
64.6	13:08:46		64.6	64.6
62.9	13:08:47		62.9	62.9
61.5	13:08:48		61.5	61.5
60.3	13:08:49		60.3	60.3
59.8	13:08:50		59.8	59.8
60.4	13:08:51		60.4	60.4
62.5	13:08:52		62.5	62.5
64.5	13:08:53		64.5	64.5
68.4	13:08:54		68.4	68.4
69.9	13:08:55		69.9	69.9
69.8	13:08:56		69.8	69.8
69.6	13:08:57		69.6	69.6
68.6	13:08:58		68.6	68.6
67.6	13:08:59		67.6	67.6
68.0	13:09:00		68.0	68.0
67.8	13:09:01		67.8	67.8
68.4	13:09:02		68.4	68.4
70.3	13:09:03		70.3	70.3
69.6	13:09:04		69.6	69.6
67.7	13:09:05		67.7	67.7
68.2	13:09:06		68.2	68.2
71.6	13:09:07		71.6	71.6
73.3	13:09:08		73.3	73.3
72.7	13:09:09		72.7	72.7
73.6	13:09:10		73.6	73.6
72.8	13:09:11		72.8	72.8
70.5	13:09:12		70.5	70.5
68.4	13:09:13		68.4	68.4
66.3	13:09:14		66.3	66.3
63.9	13:09:15		63.9	63.9
61.8	13:09:16		61.8	61.8
60.5	13:09:17		60.5	60.5
60.9	13:09:18		60.9	60.9
60.4	13:09:19		60.4	60.4
60.5	13:09:20		60.5	60.5
60.6	13:09:21		60.6	60.6
60.5	13:09:22		60.5	60.5
61.8	13:09:23		61.8	61.8
63.4	13:09:24		63.4	63.4
66.1	13:09:25		66.1	66.1
69.9	13:09:26		69.9	69.9
70.8	13:09:27		70.8	70.8
71.0	13:09:28		71.0	71.0
72.5	13:09:29		72.5	72.5
71.5	13:09:30		71.5	71.5
69.8	13:09:31		69.8	69.8
68.7	13:09:32		68.7	68.7
67.4	13:09:33		67.4	67.4
66.6	13:09:34		66.6	66.6
66.8	13:09:35		66.8	66.8
66.8	13:09:36		66.8	66.8
65.7	13:09:37		65.7	65.7
65.1	13:09:38		65.1	65.1
64.5	13:09:39		64.5	64.5
63.9	13:09:40		63.9	63.9
63.1	13:09:41		63.1	63.1
62.1	13:09:42		62.1	62.1
61.5	13:09:43		61.5	61.5
60.8	13:09:44		60.8	60.8
60.3	13:09:45		60.3	60.3
59.7	13:09:46		59.7	59.7
59.0	13:09:47		59.0	59.0
58.5	13:09:48		58.5	58.5

Site 1 - Near Northwest Corner of Project Site					Site 2 - Southwest Corner of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
62.7	13:00:40		62.7	62.7	58.7	13:09:49		58.7	58.7
59.5	13:00:41		59.5	59.5	58.9	13:09:50		58.9	58.9
63.0	13:00:42		63.0	63.0	60.6	13:09:51		60.6	60.6
61.0	13:00:43		61.0	61.0	62.3	13:09:52		62.3	62.3
61.2	13:00:44		61.2	61.2	62.9	13:09:53		62.9	62.9
58.6	13:00:45		58.6	58.6	65.1	13:09:54		65.1	65.1
59.1	13:00:46		59.1	59.1	69.2	13:09:55		69.2	69.2
59.4	13:00:47		59.4	59.4	69.0	13:09:56		69.0	69.0
59.1	13:00:48		59.1	59.1	70.7	13:09:57		70.7	70.7
58.7	13:00:49		58.7	58.7	73.0	13:09:58		73.0	73.0
57.6	13:00:50		57.6	57.6	71.3	13:09:59		71.3	71.3
61.2	13:00:51		61.2	61.2	70.9	13:10:00		70.9	70.9
64.7	13:00:52		64.7	64.7	69.2	13:10:01		69.2	69.2
65.3	13:00:53		65.3	65.3	67.8	13:10:02		67.8	67.8
63.6	13:00:54		63.6	63.6	66.4	13:10:03		66.4	66.4
62.1	13:00:55		62.1	62.1	65.6	13:10:04		65.6	65.6
61.9	13:00:56		61.9	61.9	64.5	13:10:05		64.5	64.5
62.3	13:00:57		62.3	62.3	63.7	13:10:06		63.7	63.7
64.6	13:00:58		64.6	64.6	64.5	13:10:07		64.5	64.5
64.1	13:00:59		64.1	64.1	65.8	13:10:08		65.8	65.8
62.8	13:01:00		62.8	62.8	64.2	13:10:09		64.2	64.2
64.5	13:01:01		64.5	64.5	63.6	13:10:10		63.6	63.6
69.2	13:01:02		69.2	69.2	63.2	13:10:11		63.2	63.2
71.5	13:01:03		71.5	71.5	62.0	13:10:12		62.0	62.0
70.5	13:01:04		70.5	70.5	61.3	13:10:13		61.3	61.3
71.2	13:01:05		71.2	71.2	60.9	13:10:14		60.9	60.9
72.8	13:01:06		72.8	72.8	60.4	13:10:15		60.4	60.4
74.5	13:01:07		74.5	74.5	60.3	13:10:16		60.3	60.3
75.9	13:01:08		75.9	75.9	61.1	13:10:17		61.1	61.1
78.6	13:01:09		78.6	78.6	62.3	13:10:18		62.3	62.3
80.6	13:01:10		80.6	80.6	62.4	13:10:19		62.4	62.4
81.3	13:01:11		81.3	81.3	61.9	13:10:20		61.9	61.9
81.2	13:01:12		81.2	81.2	60.3	13:10:21		60.3	60.3
79.9	13:01:13		79.9	79.9	58.8	13:10:22		58.8	58.8
77.8	13:01:14		77.8	77.8	57.5	13:10:23		57.5	57.5
75.0	13:01:15		75.0	75.0	57.2	13:10:24		57.2	57.2
72.5	13:01:16		72.5	72.5	56.6	13:10:25		56.6	56.6
70.2	13:01:17		70.2	70.2	56.5	13:10:26		56.5	56.5
68.9	13:01:18		68.9	68.9	56.5	13:10:27		56.5	56.5
69.4	13:01:19		69.4	69.4	57.0	13:10:28		57.0	57.0
68.2	13:01:20		68.2	68.2	58.0	13:10:29		58.0	58.0
66.3	13:01:21		66.3	66.3	59.5	13:10:30		59.5	59.5
64.3	13:01:22		64.3	64.3	63.0	13:10:31		63.0	63.0
63.3	13:01:23		63.3	63.3	64.8	13:10:32		64.8	64.8
61.4	13:01:24		61.4	61.4	62.8	13:10:33		62.8	62.8
60.1	13:01:25		60.1	60.1	61.9	13:10:34		61.9	61.9
63.7	13:01:26		63.7	63.7	61.4	13:10:35		61.4	61.4
62.9	13:01:27		62.9	62.9	60.0	13:10:36		60.0	60.0
61.0	13:01:28		61.0	61.0	58.4	13:10:37		58.4	58.4
60.9	13:01:29		60.9	60.9	57.7	13:10:38		57.7	57.7
59.6	13:01:30		59.6	59.6	57.1	13:10:39		57.1	57.1
61.5	13:01:31		61.5	61.5	56.7	13:10:40		56.7	56.7
65.2	13:01:32		65.2	65.2	56.5	13:10:41		56.5	56.5
64.7	13:01:33		64.7	64.7	56.7	13:10:42		56.7	56.7
62.1	13:01:34		62.1	62.1	57.6	13:10:43		57.6	57.6
61.8	13:01:35		61.8	61.8	59.3	13:10:44		59.3	59.3
61.4	13:01:36		61.4	61.4	61.0	13:10:45		61.0	61.0
62.3	13:01:37		62.3	62.3	64.1	13:10:46		64.1	64.1
62.8	13:01:38		62.8	62.8	67.3	13:10:47		67.3	67.3
60.4	13:01:39		60.4	60.4	70.9	13:10:48		70.9	70.9
58.3	13:01:40		58.3	58.3	72.8	13:10:49		72.8	72.8
57.0	13:01:41		57.0	57.0	74.0	13:10:50		74.0	74.0
60.0	13:01:42		60.0	60.0	73.3	13:10:51		73.3	73.3
58.6	13:01:43		58.6	58.6	74.0	13:10:52		74.0	74.0
59.8	13:01:44		59.8	59.8	72.3	13:10:53		72.3	72.3
61.2	13:01:45		61.2	61.2	71.7	13:10:54		71.7	71.7
58.4	13:01:46		58.4	58.4	71.8	13:10:55		71.8	71.8
57.5	13:01:47		57.5	57.5	71.0	13:10:56		71.0	71.0
57.6	13:01:48		57.6	57.6	72.1	13:10:57		72.1	72.1
59.8	13:01:49		59.8	59.8	71.9	13:10:58		71.9	71.9
60.8	13:01:50		60.8	60.8	72.4	13:10:59		72.4	72.4
67.8	13:01:51		67.8	67.8	72.2	13:11:00		72.2	72.2
65.4	13:01:52		65.4	65.4	71.1	13:11:01		71.1	71.1
65.2	13:01:53		65.2	65.2	69.5	13:11:02		69.5	69.5
70.4	13:01:54		70.4	70.4	67.7	13:11:03		67.7	67.7
71.3	13:01:55		71.3	71.3	66.1	13:11:04		66.1	66.1
69.4	13:01:56		69.4	69.4	64.9	13:11:05		64.9	64.9
66.6	13:01:57		66.6	66.6	64.0	13:11:06		64.0	64.0
65.2	13:01:58		65.2	65.2	62.6	13:11:07		62.6	62.6
62.4	13:01:59		62.4	62.4	61.6	13:11:08		61.6	61.6
60.0	13:02:00		60.0	60.0	61.4	13:11:09		61.4	61.4
65.0	13:02:01		65.0	65.0	61.8	13:11:10		61.8	61.8
62.3	13:02:02		62.3	62.3	61.8	13:11:11		61.8	61.8
65.9	13:02:03		65.9	65.9	61.9	13:11:12		61.9	61.9
65.0	13:02:04		65.0	65.0	62.5	13:11:13		62.5	62.5
68.8	13:02:05		68.8	68.8	63.5	13:11:14		63.5	63.5
65.7	13:02:06		65.7	65.7	65.5	13:11:15		65.5	65.5
63.8	13:02:07		63.8	63.8	67.3	13:11:16		67.3	67.3
63.1	13:02:08		63.1	63.1	66.8	13:11:17		66.8	66.8
62.3	13:02:09		62.3	62.3	68.9	13:11:18		68.9	68.9
63.1	13:02:10		63.1	63.1	69.3	13:11:19		69.3	69.3
65.4	13:02:11		65.4	65.4	67.5	13:11:20		67.5	67.5
62.1	13:02:12		62.1	62.1	66.6	13:11:21		66.6	66.6
60.0	13:02:13		60.0	60.0	65.3	13:11:22		65.3	65.3
57.9	13:02:14		57.9	57.9	64.4	13:11:23		64.4	64.4
57.0	13:02:15		57.0	57.0	63.8	13:11:24		63.8	63.8
61.5	13:02:16		61.5	61.5	62.9	13:11:25		62.9	62.9
65.5	13:02:17		65.5	65.5	62.4	13:11:26		62.4	62.4
64.1	13:02:18		64.1	64.1	62.3	13:11:27		62.3	62.3
60.7	13:02:19		60.7	60.7	64.2	13:11:28		64.2	64.2
61.9	13:02:20		61.9	61.9	65.9	13:11:29		65.9	65.9
69.6	13:02:21		69.6	69.6	64.2	13:11:30		64.2	64.2
68.4	13:02:22		68.4	68.4	63.2	13:11:31		63.2	63.2
65.7	13:02:23		65.7	65.7	62.2	13:11:32		62.2	62.2
63.8	13:02:24		63.8	63.8	61.1	13:11:33		61.1	61.1
61.2	13:02:25		61.2	61.2	61.4	13:11:34		61.4	61.4
59.6	13:02:26		59.6	59.6	63.4	13:11:35		63.4	63.4
59.2	13:02:27		59.2	59.2	66.8	13:11:36		66.8	66.8
61.3	13:02:28		61.3	61.3	69.0	13:11:37		69.0	69.0
60.2	13:02:29		60.2	60.2	69.8	13:11:38		69.8	69.8
59.3	13:02:30		59.3	59.3	69.7	13:11:39		69.7	69.7
60.0	13:02:31		60.0	60.0	69.8	13:11:40		69.8	69.8
58.8	13:02:32		58.8	58.8	69.1	13:11:41		69.1	69.1
60.9	13:02:33		60.9	60.9	68.2	13:11:42		68.2	68.2
62.9	13:02:34		62.9	62.9	67.4	13:11:43		67.4	67.4
68.1	13:02:35		68.1	68.1	66.9	13:11:44		66.9	66.9
68.5	13:02:36		68.5	68.5	67.2	13:11:45		67.2	67.2
65.5	13:02:37		65.5	65.5	68.8	13:11:46		68.8	68.8
62.0	13:02:38		62.0	62.0	69.8	13:11:47		69.8	69.8
60.4	13:02:39		60.4	60.4	69.2	13:11:48		69.2	69.2
59.8	13:02:40		59.8	59.8	69.1	13:11:49		69.1	69.1
61.0	13:02:41		61.0	61.0	68.9	13:11:50		68.9	68.9
61.6	13:02:42		61.6	61.6	67.9	13:11:51		67.9	67.9
64.8	13:02:43		64.8	64.8	66.8	13:11:52		66.8	66.8
65.0	13:02:44		65.0	65.0	65.8	13:11:53		65.8	65.8
63.0	13:02:45		63.0	63.0	65.8	13:11:54		65.8	65.8
67.6	13:02:46		67.6	67.6	66.1	13:11:55		66.1	66.1
70.3	13:02:47		70.3	70.3	65.0	13:11:56		65.0	65.0
68.3	13:02:48		68.3	68.3	64.3	13:11:57		64.3	64.3
65.7	13:02:49		65.7	65.7	64.1	13:11:58		64.1	64.1
62.6	13:02:50		62.6	62.6	62.9	13:11:59		62.9	62.9
60.1	13:02:51		60.1	60.1	61.9	13:12:00		61.9	61.9
58.4	13:02:52		58.4	58.4	60.9	13:12:01		60.9	60.9
58.1	13:02:53		58.1	58.1	60.0	13:12:02		60.0	60.0
59.9	13:02:54		59.9	59.9	59.1	13:12:03		59.1	59.1
61.3	13:02:55		61.3	61.3	59.0	13:12:04		59.0	59.0
63.4	13:02:56		63.4	63.4	59.6	13:12:05		59.6	59.6
62.5	13:02:57		62.5	62.5	62.7	13:12:06		62.7	62.7
61.3	13:02:58		61.3	61.3	65.8	13:12:07		65.8	65.8
64.4	13:02:59		64.4	64.4	68.7	13:12:08		68.7	68.7
64.5	13:03:00		64.5	64.5	67.8	13:12:09		67.8	67.8
68.2	13:03:01		68.2	68.2	67.2	13:12:10		67.2	67.2
71.0	13:03:02		71.0	71.0	67.6	13:12:11		67.6	67.6
69.4	13:03:03		69.4	69.4	68.2	13:12:12		68.2	68.2
67.8	13:03:04		67.8	67.8	67.3	13:12:13		67.3	67.3
67.4	13:03:05		67.4	67.4	67.2	13:12:14		67.2	67.2
63.8	13:03:06		63.8	63.8	67.4	13:12:15		67.4	67.4
61.9	13:03:07		61.9	61.9	68.2	13:12:16		68.2	68.2
62.2	13:03:08		62.2	62.2	69.8	13:12:17		69.8	69.8
62.2	13:03:09		62.2	62.2	68.5	13:12:18		68.5	68.5
64.1	13:03:10		64.1	64.1	66.6	13:12:19		66.6	66.6
61.2	13:03:11		61.2	61.2	65.4	13:12:20		65.4	65.4
58.9	13:03:12		58.9	58.9	63.7	13:12:21		63.7	63.7
59.8	13:03:13		59.8	59.8	62.2	13:12:22		62.2	62.2
63.7	13:03:14		63.7	63.7	60.9	13:12:23		60.9	60.9
65.0	13:03:15		65.0	65.0	59.8	13:12:24		59.8	59.8
68.6	13:03:16		68.6	68.6	58.3	13:12:25		58.3	58.3
65.0	13:03:17		65.0	65.0	57.5	13:12:26		57.5	57.5
61.2	13:03:18		61.2	61.2	57.7	13:12:27		57.7	57.7
58.1	13:03:19		58.1	58.1	57.7	13:12:28		57.7	57.7
63.5	13:03:20		63.5	63.5	58.0	13:12:29		58.0	58.0
65.7	13:03:21		65.7	65.7	58.4	13:12:30		58.4	58.4

Site 1 - Near Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
66.7	13:03:22		66.7	66.7
65.4	13:03:23		65.4	65.4
62.1	13:03:24		62.1	62.1
60.6	13:03:25		60.6	60.6
58.0	13:03:26		58.0	58.0
57.7	13:03:27		57.7	57.7
59.1	13:03:28		59.1	59.1
58.8	13:03:29		58.8	58.8
57.1	13:03:30		57.1	57.1
57.3	13:03:31		57.3	57.3
60.8	13:03:32		60.8	60.8
64.0	13:03:33		64.0	64.0
61.8	13:03:34		61.8	61.8
59.8	13:03:35		59.8	59.8
58.8	13:03:36		58.8	58.8
57.0	13:03:37		57.0	57.0
58.3	13:03:38		58.3	58.3
57.7	13:03:39		57.7	57.7
61.7	13:03:40		61.7	61.7
61.6	13:03:41		61.6	61.6
60.6	13:03:42		60.6	60.6
60.1	13:03:43		60.1	60.1
59.6	13:03:44		59.6	59.6
57.5	13:03:45		57.5	57.5
57.4	13:03:46		57.4	57.4
62.2	13:03:47		62.2	62.2
62.9	13:03:48		62.9	62.9
62.8	13:03:49		62.8	62.8
61.6	13:03:50		61.6	61.6
59.5	13:03:51		59.5	59.5
59.7	13:03:52		59.7	59.7
59.4	13:03:53		59.4	59.4
57.8	13:03:54		57.8	57.8
55.9	13:03:55		55.9	55.9
54.6	13:03:56		54.6	54.6
66.6	13:03:57		66.6	66.6
67.2	13:03:58		67.2	67.2
63.6	13:03:59		63.6	63.6
62.0	13:04:00		62.0	62.0
62.8	13:04:01		62.8	62.8
63.3	13:04:02		63.3	63.3
61.1	13:04:03		61.1	61.1
62.6	13:04:04		62.6	62.6
69.8	13:04:05		69.8	69.8
71.0	13:04:06		71.0	71.0
73.5	13:04:07		73.5	73.5
70.1	13:04:08		70.1	70.1
66.6	13:04:09		66.6	66.6
63.1	13:04:10		63.1	63.1
60.4	13:04:11		60.4	60.4
60.0	13:04:12		60.0	60.0
58.4	13:04:13		58.4	58.4
57.0	13:04:14		57.0	57.0
57.8	13:04:15		57.8	57.8
57.2	13:04:16		57.2	57.2
57.0	13:04:17		57.0	57.0
58.5	13:04:18		58.5	58.5
60.1	13:04:19		60.1	60.1
61.9	13:04:20		61.9	61.9
59.6	13:04:21		59.6	59.6
58.8	13:04:22		58.8	58.8
61.0	13:04:23		61.0	61.0
62.3	13:04:24		62.3	62.3
62.8	13:04:25		62.8	62.8
62.7	13:04:26		62.7	62.7
61.3	13:04:27		61.3	61.3
60.8	13:04:28		60.8	60.8
60.9	13:04:29		60.9	60.9
60.0	13:04:30		60.0	60.0
59.8	13:04:31		59.8	59.8
59.2	13:04:32		59.2	59.2
61.8	13:04:33		61.8	61.8
63.8	13:04:34		63.8	63.8
66.9	13:04:35		66.9	66.9
65.4	13:04:36		65.4	65.4
62.3	13:04:37		62.3	62.3
59.6	13:04:38		59.6	59.6
58.6	13:04:39		58.6	58.6
59.3	13:04:40		59.3	59.3
61.1	13:04:41		61.1	61.1
63.9	13:04:42		63.9	63.9
62.9	13:04:43		62.9	62.9
63.0	13:04:44		63.0	63.0
64.0	13:04:45		64.0	64.0
61.4	13:04:46		61.4	61.4
60.1	13:04:47		60.1	60.1
62.3	13:04:48		62.3	62.3
62.8	13:04:49		62.8	62.8
63.5	13:04:50		63.5	63.5
64.6	13:04:51		64.6	64.6
64.3	13:04:52		64.3	64.3
65.5	13:04:53		65.5	65.5
65.5	13:04:54		65.5	65.5
66.7	13:04:55		66.7	66.7
68.9	13:04:56		68.9	68.9
69.5	13:04:57		69.5	69.5
71.2	13:04:58		71.2	71.2
71.8	13:04:59		71.8	71.8
72.5	13:05:00		72.5	72.5
72.6	13:05:01		72.6	72.6
71.4	13:05:02		71.4	71.4
70.8	13:05:03		70.8	70.8
69.1	13:05:04		69.1	69.1
69.1	13:05:05		69.1	69.1
72.0	13:05:06		72.0	72.0
70.6	13:05:07		70.6	70.6
68.4	13:05:08		68.4	68.4
67.1	13:05:09		67.1	67.1
68.1	13:05:10		68.1	68.1
67.8	13:05:11		67.8	67.8
67.2	13:05:12		67.2	67.2
65.3	13:05:13		65.3	65.3
63.4	13:05:14		63.4	63.4
62.9	13:05:15		62.9	62.9
62.5	13:05:16		62.5	62.5
64.1	13:05:17		64.1	64.1
65.4	13:05:18		65.4	65.4
65.7	13:05:19		65.7	65.7
64.3	13:05:20		64.3	64.3
62.6	13:05:21		62.6	62.6
60.8	13:05:22		60.8	60.8
61.3	13:05:23		61.3	61.3
60.1	13:05:24		60.1	60.1
59.1	13:05:25		59.1	59.1
58.1	13:05:26		58.1	58.1
63.2	13:05:27		63.2	63.2
66.3	13:05:28		66.3	66.3
64.9	13:05:29		64.9	64.9
64.7	13:05:30		64.7	64.7
63.6	13:05:31		63.6	63.6
62.5	13:05:32		62.5	62.5
60.5	13:05:33		60.5	60.5
59.4	13:05:34		59.4	59.4
58.6	13:05:35		58.6	58.6
58.1	13:05:36		58.1	58.1
59.0	13:05:37		59.0	59.0
58.6	13:05:38		58.6	58.6
61.9	13:05:39		61.9	61.9
61.2	13:05:40		61.2	61.2
59.7	13:05:41		59.7	59.7
63.4	13:05:42		63.4	63.4
62.5	13:05:43		62.5	62.5
60.6	13:05:44		60.6	60.6
59.8	13:05:45		59.8	59.8
59.1	13:05:46		59.1	59.1
58.8	13:05:47		58.8	58.8
60.1	13:05:48		60.1	60.1
62.6	13:05:49		62.6	62.6
60.0	13:05:50		60.0	60.0
60.0	13:05:51		60.0	60.0
59.2	13:05:52		59.2	59.2
59.8	13:05:53		59.8	59.8
58.7	13:05:54		58.7	58.7
59.4	13:05:55		59.4	59.4
63.3	13:05:56		63.3	63.3
63.2	13:05:57		63.2	63.2
64.4	13:05:58		64.4	64.4
64.8	13:05:59		64.8	64.8
65.3	13:06:00		65.3	65.3
64.1	13:06:01		64.1	64.1
62.7	13:06:02		62.7	62.7
60.2	13:06:03		60.2	60.2

Site 2 - Southwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.0	13:12:31		59.0	59.0
60.9	13:12:32		60.9	60.9
62.1	13:12:33		62.1	62.1
62.0	13:12:34		62.0	62.0
61.9	13:12:35		61.9	61.9
61.0	13:12:36		61.0	61.0
60.1	13:12:37		60.1	60.1
60.1	13:12:38		60.1	60.1
59.8	13:12:39		59.8	59.8
59.8	13:12:40		59.8	59.8
59.4	13:12:41		59.4	59.4
59.8	13:12:42		59.8	59.8
61.9	13:12:43		61.9	61.9
64.6	13:12:44		64.6	64.6
63.4	13:12:45		63.4	63.4
62.5	13:12:46		62.5	62.5
62.4	13:12:47		62.4	62.4
61.8	13:12:48		61.8	61.8
60.2	13:12:49		60.2	60.2
59.0	13:12:50		59.0	59.0
58.1	13:12:51		58.1	58.1
57.4	13:12:52		57.4	57.4
57.2	13:12:53		57.2	57.2
57.6	13:12:54		57.6	57.6
57.8	13:12:55		57.8	57.8
58.0	13:12:56		58.0	58.0
58.8	13:12:57		58.8	58.8
59.6	13:12:58		59.6	59.6
62.5	13:12:59		62.5	62.5
66.4	13:13:00		66.4	66.4
68.5	13:13:01		68.5	68.5
66.2	13:13:02		66.2	66.2
66.0	13:13:03		66.0	66.0
66.6	13:13:04		66.6	66.6
65.4	13:13:05		65.4	65.4
64.3	13:13:06		64.3	64.3
64.7	13:13:07		64.7	64.7
66.0	13:13:08		66.0	66.0
66.4	13:13:09		66.4	66.4
67.4	13:13:10		67.4	67.4
66.5	13:13:11		66.5	66.5
65.1	13:13:12		65.1	65.1
64.4	13:13:13		64.4	64.4
65.1	13:13:14		65.1	65.1
66.1	13:13:15		66.1	66.1
64.8	13:13:16		64.8	64.8
63.2	13:13:17		63.2	63.2
62.1	13:13:18		62.1	62.1
60.7	13:13:19		60.7	60.7
59.8	13:13:20		59.8	59.8
59.9	13:13:21		59.9	59.9
61.9	13:13:22		61.9	61.9
66.1	13:13:23		66.1	66.1
66.8	13:13:24		66.8	66.8
66.0	13:13:25		66.0	66.0
67.9	13:13:26		67.9	67.9
70.5	13:13:27		70.5	70.5
71.3	13:13:28		71.3	71.3
69.7	13:13:29		69.7	69.7
66.8	13:13:30		66.8	66.8
65.1	13:13:31		65.1	65.1
63.2	13:13:32		63.2	63.2
61.5	13:13:33		61.5	61.5
60.4	13:13:34		60.4	60.4
60.1	13:13:35		60.1	60.1
60.8	13:13:36		60.8	60.8
61.5	13:13:37		61.5	61.5
60.2	13:13:38		60.2	60.2
60.1	13:13:39		60.1	60.1
61.2	13:13:40		61.2	61.2
62.4	13:13:41		62.4	62.4
63.5	13:13:42		63.5	63.5
65.6	13:13:43		65.6	65.6
66.5	13:13:44		66.5	66.5
66.5	13:13:45		66.5	66.5
66.9	13:13:46		66.9	66.9
67.9	13:13:47		67.9	67.9
69.1	13:13:48		69.1	69.1
69.8	13:13:49		69.8	69.8
68.8	13:13:50		68.8	68.8
68.4	13:13:51		68.4	68.4
68.6	13:13:52		68.6	68.6
68.4	13:13:53		68.4	68.4
67.2	13:13:54		67.2	67.2
66.4	13:13:55		66.4	66.4
66.8	13:13:56		66.8	66.8
69.5	13:13:57		69.5	69.5
72.5	13:13:58		72.5	72.5
74.8	13:13:59		74.8	74.8
73.8	13:14:00		73.8	73.8
72.7	13:14:01		72.7	72.7
71.0	13:14:02		71.0	71.0
71.2	13:14:03		71.2	71.2
70.4	13:14:04		70.4	70.4
70.8	13:14:05		70.8	70.8
70.8	13:14:06		70.8	70.8
70.3	13:14:07		70.3	70.3
69.4	13:14:08		69.4	69.4
69.7	13:14:09		69.7	69.7
69.4	13:14:10		69.4	69.4
69.7	13:14:11		69.7	69.7
69.5	13:14:12		69.5	69.5
69.9	13:14:13		69.9	69.9
68.9	13:14:14		68.9	68.9
68.0	13:14:15		68.0	68.0
68.3	13:14:16		68.3	68.3
69.7	13:14:17		69.7	69.7
72.3	13:14:18		72.3	72.3
74.2	13:14:19		74.2	74.2
73.6	13:14:20		73.6	73.6
71.3	13:14:21		71.3	71.3
69.0	13:14:22		69.0	69.0
66.7	13:14:23		66.7	66.7
64.6	13:14:24		64.6	64.6
62.8	13:14:25		62.8	62.8
61.4	13:14:26		61.4	61.4
60.6	13:14:27		60.6	60.6
60.5	13:14:28		60.5	60.5
61.1	13:14:29		61.1	61.1
63.2	13:14:30		63.2	63.2
66.4	13:14:31		66.4	66.4
67.1	13:14:32		67.1	67.1
65.9	13:14:33		65.9	65.9
67.3	13:14:34		67.3	67.3
70.4	13:14:35		70.4	70.4
70.1	13:14:36		70.1	70.1
70.9	13:14:37		70.9	70.9
70.5	13:14:38		70.5	70.5
71.7	13:14:39		71.7	71.7
70.5	13:14:40		70.5	70.5
69.2	13:14:41		69.2	69.2
70.2	13:14:42		70.2	70.2
70.3	13:14:43		70.3	70.3
69.3	13:14:44		69.3	69.3
68.3	13:14:45		68.3	68.3
66.9	13:14:46		66.9	66.9
65.2	13:14:47		65.2	65.2
63.4	13:14:48		63.4	63.4
61.6	13:14:49		61.6	61.6
60.1	13:14:50		60.1	60.1
59.3	13:14:51		59.3	59.3
58.2	13:14:52		58.2	58.2
57.5	13:14:53		57.5	57.5
57.1	13:14:54		57.1	57.1
57.0	13:14:55		57.0	57.0
57.1	13:14:56		57.1	57.1
56.9	13:14:57		56.9	56.9
56.3	13:14:58		56.3	56.3
56.0	13:14:59		56.0	56.0
55.8	13:15:00		55.8	55.8
55.8	13:15:01		55.8	55.8
55.4	13:15:02		55.4	55.4
54.7	13:15:03		54.7	54.7
54.2	13:15:04		54.2	54.2
53.8	13:15:05		53.8	53.8
53.3	13:15:06		53.3	53.3
53.2	13:15:07		53.2	53.2
53.3	13:15:08		53.3	53.3
53.7	13:15:09		53.7	53.7
53.9	13:15:10		53.9	53.9
53.7	13:15:11		53.7	53.7
53.5	13:15:12		53.5	53.5

Site 1 - Near Northwest Corner of Project Site					Site 2 - Southwest Corner of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
58.8	13:06:04		58.8	58.8	53.5	13:15:13		53.5	53.5
58.2	13:06:05		58.2	58.2	53.8	13:15:14		53.8	53.8
60.3	13:06:06		60.3	60.3	54.2	13:15:15		54.2	54.2
60.4	13:06:07		60.4	60.4	54.3	13:15:16		54.3	54.3
57.8	13:06:08		57.8	57.8	54.8	13:15:17		54.8	54.8
59.2	13:06:09		59.2	59.2	55.1	13:15:18		55.1	55.1
60.8	13:06:10		60.8	60.8	55.5	13:15:19		55.5	55.5
62.1	13:06:11		62.1	62.1	56.0	13:15:20		56.0	56.0
59.3	13:06:12		59.3	59.3	56.2	13:15:21		56.2	56.2
56.5	13:06:13		56.5	56.5	55.9	13:15:22		55.9	55.9
54.5	13:06:14		54.5	54.5	55.7	13:15:23		55.7	55.7
54.8	13:06:15		54.8	54.8	55.8	13:15:24		55.8	55.8
54.9	13:06:16		54.9	54.9	56.5	13:15:25		56.5	56.5
55.8	13:06:17		55.8	55.8	58.2	13:15:26		58.2	58.2
57.0	13:06:18		57.0	57.0	60.4	13:15:27		60.4	60.4
56.6	13:06:19		56.6	56.6	64.1	13:15:28		64.1	64.1
56.6	13:06:20		56.6	56.6	67.3	13:15:29		67.3	67.3
56.6	13:06:21		56.6	56.6	67.2	13:15:30		67.2	67.2
57.7	13:06:22		57.7	57.7	68.7	13:15:31		68.7	68.7
59.0	13:06:23		59.0	59.0	70.1	13:15:32		70.1	70.1
62.1	13:06:24		62.1	62.1	70.1	13:15:33		70.1	70.1
64.3	13:06:25		64.3	64.3	70.1	13:15:34		70.1	70.1
68.8	13:06:26		68.8	68.8	69.1	13:15:35		69.1	69.1
67.0	13:06:27		67.0	67.0	69.3	13:15:36		69.3	69.3
64.6	13:06:28		64.6	64.6	70.2	13:15:37		70.2	70.2
61.8	13:06:29		61.8	61.8	71.5	13:15:38		71.5	71.5
60.5	13:06:30		60.5	60.5	73.0	13:15:39		73.0	73.0
59.0	13:06:31		59.0	59.0	74.6	13:15:40		74.6	74.6
59.0	13:06:32		59.0	59.0	73.1	13:15:41		73.1	73.1
59.5	13:06:33		59.5	59.5	71.4	13:15:42		71.4	71.4
60.6	13:06:34		60.6	60.6	68.9	13:15:43		68.9	68.9
60.9	13:06:35		60.9	60.9	67.3	13:15:44		67.3	67.3
58.5	13:06:36		58.5	58.5	66.0	13:15:45		66.0	66.0
57.9	13:06:37		57.9	57.9	64.7	13:15:46		64.7	64.7
56.7	13:06:38		56.7	56.7	63.9	13:15:47		63.9	63.9
58.6	13:06:39		58.6	58.6	63.8	13:15:48		63.8	63.8
60.2	13:06:40		60.2	60.2	64.3	13:15:49		64.3	64.3
58.0	13:06:41		58.0	58.0	67.7	13:15:50		67.7	67.7
56.6	13:06:42		56.6	56.6	67.3	13:15:51		67.3	67.3
55.8	13:06:43		55.8	55.8	65.8	13:15:52		65.8	65.8
55.5	13:06:44		55.5	55.5	64.8	13:15:53		64.8	64.8
56.1	13:06:45		56.1	56.1	64.0	13:15:54		64.0	64.0
56.0	13:06:46		56.0	56.0	63.3	13:15:55		63.3	63.3
56.9	13:06:47		56.9	56.9	62.8	13:15:56		62.8	62.8
55.3	13:06:48		55.3	55.3	61.8	13:15:57		61.8	61.8
53.5	13:06:49		53.5	53.5	61.2	13:15:58		61.2	61.2
53.9	13:06:50		53.9	53.9	61.5	13:15:59		61.5	61.5
60.9	13:06:51		60.9	60.9	64.0	13:16:00		64.0	64.0
59.9	13:06:52		59.9	59.9	66.7	13:16:01		66.7	66.7
58.0	13:06:53		58.0	58.0	65.5	13:16:02		65.5	65.5
57.7	13:06:54		57.7	57.7	65.5	13:16:03		65.5	65.5
57.5	13:06:55		57.5	57.5	67.4	13:16:04		67.4	67.4
56.7	13:06:56		56.7	56.7	66.4	13:16:05		66.4	66.4
59.7	13:06:57		59.7	59.7	65.0	13:16:06		65.0	65.0
62.2	13:06:58		62.2	62.2	65.7	13:16:07		65.7	65.7
61.8	13:06:59		61.8	61.8	65.7	13:16:08		65.7	65.7
59.7	13:07:00		59.7	59.7	64.1	13:16:09		64.1	64.1
57.4	13:07:01		57.4	57.4	63.7	13:16:10		63.7	63.7
57.0	13:07:02		57.0	57.0	63.0	13:16:11		63.0	63.0
59.7	13:07:03		59.7	59.7	61.3	13:16:12		61.3	61.3
58.6	13:07:04		58.6	58.6	60.1	13:16:13		60.1	60.1
58.1	13:07:05		58.1	58.1	59.3	13:16:14		59.3	59.3
57.8	13:07:06		57.8	57.8	58.8	13:16:15		58.8	58.8
60.0	13:07:07		60.0	60.0	59.3	13:16:16		59.3	59.3
60.8	13:07:08		60.8	60.8	60.6	13:16:17		60.6	60.6
59.1	13:07:09		59.1	59.1	63.3	13:16:18		63.3	63.3
57.4	13:07:10		57.4	57.4	65.6	13:16:19		65.6	65.6
57.1	13:07:11		57.1	57.1	64.6	13:16:20		64.6	64.6
59.6	13:07:12		59.6	59.6	64.2	13:16:21		64.2	64.2
59.7	13:07:13		59.7	59.7	64.9	13:16:22		64.9	64.9
57.4	13:07:14		57.4	57.4	64.4	13:16:23		64.4	64.4
57.3	13:07:15		57.3	57.3	62.5	13:16:24		62.5	62.5
61.9	13:07:16		61.9	61.9	61.3	13:16:25		61.3	61.3
59.5	13:07:17		59.5	59.5	60.0	13:16:26		60.0	60.0
57.7	13:07:18		57.7	57.7	60.4	13:16:27		60.4	60.4
57.1	13:07:19		57.1	57.1	63.7	13:16:28		63.7	63.7
56.7	13:07:20		56.7	56.7	66.6	13:16:29		66.6	66.6
56.1	13:07:21		56.1	56.1	68.3	13:16:30		68.3	68.3
59.1	13:07:22		59.1	59.1	69.4	13:16:31		69.4	69.4
60.3	13:07:23		60.3	60.3	70.6	13:16:32		70.6	70.6
58.0	13:07:24		58.0	58.0	72.1	13:16:33		72.1	72.1
60.6	13:07:25		60.6	60.6	73.2	13:16:34		73.2	73.2
61.7	13:07:26		61.7	61.7	72.3	13:16:35		72.3	72.3
59.9	13:07:27		59.9	59.9	71.2	13:16:36		71.2	71.2
60.1	13:07:28		60.1	60.1	70.7	13:16:37		70.7	70.7
60.4	13:07:29		60.4	60.4	70.6	13:16:38		70.6	70.6
60.4	13:07:30		60.4	60.4	71.5	13:16:39		71.5	71.5
61.7	13:07:31		61.7	61.7	72.5	13:16:40		72.5	72.5
63.7	13:07:32		63.7	63.7	72.1	13:16:41		72.1	72.1
64.7	13:07:33		64.7	64.7	71.9	13:16:42		71.9	71.9
63.2	13:07:34		63.2	63.2	71.5	13:16:43		71.5	71.5
59.9	13:07:35		59.9	59.9	71.2	13:16:44		71.2	71.2
57.3	13:07:36		57.3	57.3	70.4	13:16:45		70.4	70.4
59.2	13:07:37		59.2	59.2	69.7	13:16:46		69.7	69.7
61.8	13:07:38		61.8	61.8	70.0	13:16:47		70.0	70.0
60.6	13:07:39		60.6	60.6	70.1	13:16:48		70.1	70.1
58.8	13:07:40		58.8	58.8	68.7	13:16:49		68.7	68.7
56.8	13:07:41		56.8	56.8	67.0	13:16:50		67.0	67.0
56.5	13:07:42		56.5	56.5	65.7	13:16:51		65.7	65.7
59.7	13:07:43		59.7	59.7	64.4	13:16:52		64.4	64.4
62.6	13:07:44		62.6	62.6	63.1	13:16:53		63.1	63.1
62.0	13:07:45		62.0	62.0	62.2	13:16:54		62.2	62.2
62.4	13:07:46		62.4	62.4	61.1	13:16:55		61.1	61.1
62.2	13:07:47		62.2	62.2	60.2	13:16:56		60.2	60.2
61.6	13:07:48		61.6	61.6	60.3	13:16:57		60.3	60.3
60.3	13:07:49		60.3	60.3	61.6	13:16:58		61.6	61.6
59.3	13:07:50		59.3	59.3	63.0	13:16:59		63.0	63.0
60.2	13:07:51		60.2	60.2	62.5	13:17:00		62.5	62.5
62.2	13:07:52		62.2	62.2	62.4	13:17:01		62.4	62.4
61.6	13:07:53		61.6	61.6	63.2	13:17:02		63.2	63.2
62.0	13:07:54		62.0	62.0	62.6	13:17:03		62.6	62.6
59.8	13:07:55		59.8	59.8	62.2	13:17:04		62.2	62.2
58.3	13:07:56		58.3	58.3	62.0	13:17:05		62.0	62.0
59.2	13:07:57		59.2	59.2	62.4	13:17:06		62.4	62.4
59.3	13:07:58		59.3	59.3	63.0	13:17:07		63.0	63.0
59.0	13:07:59		59.0	59.0	63.4	13:17:08		63.4	63.4
58.6	13:08:00		58.6	58.6	63.3	13:17:09		63.3	63.3
61.8	13:08:01		61.8	61.8	63.0	13:17:10		63.0	63.0
63.2	13:08:02		63.2	63.2	62.7	13:17:11		62.7	62.7
62.2	13:08:03		62.2	62.2	62.3	13:17:12		62.3	62.3
60.9	13:08:04		60.9	60.9	61.8	13:17:13		61.8	61.8
60.6	13:08:05		60.6	60.6	61.4	13:17:14		61.4	61.4
59.5	13:08:06		59.5	59.5	60.9	13:17:15		60.9	60.9
63.7	13:08:07		63.7	63.7	60.3	13:17:16		60.3	60.3
65.3	13:08:08		65.3	65.3	60.1	13:17:17		60.1	60.1
65.0	13:08:09		65.0	65.0	61.5	13:17:18		61.5	61.5
64.2	13:08:10		64.2	64.2	61.7	13:17:19		61.7	61.7
63.6	13:08:11		63.6	63.6	60.7	13:17:20		60.7	60.7
63.8	13:08:12		63.8	63.8	62.1	13:17:21		62.1	62.1
63.2	13:08:13		63.2	63.2	65.8	13:17:22		65.8	65.8
62.0	13:08:14		62.0	62.0	65.9	13:17:23		65.9	65.9
61.3	13:08:15		61.3	61.3	64.0	13:17:24		64.0	64.0
60.3	13:08:16		60.3	60.3	63.8	13:17:25		63.8	63.8
60.0	13:08:17		60.0	60.0	62.0	13:17:26		62.0	62.0
62.7	13:08:18		62.7	62.7	60.8	13:17:27		60.8	60.8
63.3	13:08:19		63.3	63.3	60.2	13:17:28		60.2	60.2
63.0	13:08:20		63.0	63.0	59.4	13:17:29		59.4	59.4
61.8	13:08:21		61.8	61.8	60.0	13:17:30		60.0	60.0
61.6	13:08:22		61.6	61.6	62.0	13:17:31		62.0	62.0
59.4	13:08:23		59.4	59.4	64.5	13:17:32		64.5	64.5
60.3	13:08:24		60.3	60.3	68.5	13:17:33		68.5	68.5
59.6	13:08:25		59.6	59.6	68.6	13:17:34		68.6	68.6
58.5	13:08:26		58.5	58.5	70.7	13:17:35		70.7	70.7
57.2	13:08:27		57.2	57.2	70.6	13:17:36		70.6	70.6
55.8	13:08:28		55.8	55.8	70.8	13:17:37		70.8	70.8
55.5	13:08:29		55.5	55.5	70.7	13:17:38		70.7	70.7
55.3	13:08:30		55.3	55.3	69.2	13:17:39		69.2	69.2
55.0	13:08:31		55.0	55.0	70.5	13:17:40		70.5	70.5
57.8	13:08:32		57.8	57.8	70.4	13:17:41		70.4	70.4
57.8	13:08:33		57.8	57.8	69.7	13:17:42		69.7	69.7
56.2	13:08:34		56.2	56.2	70.4	13:17:43		70.4	70.4
55.9	13:08:35		55.9	55.9	70.4	13:17:44		70.4	70.4
54.7	13:08:36		54.7	54.7	69.4	13:17:45		69.4	69.4
56.5	13:08:37		56.5	56.5	69.3	13:17:46		69.3	69.3
58.3	13:08:38		58.3	58.3	70.3	13:17:47		70.3	70.3
57.7	13:08:39		57.7	57.7	68.9	13:17:48		68.9	68.9
57.0	13:08:40		57.0	57.0	68.2	13:17:49		68.2	68.2
57.4	13:08:41		57.4	57.4	68.1	13:17:50		68.1	68.1
56.5	13:08:42		56.5	56.5	67.0	13:17:51		67.0	67.0
57.1	13:08:43		57.1	57.1	65.9	13:17:52		65.9	65.9
59.0	13:08:44		59.0	59.0	66.6	13:17:53		66.6	66.6
59.3	13:08:45		59.3	59.3	67.8	13:17:54		67.8	67.8

Site 1 - Near Northwest Corner of Project Site					Site 2 - Southwest Corner of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
58.7	13:08:46		58.7	58.7	69.2	13:17:55		69.2	69.2
57.0	13:08:47		57.0	57.0	70.7	13:17:56		70.7	70.7
55.2	13:08:48		55.2	55.2	70.4	13:17:57		70.4	70.4
64.3	13:08:49		64.3	64.3	70.4	13:17:58		70.4	70.4
64.1	13:08:50		64.1	64.1	71.2	13:17:59		71.2	71.2
61.5	13:08:51		61.5	61.5	70.5	13:18:00		70.5	70.5
59.4	13:08:52		59.4	59.4	72.7	13:18:01		72.7	72.7
58.2	13:08:53		58.2	58.2	73.9	13:18:02		73.9	73.9
59.8	13:08:54		59.8	59.8	73.8	13:18:03		73.8	73.8
59.7	13:08:55		59.7	59.7	74.4	13:18:04		74.4	74.4
64.3	13:08:56		64.3	64.3	73.9	13:18:05		73.9	73.9
63.8	13:08:57		63.8	63.8	72.3	13:18:06		72.3	72.3
61.0	13:08:58		61.0	61.0	70.5	13:18:07		70.5	70.5
59.7	13:08:59		59.7	59.7	68.8	13:18:08		68.8	68.8
61.2	13:09:00		61.2	61.2	68.5	13:18:09		68.5	68.5
62.8	13:09:01		62.8	62.8	68.4	13:18:10		68.4	68.4
64.9	13:09:02		64.9	64.9	69.4	13:18:11		69.4	69.4
64.5	13:09:03		64.5	64.5	72.4	13:18:12		72.4	72.4
61.3	13:09:04		61.3	61.3	74.2	13:18:13		74.2	74.2
59.5	13:09:05		59.5	59.5	74.5	13:18:14		74.5	74.5
58.3	13:09:06		58.3	58.3	73.2	13:18:15		73.2	73.2
58.2	13:09:07		58.2	58.2	72.1	13:18:16		72.1	72.1
57.5	13:09:08		57.5	57.5	71.8	13:18:17		71.8	71.8
58.2	13:09:09		58.2	58.2	74.4	13:18:18		74.4	74.4
61.8	13:09:10		61.8	61.8	75.5	13:18:19		75.5	75.5
62.7	13:09:11		62.7	62.7	73.7	13:18:20		73.7	73.7
64.7	13:09:12		64.7	64.7	73.4	13:18:21		73.4	73.4
65.5	13:09:13		65.5	65.5	73.3	13:18:22		73.3	73.3
65.3	13:09:14		65.3	65.3	73.0	13:18:23		73.0	73.0
63.4	13:09:15		63.4	63.4	73.2	13:18:24		73.2	73.2
61.1	13:09:16		61.1	61.1	74.3	13:18:25		74.3	74.3
62.8	13:09:17		62.8	62.8	74.1	13:18:26		74.1	74.1
69.2	13:09:18		69.2	69.2	71.8	13:18:27		71.8	71.8
70.6	13:09:19		70.6	70.6	69.3	13:18:28		69.3	69.3
67.7	13:09:20		67.7	67.7	66.8	13:18:29		66.8	66.8
63.9	13:09:21		63.9	63.9	64.7	13:18:30		64.7	64.7
61.1	13:09:22		61.1	61.1	63.7	13:18:31		63.7	63.7
61.9	13:09:23		61.9	61.9	63.3	13:18:32		63.3	63.3
63.1	13:09:24		63.1	63.1	63.2	13:18:33		63.2	63.2
65.3	13:09:25		65.3	65.3	63.0	13:18:34		63.0	63.0
66.4	13:09:26		66.4	66.4	63.1	13:18:35		63.1	63.1
65.9	13:09:27		65.9	65.9	64.0	13:18:36		64.0	64.0
63.3	13:09:28		63.3	63.3	63.7	13:18:37		63.7	63.7
61.6	13:09:29		61.6	61.6	63.3	13:18:38		63.3	63.3
62.0	13:09:30		62.0	62.0	64.4	13:18:39		64.4	64.4
59.9	13:09:31		59.9	59.9	65.9	13:18:40		65.9	65.9
58.8	13:09:32		58.8	58.8	65.9	13:18:41		65.9	65.9
61.6	13:09:33		61.6	61.6	67.0	13:18:42		67.0	67.0
60.3	13:09:34		60.3	60.3	67.0	13:18:43		67.0	67.0
58.7	13:09:35		58.7	58.7	65.7	13:18:44		65.7	65.7
56.9	13:09:36		56.9	56.9	64.7	13:18:45		64.7	64.7
63.3	13:09:37		63.3	63.3	63.5	13:18:46		63.5	63.5
61.7	13:09:38		61.7	61.7	63.3	13:18:47		63.3	63.3
62.9	13:09:39		62.9	62.9	63.1	13:18:48		63.1	63.1
64.9	13:09:40		64.9	64.9	62.3	13:18:49		62.3	62.3
65.4	13:09:41		65.4	65.4	61.9	13:18:50		61.9	61.9
62.5	13:09:42		62.5	62.5	61.5	13:18:51		61.5	61.5
59.7	13:09:43		59.7	59.7	61.6	13:18:52		61.6	61.6
57.9	13:09:44		57.9	57.9	63.5	13:18:53		63.5	63.5
56.7	13:09:45		56.7	56.7	66.2	13:18:54		66.2	66.2
57.1	13:09:46		57.1	57.1	68.3	13:18:55		68.3	68.3
59.4	13:09:47		59.4	59.4	68.5	13:18:56		68.5	68.5
60.6	13:09:48		60.6	60.6	68.2	13:18:57		68.2	68.2
59.5	13:09:49		59.5	59.5	70.2	13:18:58		70.2	70.2
59.2	13:09:50		59.2	59.2	70.1	13:18:59		70.1	70.1
61.0	13:09:51		61.0	61.0	68.7	13:19:00		68.7	68.7
63.2	13:09:52		63.2	63.2	68.7	13:19:01		68.7	68.7
61.1	13:09:53		61.1	61.1	69.9	13:19:02		69.9	69.9
60.3	13:09:54		60.3	60.3	69.2	13:19:03		69.2	69.2
57.7	13:09:55		57.7	57.7	68.7	13:19:04		68.7	68.7
56.8	13:09:56		56.8	56.8	68.2	13:19:05		68.2	68.2
57.1	13:09:57		57.1	57.1	67.7	13:19:06		67.7	67.7
58.9	13:09:58		58.9	58.9	67.7	13:19:07		67.7	67.7
59.1	13:09:59		59.1	59.1	67.5	13:19:08		67.5	67.5
56.7	13:10:00		56.7	56.7	67.2	13:19:09		67.2	67.2
56.9	13:10:01		56.9	56.9	66.9	13:19:10		66.9	66.9
56.4	13:10:02		56.4	56.4	66.9	13:19:11		66.9	66.9
57.2	13:10:03		57.2	57.2	65.7	13:19:12		65.7	65.7
58.1	13:10:04		58.1	58.1	64.6	13:19:13		64.6	64.6
57.6	13:10:05		57.6	57.6	63.4	13:19:14		63.4	63.4
57.3	13:10:06		57.3	57.3	61.9	13:19:15		61.9	61.9
57.3	13:10:07		57.3	57.3	60.7	13:19:16		60.7	60.7
56.1	13:10:08		56.1	56.1	60.0	13:19:17		60.0	60.0
56.0	13:10:09		56.0	56.0	59.4	13:19:18		59.4	59.4
55.8	13:10:10		55.8	55.8	58.9	13:19:19		58.9	58.9
57.2	13:10:11		57.2	57.2	58.3	13:19:20		58.3	58.3
59.1	13:10:12		59.1	59.1	58.0	13:19:21		58.0	58.0
57.6	13:10:13		57.6	57.6	57.9	13:19:22		57.9	57.9
56.4	13:10:14		56.4	56.4	58.0	13:19:23		58.0	58.0
55.9	13:10:15		55.9	55.9	58.2	13:19:24		58.2	58.2
55.8	13:10:16		55.8	55.8	59.0	13:19:25		59.0	59.0
57.0	13:10:17		57.0	57.0	59.8	13:19:26		59.8	59.8
57.6	13:10:18		57.6	57.6	61.7	13:19:27		61.7	61.7
58.0	13:10:19		58.0	58.0	64.1	13:19:28		64.1	64.1
57.2	13:10:20		57.2	57.2	67.9	13:19:29		67.9	67.9
58.0	13:10:21		58.0	58.0	70.2	13:19:30		70.2	70.2
59.1	13:10:22		59.1	59.1	71.6	13:19:31		71.6	71.6
59.6	13:10:23		59.6	59.6	70.9	13:19:32		70.9	70.9
59.7	13:10:24		59.7	59.7	69.2	13:19:33		69.2	69.2
59.3	13:10:25		59.3	59.3	67.9	13:19:34		67.9	67.9
57.3	13:10:26		57.3	57.3	67.7	13:19:35		67.7	67.7
57.3	13:10:27		57.3	57.3	68.1	13:19:36		68.1	68.1
59.4	13:10:28		59.4	59.4	65.8	13:19:37		65.8	65.8
61.1	13:10:29		61.1	61.1	64.4	13:19:38		64.4	64.4
59.9	13:10:30		59.9	59.9	63.7	13:19:39		63.7	63.7
57.3	13:10:31		57.3	57.3	63.4	13:19:40		63.4	63.4
55.9	13:10:32		55.9	55.9	64.2	13:19:41		64.2	64.2
54.4	13:10:33		54.4	54.4	65.3	13:19:42		65.3	65.3
54.6	13:10:34		54.6	54.6	66.4	13:19:43		66.4	66.4
53.7	13:10:35		53.7	53.7	64.7	13:19:44		64.7	64.7
54.6	13:10:36		54.6	54.6	62.1	13:19:45		62.1	62.1
56.8	13:10:37		56.8	56.8	61.2	13:19:46		61.2	61.2
58.0	13:10:38		58.0	58.0	60.8	13:19:47		60.8	60.8
58.8	13:10:39		58.8	58.8	62.2	13:19:48		62.2	62.2
58.6	13:10:40		58.6	58.6	62.3	13:19:49		62.3	62.3
59.7	13:10:41		59.7	59.7	62.1	13:19:50		62.1	62.1
59.1	13:10:42		59.1	59.1	64.3	13:19:51		64.3	64.3
59.3	13:10:43		59.3	59.3	64.5	13:19:52		64.5	64.5
62.3	13:10:44		62.3	62.3	64.7	13:19:53		64.7	64.7
65.4	13:10:45		65.4	65.4	67.2	13:19:54		67.2	67.2
63.0	13:10:46		63.0	63.0	68.3	13:19:55		68.3	68.3
60.8	13:10:47		60.8	60.8	68.4	13:19:56		68.4	68.4
59.4	13:10:48		59.4	59.4	70.3	13:19:57		70.3	70.3
58.1	13:10:49		58.1	58.1	69.5	13:19:58		69.5	69.5
59.2	13:10:50		59.2	59.2	68.2	13:19:59		68.2	68.2
60.1	13:10:51		60.1	60.1	67.2	13:20:00		67.2	67.2
61.8	13:10:52		61.8	61.8	66.5	13:20:01		66.5	66.5
59.4	13:10:53		59.4	59.4	66.7	13:20:02		66.7	66.7
56.9	13:10:54		56.9	56.9	66.6	13:20:03		66.6	66.6
55.7	13:10:55		55.7	55.7	66.9	13:20:04		66.9	66.9
58.8	13:10:56		58.8	58.8	66.0	13:20:05		66.0	66.0
59.8	13:10:57		59.8	59.8	65.1	13:20:06		65.1	65.1
59.2	13:10:58		59.2	59.2	65.2	13:20:07		65.2	65.2
60.8	13:10:59		60.8	60.8	64.4	13:20:08		64.4	64.4
61.0	13:11:00		61.0	61.0	65.2	13:20:09		65.2	65.2
60.5	13:11:01		60.5	60.5	68.3	13:20:10		68.3	68.3
62.0	13:11:02		62.0	62.0	69.7	13:20:11		69.7	69.7
61.4	13:11:03		61.4	61.4	67.2	13:20:12		67.2	67.2
58.4	13:11:04		58.4	58.4	65.0	13:20:13		65.0	65.0
58.0	13:11:05		58.0	58.0	63.1	13:20:14		63.1	63.1
57.8	13:11:06		57.8	57.8	61.9	13:20:15		61.9	61.9
58.7	13:11:07		58.7	58.7	60.8	13:20:16		60.8	60.8
58.2	13:11:08		58.2	58.2	60.1	13:20:17		60.1	60.1
57.5	13:11:09		57.5	57.5	60.7	13:20:18		60.7	60.7
56.8	13:11:10		56.8	56.8	62.9	13:20:19		62.9	62.9
57.7	13:11:11		57.7	57.7	67.1	13:20:20		67.1	67.1
57.0	13:11:12		57.0	57.0	69.5	13:20:21		69.5	69.5
55.2	13:11:13		55.2	55.2	68.9	13:20:22		68.9	68.9
54.6	13:11:14		54.6	54.6	68.4	13:20:23		68.4	68.4
53.8	13:11:15		53.8	53.8	67.6	13:20:24		67.6	67.6
54.2	13:11:16		54.2	54.2	67.9	13:20:25		67.9	67.9
56.0	13:11:17		56.0	56.0	67.0	13:20:26		67.0	67.0
54.7	13:11:18		54.7	54.7	65.8	13:20:27		65.8	65.8
53.8	13:11:19		53.8	53.8	65.6	13:20:28		65.6	65.6
52.6	13:11:20		52.6	52.6	66.1	13:20:29		66.1	66.1
51.7	13:11:21		51.7	51.7	65.1	13:20:30		65.1	65.1
51.9	13:11:22		51.9	51.9	64.8	13:20:31		64.8	64.8
51.5	13:11:23		51.5	51.5	64.3	13:20:32		64.3	64.3
51.1	13:11:24		51.1	51.1	63.5	13:20:33		63.5	63.5
52.1	13:11:25		52.1	52.1	63.8	13:20:34		63.8	63.8
52.1	13:11:26		52.1	52.1	63.8	13:20:35		63.8	63.8
51.5	13:11:27		51.5	51.5	63.7	13:20:36		63.7	63.7

Site 1 - Near Northwest Corner of Project Site					Site 2 - Southwest Corner of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
55.0	13:11:28		55.0	55.0	63.6	13:20:37		63.6	63.6
54.8	13:11:29		54.8	54.8	63.8	13:20:38		63.8	63.8
53.2	13:11:30		53.2	53.2	64.1	13:20:39		64.1	64.1
51.5	13:11:31		51.5	51.5	64.9	13:20:40		64.9	64.9
51.1	13:11:32		51.1	51.1	66.2	13:20:41		66.2	66.2
53.0	13:11:33		53.0	53.0	68.5	13:20:42		68.5	68.5
52.7	13:11:34		52.7	52.7	70.6	13:20:43		70.6	70.6
51.0	13:11:35		51.0	51.0	71.7	13:20:44		71.7	71.7
50.8	13:11:36		50.8	50.8	71.7	13:20:45		71.7	71.7
50.8	13:11:37		50.8	50.8	71.9	13:20:46		71.9	71.9
52.0	13:11:38		52.0	52.0	71.0	13:20:47		71.0	71.0
55.0	13:11:39		55.0	55.0	70.7	13:20:48		70.7	70.7
57.2	13:11:40		57.2	57.2	71.4	13:20:49		71.4	71.4
57.4	13:11:41		57.4	57.4	70.4	13:20:50		70.4	70.4
56.3	13:11:42		56.3	56.3	70.2	13:20:51		70.2	70.2
55.0	13:11:43		55.0	55.0	71.1	13:20:52		71.1	71.1
53.6	13:11:44		53.6	53.6	69.8	13:20:53		69.8	69.8
53.8	13:11:45		53.8	53.8	69.1	13:20:54		69.1	69.1
55.3	13:11:46		55.3	55.3	67.4	13:20:55		67.4	67.4
54.3	13:11:47		54.3	54.3	66.2	13:20:56		66.2	66.2
53.0	13:11:48		53.0	53.0	67.5	13:20:57		67.5	67.5
52.5	13:11:49		52.5	52.5	68.6	13:20:58		68.6	68.6
51.8	13:11:50		51.8	51.8	68.9	13:20:59		68.9	68.9
55.0	13:11:51		55.0	55.0	69.2	13:21:00		69.2	69.2
57.5	13:11:52		57.5	57.5	68.2	13:21:01		68.2	68.2
55.6	13:11:53		55.6	55.6	66.0	13:21:02		66.0	66.0
54.0	13:11:54		54.0	54.0	64.4	13:21:03		64.4	64.4
53.4	13:11:55		53.4	53.4	63.6	13:21:04		63.6	63.6
53.9	13:11:56		53.9	53.9	62.8	13:21:05		62.8	62.8
54.6	13:11:57		54.6	54.6	62.8	13:21:06		62.8	62.8
53.6	13:11:58		53.6	53.6	63.3	13:21:07		63.3	63.3
52.7	13:11:59		52.7	52.7	64.4	13:21:08		64.4	64.4
54.0	13:12:00		54.0	54.0	65.3	13:21:09		65.3	65.3
53.9	13:12:01		53.9	53.9	64.7	13:21:10		64.7	64.7
53.6	13:12:02		53.6	53.6	64.3	13:21:11		64.3	64.3
53.2	13:12:03		53.2	53.2	63.7	13:21:12		63.7	63.7
53.3	13:12:04		53.3	53.3	63.1	13:21:13		63.1	63.1
53.9	13:12:05		53.9	53.9	62.4	13:21:14		62.4	62.4
56.8	13:12:06		56.8	56.8	61.7	13:21:15		61.7	61.7
54.9	13:12:07		54.9	54.9	60.7	13:21:16		60.7	60.7
55.7	13:12:08		55.7	55.7	59.9	13:21:17		59.9	59.9
57.6	13:12:09		57.6	57.6	60.6	13:21:18		60.6	60.6
57.2	13:12:10		57.2	57.2	67.7	13:21:19		67.7	67.7
55.2	13:12:11		55.2	55.2	66.6	13:21:20		66.6	66.6
54.9	13:12:12		54.9	54.9	66.2	13:21:21		66.2	66.2
54.2	13:12:13		54.2	54.2	67.6	13:21:22		67.6	67.6
54.5	13:12:14		54.5	54.5	65.8	13:21:23		65.8	65.8
53.8	13:12:15		53.8	53.8	63.7	13:21:24		63.7	63.7
52.7	13:12:16		52.7	52.7	61.6	13:21:25		61.6	61.6
52.3	13:12:17		52.3	52.3	60.3	13:21:26		60.3	60.3
53.6	13:12:18		53.6	53.6	59.7	13:21:27		59.7	59.7
52.8	13:12:19		52.8	52.8	60.5	13:21:28		60.5	60.5
53.0	13:12:20		53.0	53.0	62.5	13:21:29		62.5	62.5
53.3	13:12:21		53.3	53.3	64.8	13:21:30		64.8	64.8
52.6	13:12:22		52.6	52.6	67.6	13:21:31		67.6	67.6
51.5	13:12:23		51.5	51.5	67.4	13:21:32		67.4	67.4
52.0	13:12:24		52.0	52.0	67.0	13:21:33		67.0	67.0
52.6	13:12:25		52.6	52.6	67.4	13:21:34		67.4	67.4
53.5	13:12:26		53.5	53.5	68.8	13:21:35		68.8	68.8
54.7	13:12:27		54.7	54.7	68.9	13:21:36		68.9	68.9
54.5	13:12:28		54.5	54.5	68.2	13:21:37		68.2	68.2
54.6	13:12:29		54.6	54.6	68.0	13:21:38		68.0	68.0
53.9	13:12:30		53.9	53.9	68.7	13:21:39		68.7	68.7
53.4	13:12:31		53.4	53.4	68.7	13:21:40		68.7	68.7
53.5	13:12:32		53.5	53.5	68.0	13:21:41		68.0	68.0
54.1	13:12:33		54.1	54.1	66.8	13:21:42		66.8	66.8
56.2	13:12:34		56.2	56.2	66.6	13:21:43		66.6	66.6
55.2	13:12:35		55.2	55.2	67.0	13:21:44		67.0	67.0
53.3	13:12:36		53.3	53.3	65.9	13:21:45		65.9	65.9
52.3	13:12:37		52.3	52.3	65.7	13:21:46		65.7	65.7
51.3	13:12:38		51.3	51.3	65.4	13:21:47		65.4	65.4
55.9	13:12:39		55.9	55.9	64.1	13:21:48		64.1	64.1
56.7	13:12:40		56.7	56.7	63.6	13:21:49		63.6	63.6
55.3	13:12:41		55.3	55.3	62.9	13:21:50		62.9	62.9
53.8	13:12:42		53.8	53.8	62.0	13:21:51		62.0	62.0
53.2	13:12:43		53.2	53.2	61.1	13:21:52		61.1	61.1
54.0	13:12:44		54.0	54.0	60.3	13:21:53		60.3	60.3
53.8	13:12:45		53.8	53.8	59.8	13:21:54		59.8	59.8
52.4	13:12:46		52.4	52.4	59.0	13:21:55		59.0	59.0
51.8	13:12:47		51.8	51.8	58.1	13:21:56		58.1	58.1
51.5	13:12:48		51.5	51.5	57.5	13:21:57		57.5	57.5
52.0	13:12:49		52.0	52.0	57.0	13:21:58		57.0	57.0
52.7	13:12:50		52.7	52.7	56.8	13:21:59		56.8	56.8
52.5	13:12:51		52.5	52.5	58.3	13:22:00		58.3	58.3
52.9	13:12:52		52.9	52.9	59.8	13:22:01		59.8	59.8
52.7	13:12:53		52.7	52.7	61.2	13:22:02		61.2	61.2
51.7	13:12:54		51.7	51.7	61.1	13:22:03		61.1	61.1
52.2	13:12:55		52.2	52.2	59.2	13:22:04		59.2	59.2
53.5	13:12:56		53.5	53.5	60.3	13:22:05		60.3	60.3
54.7	13:12:57		54.7	54.7	61.1	13:22:06		61.1	61.1
53.0	13:12:58		53.0	53.0	60.0	13:22:07		60.0	60.0
51.9	13:12:59		51.9	51.9	58.7	13:22:08		58.7	58.7
51.6	13:13:00		51.6	51.6	57.9	13:22:09		57.9	57.9
52.5	13:13:01		52.5	52.5	58.0	13:22:10		58.0	58.0
52.6	13:13:02		52.6	52.6	58.9	13:22:11		58.9	58.9
51.8	13:13:03		51.8	51.8	58.7	13:22:12		58.7	58.7
51.2	13:13:04		51.2	51.2	58.3	13:22:13		58.3	58.3
51.6	13:13:05		51.6	51.6	57.1	13:22:14		57.1	57.1
52.9	13:13:06		52.9	52.9	55.8	13:22:15		55.8	55.8
53.6	13:13:07		53.6	53.6	55.0	13:22:16		55.0	55.0
54.8	13:13:08		54.8	54.8	54.6	13:22:17		54.6	54.6
54.3	13:13:09		54.3	54.3	55.4	13:22:18		55.4	55.4
53.7	13:13:10		53.7	53.7	55.5	13:22:19		55.5	55.5
52.9	13:13:11		52.9	52.9	54.1	13:22:20		54.1	54.1
55.3	13:13:12		55.3	55.3	53.4	13:22:21		53.4	53.4
53.6	13:13:13		53.6	53.6	54.0	13:22:22		54.0	54.0
52.2	13:13:14		52.2	52.2	55.7	13:22:23		55.7	55.7
53.5	13:13:15		53.5	53.5	57.9	13:22:24		57.9	57.9
52.8	13:13:16		52.8	52.8	60.2	13:22:25		60.2	60.2
52.1	13:13:17		52.1	52.1	63.0	13:22:26		63.0	63.0
52.8	13:13:18		52.8	52.8	66.3	13:22:27		66.3	66.3
51.6	13:13:19		51.6	51.6	71.0	13:22:28		71.0	71.0
51.1	13:13:20		51.1	51.1	71.9	13:22:29		71.9	71.9
50.8	13:13:21		50.8	50.8	71.1	13:22:30		71.1	71.1
50.3	13:13:22		50.3	50.3	71.1	13:22:31		71.1	71.1
49.9	13:13:23		49.9	49.9	70.3	13:22:32		70.3	70.3
51.6	13:13:24		51.6	51.6	70.7	13:22:33		70.7	70.7
52.3	13:13:25		52.3	52.3	70.1	13:22:34		70.1	70.1
51.8	13:13:26		51.8	51.8	69.6	13:22:35		69.6	69.6
53.4	13:13:27		53.4	53.4	69.7	13:22:36		69.7	69.7
53.4	13:13:28		53.4	53.4	68.9	13:22:37		68.9	68.9
52.0	13:13:29		52.0	52.0	68.2	13:22:38		68.2	68.2
52.2	13:13:30		52.2	52.2	67.2	13:22:39		67.2	67.2
53.5	13:13:31		53.5	53.5	66.1	13:22:40		66.1	66.1
53.8	13:13:32		53.8	53.8	65.4	13:22:41		65.4	65.4
54.2	13:13:33		54.2	54.2	65.2	13:22:42		65.2	65.2
53.7	13:13:34		53.7	53.7	66.6	13:22:43		66.6	66.6
53.0	13:13:35		53.0	53.0	68.4	13:22:44		68.4	68.4
54.1	13:13:36		54.1	54.1	70.2	13:22:45		70.2	70.2
56.2	13:13:37		56.2	56.2	68.6	13:22:46		68.6	68.6
57.8	13:13:38		57.8	57.8	67.2	13:22:47		67.2	67.2
59.8	13:13:39		59.8	59.8	66.1	13:22:48		66.1	66.1
61.2	13:13:40		61.2	61.2	65.8	13:22:49		65.8	65.8
62.8	13:13:41		62.8	62.8	65.3	13:22:50		65.3	65.3
62.9	13:13:42		62.9	62.9	65.0	13:22:51		65.0	65.0
62.5	13:13:43		62.5	62.5	64.4	13:22:52		64.4	64.4
62.5	13:13:44		62.5	62.5	63.7	13:22:53		63.7	63.7
63.6	13:13:45		63.6	63.6	63.4	13:22:54		63.4	63.4
65.1	13:13:46		65.1	65.1	63.3	13:22:55		63.3	63.3
66.6	13:13:47		66.6	66.6	63.8	13:22:56		63.8	63.8
67.7	13:13:48		67.7	67.7	64.9	13:22:57		64.9	64.9
68.3	13:13:49		68.3	68.3	65.3	13:22:58		65.3	65.3
68.5	13:13:50		68.5	68.5	65.1	13:22:59		65.1	65.1
68.3	13:13:51		68.3	68.3	64.7	13:23:00		64.7	64.7
66.5	13:13:52		66.5	66.5	64.0	13:23:01		64.0	64.0
64.5	13:13:53		64.5	64.5	62.7	13:23:02		62.7	62.7
62.3	13:13:54		62.3	62.3	61.0	13:23:03		61.0	61.0
60.3	13:13:55		60.3	60.3	59.9	13:23:04		59.9	59.9
58.2	13:13:56		58.2	58.2	59.0	13:23:05		59.0	59.0
56.1	13:13:57		56.1	56.1	57.7	13:23:06		57.7	57.7
55.0	13:13:58		55.0	55.0	57.2	13:23:07		57.2	57.2
53.4	13:13:59		53.4	53.4	56.8	13:23:08		56.8	56.8
52.1	13:14:00		52.1	52.1	57.5	13:23:09		57.5	57.5
51.4	13:14:01		51.4	51.4	58.3	13:23:10		58.3	58.3
51.8	13:14:02		51.8	51.8	59.5	13:23:11		59.5	59.5
50.9	13:14:03		50.9	50.9	63.7	13:23:12		63.7	63.7
50.0	13:14:04		50.0	50.0	63.5	13:23:13		63.5	63.5
50.2	13:14:05		50.2	50.2	65.8	13:23:14		65.8	65.8
52.7	13:14:06		52.7	52.7	66.4	13:23:15		66.4	66.4
53.2	13:14:07		53.2	53.2	66.0	13:23:16		66.0	66.0
52.4	13:14:08		52.4	52.4	67.6	13:23:17		67.6	67.6
52.3	13:14:09		52.3	52.3	66.8	13:23:18		66.8	66.8

Site 1 - Near Northwest Corner of Project Site					Site 2 - Southwest Corner of Project Site				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
52.1	13:14:10		52.1	52.1	67.0	13:23:19		67.0	67.0
51.4	13:14:11		51.4	51.4	68.6	13:23:20		68.6	68.6
51.5	13:14:12		51.5	51.5	68.3	13:23:21		68.3	68.3
50.9	13:14:13		50.9	50.9	67.6	13:23:22		67.6	67.6
51.3	13:14:14		51.3	51.3	68.5	13:23:23		68.5	68.5
51.9	13:14:15		51.9	51.9	68.3	13:23:24		68.3	68.3
52.8	13:14:16		52.8	52.8	69.0	13:23:25		69.0	69.0
52.8	13:14:17		52.8	52.8	68.8	13:23:26		68.8	68.8
54.5	13:14:18		54.5	54.5	68.7	13:23:27		68.7	68.7
56.1	13:14:19		56.1	56.1	69.3	13:23:28		69.3	69.3
55.9	13:14:20		55.9	55.9	68.7	13:23:29		68.7	68.7
55.2	13:14:21		55.2	55.2	67.4	13:23:30		67.4	67.4
56.7	13:14:22		56.7	56.7	69.0	13:23:31		69.0	69.0
57.3	13:14:23		57.3	57.3	70.0	13:23:32		70.0	70.0
59.5	13:14:24		59.5	59.5	68.8	13:23:33		68.8	68.8
57.7	13:14:25		57.7	57.7	67.2	13:23:34		67.2	67.2
54.8	13:14:26		54.8	54.8	65.5	13:23:35		65.5	65.5
52.1	13:14:27		52.1	52.1	64.1	13:23:36		64.1	64.1
50.5	13:14:28		50.5	50.5	62.9	13:23:37		62.9	62.9
49.5	13:14:29		49.5	49.5	62.5	13:23:38		62.5	62.5
50.0	13:14:30		50.0	50.0	64.4	13:23:39		64.4	64.4
50.2	13:14:31		50.2	50.2	65.2	13:23:40		65.2	65.2
50.3	13:14:32		50.3	50.3	63.2	13:23:41		63.2	63.2
50.0	13:14:33		50.0	50.0	61.6	13:23:42		61.6	61.6
49.5	13:14:34		49.5	49.5	60.3	13:23:43		60.3	60.3
49.3	13:14:35		49.3	49.3	59.6	13:23:44		59.6	59.6
49.8	13:14:36		49.8	49.8	59.5	13:23:45		59.5	59.5
50.4	13:14:37		50.4	50.4	59.9	13:23:46		59.9	59.9
50.5	13:14:38		50.5	50.5	60.4	13:23:47		60.4	60.4
52.3	13:14:39		52.3	52.3	61.1	13:23:48		61.1	61.1
52.8	13:14:40		52.8	52.8	63.0	13:23:49		63.0	63.0
52.6	13:14:41		52.6	52.6	66.2	13:23:50		66.2	66.2
53.3	13:14:42		53.3	53.3	69.7	13:23:51		69.7	69.7
52.3	13:14:43		52.3	52.3	70.7	13:23:52		70.7	70.7
51.5	13:14:44		51.5	51.5	71.3	13:23:53		71.3	71.3
53.9	13:14:45		53.9	53.9	71.4	13:23:54		71.4	71.4
54.0	13:14:46		54.0	54.0	71.1	13:23:55		71.1	71.1
52.8	13:14:47		52.8	52.8	71.6	13:23:56		71.6	71.6
51.5	13:14:48		51.5	51.5	70.8	13:23:57		70.8	70.8
50.5	13:14:49		50.5	50.5	70.4	13:23:58		70.4	70.4
50.0	13:14:50		50.0	50.0	70.1	13:23:59		70.1	70.1
49.3	13:14:51		49.3	49.3	68.8	13:24:00		68.8	68.8
48.7	13:14:52		48.7	48.7	67.0	13:24:01		67.0	67.0
48.7	13:14:53		48.7	48.7	65.6	13:24:02		65.6	65.6
49.3	13:14:54		49.3	49.3	65.6	13:24:03		65.6	65.6
50.1	13:14:55		50.1	50.1	66.9	13:24:04		66.9	66.9
50.2	13:14:56		50.2	50.2	69.6	13:24:05		69.6	69.6
50.2	13:14:57		50.2	50.2	69.6	13:24:06		69.6	69.6
50.0	13:14:58		50.0	50.0	68.3	13:24:07		68.3	68.3
50.4	13:14:59		50.4	50.4	66.7	13:24:08		66.7	66.7
50.5	13:15:00		50.5	50.5	67.4	13:24:09		67.4	67.4
51.7	13:15:01		51.7	51.7	71.7	13:24:10		71.7	71.7
52.4	13:15:02		52.4	52.4	75.9	13:24:11		75.9	75.9
51.1	13:15:03		51.1	51.1	74.1	13:24:12		74.1	74.1
50.6	13:15:04		50.6	50.6	71.3	13:24:13		71.3	71.3
50.1	13:15:05		50.1	50.1	69.1	13:24:14		69.1	69.1
49.8	13:15:06		49.8	49.8	67.5	13:24:15		67.5	67.5
50.2	13:15:07		50.2	50.2	66.9	13:24:16		66.9	66.9
51.3	13:15:08		51.3	51.3	67.9	13:24:17		67.9	67.9
52.2	13:15:09		52.2	52.2	66.9	13:24:18		66.9	66.9
53.3	13:15:10		53.3	53.3	66.8	13:24:19		66.8	66.8
55.9	13:15:11		55.9	55.9	68.0	13:24:20		68.0	68.0
58.0	13:15:12		58.0	58.0	65.8	13:24:21		65.8	65.8
57.0	13:15:13		57.0	57.0	64.2	13:24:22		64.2	64.2
57.5	13:15:14		57.5	57.5	63.8	13:24:23		63.8	63.8
55.7	13:15:15		55.7	55.7	63.2	13:24:24		63.2	63.2
52.6	13:15:16		52.6	52.6	62.3	13:24:25		62.3	62.3
49.9	13:15:17		49.9	49.9	62.3	13:24:26		62.3	62.3
48.4	13:15:18		48.4	48.4	62.0	13:24:27		62.0	62.0
49.9	13:15:19	62.5	49.9	49.9	62.2	13:24:28	68.7	62.2	62.2
50.7	13:15:20	62.5	50.7	50.7	62.6	13:24:29	68.7	62.6	62.6
51.3	13:15:21	62.5	51.3	51.3	62.3	13:24:30	68.7	62.3	62.3
54.1	13:15:22	62.5	54.1	54.1	61.8	13:24:31	68.7	61.8	61.8
52.3	13:15:23	62.5	52.3	52.3	61.1	13:24:32	68.7	61.1	61.1
50.3	13:15:24	62.5	50.3	50.3	60.4	13:24:33	68.7	60.4	60.4
48.7	13:15:25	62.5	48.7	48.7	60.7	13:24:34	68.7	60.7	60.7
48.1	13:15:26	62.5	48.1	48.1	61.4	13:24:35	68.7	61.4	61.4
48.6	13:15:27	62.5	48.6	48.6	63.7	13:24:36	68.7	63.7	63.7
48.9	13:15:28	62.4	48.9	48.9	64.8	13:24:37	68.7	64.8	64.8
48.8	13:15:29	62.4	48.8	48.8	72.0	13:24:38	68.7	72.0	72.0
49.1	13:15:30	62.4	49.1	49.1	75.0	13:24:39	68.7	75.0	75.0
49.6	13:15:31	62.4	49.6	49.6	80.4	13:24:40	68.7	80.4	80.4
49.4	13:15:32	62.4	49.4	49.4	80.0	13:24:41	68.7	80.0	80.0
49.0	13:15:33	62.4	49.0	49.0	78.5	13:24:42	68.7	78.5	78.5
48.9	13:15:34	62.4	48.9	48.9	75.9	13:24:43	68.7	75.9	75.9
48.9	13:15:35	62.4	48.9	48.9	73.7	13:24:44	68.7	73.7	73.7
49.7	13:15:36	62.4	49.7	49.7	72.2	13:24:45	68.7	72.2	72.2
51.3	13:15:37	62.4	51.3	51.3	71.5	13:24:46	68.7	71.5	71.5
51.1	13:15:38	62.4	51.1	51.1	70.6	13:24:47	68.7	70.6	70.6
50.0	13:15:39	62.4	50.0	50.0	68.7	13:24:48	68.7	68.7	68.7
50.2	13:15:40	62.4	50.2	50.2	67.2	13:24:49	68.7	67.2	67.2
50.5	13:15:41	62.4	50.5	50.5	67.7	13:24:50	68.7	67.7	67.7
51.0	13:15:42	62.4	51.0	51.0	68.3	13:24:51	68.7	68.3	68.3
52.4	13:15:43	62.4	52.4	52.4	68.1	13:24:52	68.7	68.1	68.1
51.9	13:15:44	62.4	51.9	51.9	67.8	13:24:53	68.7	67.8	67.8
51.2	13:15:45	62.4	51.2	51.2	67.5	13:24:54	68.7	67.5	67.5
51.2	13:15:46	62.4	51.2	51.2	67.2	13:24:55	68.7	67.2	67.2
51.7	13:15:47	62.4	51.7	51.7	66.9	13:24:56	68.7	66.9	66.9
51.5	13:15:48	62.4	51.5	51.5	68.6	13:24:57	68.7	68.6	68.6
50.7	13:15:49	62.4	50.7	50.7	69.2	13:24:58	68.7	69.2	69.2
50.0	13:15:50	62.4	50.0	50.0	71.3	13:24:59	68.7	71.3	71.3
49.3	13:15:51	62.4	49.3	49.3	70.6	13:25:00	68.7	70.6	70.6
48.6	13:15:52	62.4	48.6	48.6	68.1	13:25:01	68.7	68.1	68.1
48.4	13:15:53	62.4	48.4	48.4	66.2	13:25:02	68.7	66.2	66.2
48.3	13:15:54	62.4	48.3	48.3	64.8	13:25:03	68.7	64.8	64.8
48.5	13:15:55	62.4	48.5	48.5	62.9	13:25:04	68.7	62.9	62.9
48.7	13:15:56	62.4	48.7	48.7	61.1	13:25:05	68.7	61.1	61.1
48.6	13:15:57	62.4	48.6	48.6	59.6	13:25:06	68.7	59.6	59.6
48.1	13:15:58	62.4	48.1	48.1	57.9	13:25:07	68.7	57.9	57.9
49.0	13:15:59	62.4	49.0	49.0	56.6	13:25:08	68.7	56.6	56.6
51.6	13:16:00	62.4	51.6	51.6	55.9	13:25:09	68.7	55.9	55.9
52.6	13:16:01	62.4	52.6	52.6	55.9	13:25:10	68.7	55.9	55.9
52.1	13:16:02	62.4	52.1	52.1	58.8	13:25:11	68.7	58.8	58.8
51.5	13:16:03	62.4	51.5	51.5	58.4	13:25:12	68.7	58.4	58.4
50.4	13:16:04	62.4	50.4	50.4	60.6	13:25:13	68.7	60.6	60.6
49.6	13:16:05	62.4	49.6	49.6	58.8	13:25:14	68.7	58.8	58.8
49.3	13:16:06	62.4	49.3	49.3	59.9	13:25:15	68.7	59.9	59.9
48.7	13:16:07	62.4	48.7	48.7	62.4	13:25:16	68.7	62.4	62.4
49.6	13:16:08	62.4	49.6	49.6	62.4	13:25:17	68.7	62.4	62.4
50.1	13:16:09	62.4	50.1	50.1	60.7	13:25:18	68.7	60.7	60.7
50.3	13:16:10	62.4	50.3	50.3	59.2	13:25:19	68.7	59.2	59.2
49.7	13:16:11	62.4	49.7	49.7	57.3	13:25:20	68.7	57.3	57.3
48.6	13:16:12	62.4	48.6	48.6	55.9	13:25:21	68.7	55.9	55.9
48.6	13:16:13	62.4	48.6	48.6	55.3	13:25:22	68.7	55.3	55.3
49.9	13:16:14	62.4	49.9	49.9	55.5	13:25:23	68.7	55.5	55.5
50.8	13:16:15	62.3	50.8	50.8	55.1	13:25:24	68.7	55.1	55.1
50.8	13:16:16	62.3	50.8	50.8	54.8	13:25:25	68.7	54.8	54.8
52.9	13:16:17	62.3	52.9	52.9	55.6	13:25:26	68.7	55.6	55.6
52.9	13:16:18	62.3	52.9	52.9	57.1	13:25:27	68.7	57.1	57.1
53.3	13:16:19	62.3	53.3	53.3	58.0	13:25:28	68.7	58.0	58.0
53.6	13:16:20	62.3	53.6	53.6	56.9	13:25:29	68.7	56.9	56.9
53.6	13:16:21	62.3	53.6	53.6	54.8	13:25:30	68.7	54.8	54.8
53.9	13:16:22	62.3	53.9	53.9	53.4	13:25:31	68.7	53.4	53.4
56.4	13:16:23	62.3	56.4	56.4	52.9	13:25:32	68.7	52.9	52.9
58.7	13:16:24	62.3	58.7	58.7	53.3	13:25:33	68.7	53.3	53.3
61.0	13:16:25	62.3	61.0	61.0	54.0	13:25:34	68.7	54.0	54.0
63.8	13:16:26	62.3	63.8	63.8	54.4	13:25:35	68.7	54.4	54.4
64.5	13:16:27	62.3	64.5	64.5	55.5	13:25:36	68.7	55.5	55.5
65.5	13:16:28	62.3	65.5	65.5	57.1	13:25:37	68.7	57.1	57.1
66.2	13:16:29	62.3	66.2	66.2	58.7	13:25:38	68.7	58.7	58.7
66.4	13:16:30	62.3	66.4	66.4	61.7	13:25:39	68.7	61.7	61.7
67.3	13:16:31	62.3	67.3	67.3	65.3	13:25:40	68.7	65.3	65.3
68.7	13:16:32	62.3	68.7	68.7	68.9	13:25:41	68.7	68.9	68.9
68.7	13:16:33	62.3	68.7	68.7	69.6	13:25:42	68.7	69.6	69.6
69.0	13:16:34	62.3	69.0	69.0	70.1	13:25:43	68.7	70.1	70.1
69.0	13:16:35	62.3	69.0	69.0	71.0	13:25:44	68.7	71.0	71.0
67.8	13:16:36	62.3	67.8	67.8	71.3	13:25:45	68.7	71.3	71.3
66.6	13:16:37	62.3	66.6	66.6	70.2	13:25:46	68.7	70.2	70.2
66.0	13:16:38	62.3	66.0	66.0	70.8	13:25:47	68.7	70.8	70.8
64.8	13:16:39	62.3	64.8	64.8	70.0	13:25:48	68.7	70.0	70.0
63.3	13:16:40	62.3	63.3	63.3	70.2	13:25:49	68.7	70.2	70.2
61.9	13:16:41	62.3	61.9	61.9	70.5	13:25:50	68.7	70.5	70.5
60.3	13:16:42	62.3	60.3	60.3	71.2	13:25:51	68.7	71.2	71.2
58.8	13:16:43	62.3	58.8	58.8	71.1	13:25:52	68.7	71.1	71.1
57.3	13:16:44	62.3	57.3	57.3	71.1	13:25:53	68.7	71.1	71.1
56.7	13:16:45	62.3	56.7	56.7	71.7	13:25:54	68.7	71.7	71.7
56.6	13:16:46	62.3	56.6	56.6	71.6	13:25:55	68.7	71.6	71.6
56.1	13:16:47	62.3	56.1	56.1	70.3	13:25:56	68.7	70.3	70.3
55.2	13:16:48	62.3	55.2	55.2	69.0	13:25:57	68.7	69.0	69.0
54.7	13:16:49	62.3	54.7	54.7	68.5	13:25:58	68.7	68.5	68.5
54.4	13:16:50	62.3	54.4	54.4	68.4	13:25:59	68.7	68.4	68.4
54.2	13:16:51	62.3	54.2	54.2	67.3	13:26:00	68.7	67.3	67.3

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Site Preparation

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to North	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		345	0
Dozer	No	40		81.7	345	0
Tractor	No	40	84		345	0

	Calculated (dBA)		Results Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	68.2	64.2	N/A	N/A	N/A	N/A
Dozer	64.9	60.9	N/A	N/A	N/A	N/A
Tractor	67.2	63.2	N/A	N/A	N/A	N/A
Total	**68**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Site Preparation

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to East	Residential	69.5	69.5	63.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		387	0
Dozer	No	40		81.7	387	0
Tractor	No	40	84		387	0

	Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	67.2	63.2	N/A	N/A	N/A	N/A
Dozer	63.9	59.9	N/A	N/A	N/A	N/A
Tractor	66.2	62.2	N/A	N/A	N/A	N/A
Total	**67**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		440	0
Dozer	No	40		81.7	440	0
Tractor	No	40	84		440	0

	Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	66.1	62.1	N/A	N/A	N/A	N/A
Dozer	62.8	58.8	N/A	N/A	N/A	N/A
Tractor	65.1	61.1	N/A	N/A	N/A	N/A
Total	**66**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		345	0
Dozer	No	40		81.7	345	0
Tractor	No	40	84		345	0
Tractor	No	40	84		345	0

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		68.2	64.2	N/A	N/A	N/A	N/A
Dozer		64.9	60.9	N/A	N/A	N/A	N/A
Tractor		67.2	63.2	N/A	N/A	N/A	N/A
Tractor		67.2	63.2	N/A	N/A	N/A	N/A
	Total	**68**	**69**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Grading

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to East	Residential	69.5	69.5	63.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		387	0
Dozer	No	40		81.7	387	0
Tractor	No	40	84		387	0
Tractor	No	40	84		387	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		67.2	63.2	N/A	N/A	N/A	N/A
Dozer		63.9	59.9	N/A	N/A	N/A	N/A
Tractor		66.2	62.2	N/A	N/A	N/A	N/A
Tractor		66.2	62.2	N/A	N/A	N/A	N/A
	Total	**67**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Grading

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to West	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		440	0
Dozer	No	40		81.7	440	0
Tractor	No	40	84		440	0
Tractor	No	40	84		440	0

Equipment		Results Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Grader		66.1	62.1	N/A	N/A	N/A	N/A
Dozer		62.8	58.8	N/A	N/A	N/A	N/A
Tractor		65.1	61.1	N/A	N/A	N/A	N/A
Tractor		65.1	61.1	N/A	N/A	N/A	N/A
	Total	**66**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	345	0
Gradall	No	40		83.4	345	0
Generator	No	50		80.6	345	0
Backhoe	No	40		77.6	345	0
Tractor	No	40	84		345	0
Welder / Torch	No	40		74	345	0
Welder / Torch	No	40		74	345	0
Welder / Torch	No	40		74	345	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Crane		63.8	55.8	N/A	N/A	N/A	N/A
Gradall		66.6	62.6	N/A	N/A	N/A	N/A
Generator		63.9	60.8	N/A	N/A	N/A	N/A
Backhoe		60.8	56.8	N/A	N/A	N/A	N/A
Tractor		67.2	63.2	N/A	N/A	N/A	N/A
Welder / Torch		57.2	53.2	N/A	N/A	N/A	N/A
Welder / Torch		57.2	53.2	N/A	N/A	N/A	N/A
Welder / Torch		57.2	53.2	N/A	N/A	N/A	N/A
	Total	**67**	**68**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Building Construction

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to East	Residential	69.5	69.5	63.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	387	0
Gradall	No	40		83.4	387	0
Generator	No	50		80.6	387	0
Backhoe	No	40		77.6	387	0
Tractor	No	40	84		387	0
Welder / Torch	No	40		74	387	0
Welder / Torch	No	40		74	387	0
Welder / Torch	No	40		74	387	0

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		62.8	54.8	N/A	N/A	N/A	N/A
Gradall		65.6	61.6	N/A	N/A	N/A	N/A
Generator		62.9	59.8	N/A	N/A	N/A	N/A
Backhoe		59.8	55.8	N/A	N/A	N/A	N/A
Tractor		66.2	62.2	N/A	N/A	N/A	N/A
Welder / Torch		56.2	52.2	N/A	N/A	N/A	N/A
Welder / Torch		56.2	52.2	N/A	N/A	N/A	N/A
Welder / Torch		56.2	52.2	N/A	N/A	N/A	N/A
	Total	**66**	**67**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Building Construction

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	440	0
Gradall	No	40		83.4	440	0
Generator	No	50		80.6	440	0
Backhoe	No	40		77.6	440	0
Tractor	No	40	84		440	0
Welder / Torch	No	40		74	440	0
Welder / Torch	No	40		74	440	0
Welder / Torch	No	40		74	440	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		61.7	53.7	N/A	N/A	N/A	N/A
Gradall		64.5	60.5	N/A	N/A	N/A	N/A
Generator		61.7	58.7	N/A	N/A	N/A	N/A
Backhoe		58.7	54.7	N/A	N/A	N/A	N/A
Tractor		65.1	61.1	N/A	N/A	N/A	N/A
Welder / Torch		55.1	51.1	N/A	N/A	N/A	N/A
Welder / Torch		55.1	51.1	N/A	N/A	N/A	N/A
Welder / Torch		55.1	51.1	N/A	N/A	N/A	N/A
	Total	**65**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	345	0
Paver	No	50		77.2	345	0
Paver	No	50		77.2	345	0
Roller	No	20		80	345	0
Tractor	No	40	84		345	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Concrete Mixer Truck	62	58	N/A	N/A	N/A	N/A
Paver	60.4	57.4	N/A	N/A	N/A	N/A
Paver	60.4	57.4	N/A	N/A	N/A	N/A
Roller	63.2	56.2	N/A	N/A	N/A	N/A
Tractor	67.2	63.2	N/A	N/A	N/A	N/A
Total	**67**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Paving

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to East	Residential	69.5	69.5	63.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	387	0
Paver	No	50		77.2	387	0
Paver	No	50		77.2	387	0
Roller	No	20		80	387	0
Tractor	No	40	84		387	0

		Calculated (dBA)		Results Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck		61.0	57.0	N/A	N/A	N/A	N/A
Paver		59.4	56.4	N/A	N/A	N/A	N/A
Paver		59.4	56.4	N/A	N/A	N/A	N/A
Roller		62.2	55.2	N/A	N/A	N/A	N/A
Tractor		66.2	62.2	N/A	N/A	N/A	N/A
	Total	**66**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Paving

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	440	0
Paver	No	50		77.2	440	0
Paver	No	50		77.2	440	0
Roller	No	20		80	440	0
Tractor	No	40	84		440	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	59.9	55.9	N/A	N/A	N/A	N/A
Paver	58.3	55.3	N/A	N/A	N/A	N/A
Paver	58.3	55.3	N/A	N/A	N/A	N/A
Roller	61.1	54.1	N/A	N/A	N/A	N/A
Tractor	65.1	61.1	N/A	N/A	N/A	N/A
Total	**65**	**64**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	345	0

		Results Calculated (dBA)		Day	Noise Limits (dBA)	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		60.9	56.9	N/A	N/A	N/A	N/A
	Total	**61**	**57**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to East	Residential	69.5	69.5	63.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	387	0

		Results Calculated (dBA)		Day	Noise Limits (dBA)	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		59.9	55.9	N/A	N/A	N/A	N/A
	Total	**60**	**56**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 12/20/2023
Case Description: Gant ES HVAC Modernization - Painting

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Homes to West	Residential	59.7	59.7	51.3

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	440	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		58.8	54.8	N/A	N/A	N/A	N/A
	Total	**59**	**55**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Operational Reference Noise Measurements

Measurement Report

Report Summary

Meter's File Name	831_Data.004	Computer's File Name	SLM_0002509_831_Data_004.02.ldbin
Meter	831		
Firmware	2.314		
User	GT	Location	
Description	Riverside - The Motorcycle Company - Phase 3		
Note	On Roof - Approx 6 feet from HVAC Unit		
Start Time	2020-05-09 13:23:15	Duration	0:10:00.2
End Time	2020-05-09 13:33:15	Run Time	0:10:00.2
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	65.1 dB		
LAE	92.9 dB	SEA	--- dB
EA	214.7 µPa²h		
LZ_{peak}	106.4 dB	2020-05-09 13:25:40	
LAS_{max}	80.1 dB	2020-05-09 13:25:19	
LAS_{min}	55.1 dB	2020-05-09 13:30:14	
LA_{eq}	65.1 dB		
LC_{eq}	78.1 dB	LC_{eq} - LA_{eq}	13.0 dB
LAI_{eq}	68.9 dB	LAI_{eq} - LA_{eq}	3.8 dB

Exceedances	Count	Duration
LAS > 65.0 dB	16	0:02:46.5
LAS > 85.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	65.1 dB	65.1 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	65.1 dB	65.1 dB	--- dB	--- dB

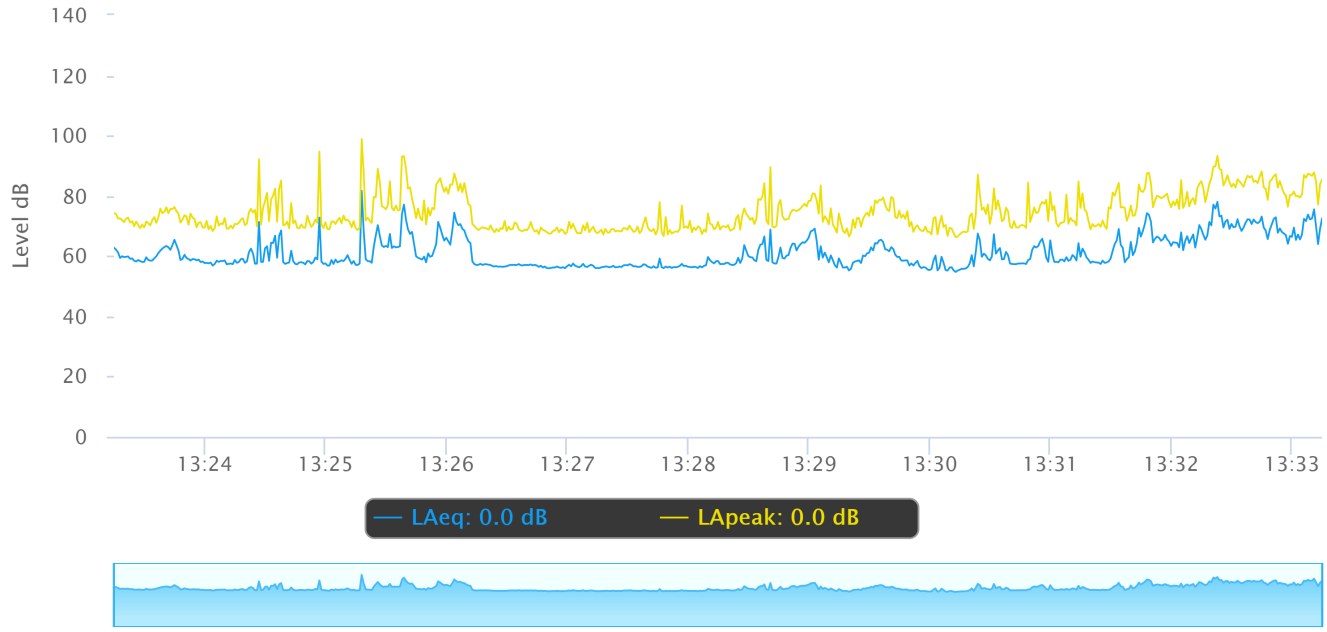
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.1 dB		78.1 dB		80.9 dB	
$LS_{(max)}$	80.1 dB	2020-05-09 13:25:19	91.6 dB	2020-05-09 13:26:05	97.4 dB	2020-05-09 13:23:15
$LF_{(max)}$	84.7 dB	2020-05-09 13:25:18	95.4 dB	2020-05-09 13:25:40	97.5 dB	2020-05-09 13:23:15
$LI_{(max)}$	86.7 dB	2020-05-09 13:25:18	97.5 dB	2020-05-09 13:25:40	99.6 dB	2020-05-09 13:23:15
$LS_{(min)}$	55.1 dB	2020-05-09 13:30:14	64.7 dB	2020-05-09 13:30:02	67.4 dB	2020-05-09 13:28:06
$LF_{(min)}$	54.3 dB	2020-05-09 13:30:13	63.0 dB	2020-05-09 13:30:12	65.8 dB	2020-05-09 13:27:31
$LI_{(min)}$	54.6 dB	2020-05-09 13:30:13	65.0 dB	2020-05-09 13:30:02	68.0 dB	2020-05-09 13:27:59
$L_{Peak(max)}$	98.9 dB	2020-05-09 13:25:18	105.7 dB	2020-05-09 13:25:40	106.4 dB	2020-05-09 13:25:40

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	0	0:00:00.0

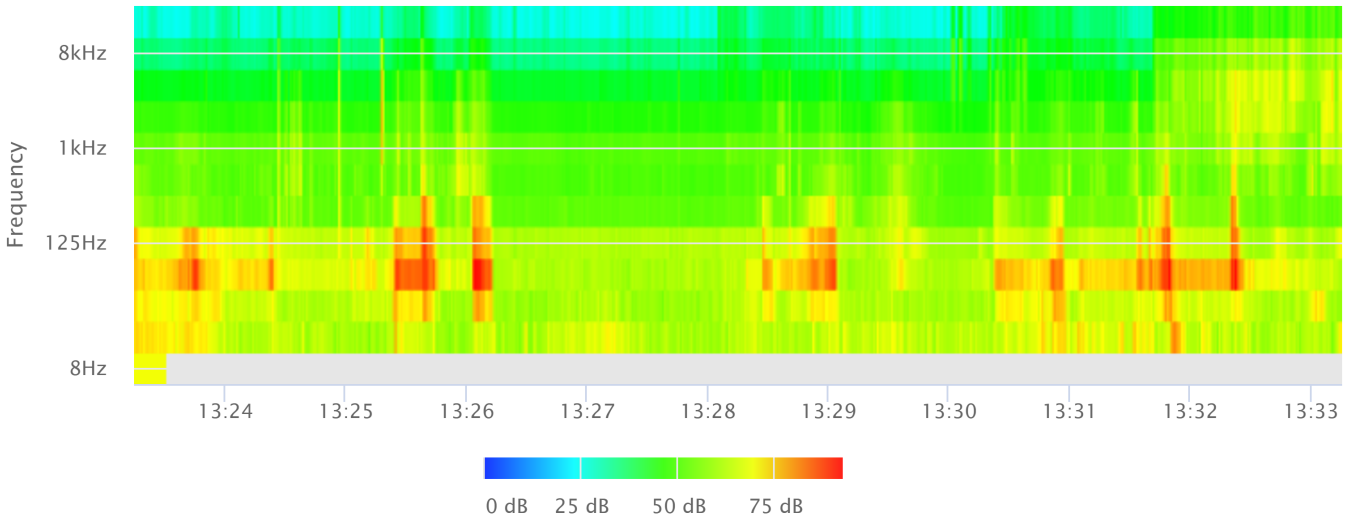
Statistics

LAS 5.0	71.5 dB
LAS 10.0	69.4 dB
LAS 33.3	62.7 dB
LAS 50.0	59.5 dB
LAS 66.6	58.1 dB
LAS 90.0	56.5 dB

Time History



OBA 1/1 Leq



General Information

Serial Number	02509
Model	831
Firmware Version	2.112
Filename	831_Data.002
User	GT
Job Description	Northwest Fresno Walmart Relocation
Location	Northwest Fresno Walmart
Measurement Description	
Start Time	Saturday, 2013 July 27 15:49:15
Stop Time	Saturday, 2013 July 27 16:09:15
Duration	00:20:00.6
Run Time	00:20:00.6
Pause	00:00:00.0
Pre Calibration	Saturday, 2013 July 27 13:36:08
Post Calibration	None
Calibration Deviation	---

Note

Located at the eastern portion of the southern parking lot and approx 140 feet south of the front door
96 F, 35% Humidity, 29.48 in Hg, 3 mph wind, partly cloudy

Overall Data

LAeq		63.1	dB
LASmax	2013 Jul 27 15:59:44	79.2	dB
LApeak (max)	2013 Jul 27 16:06:25	102.2	dB
LASmin	2013 Jul 27 15:50:20	49.6	dB
LCeq		74.0	dB
LAeq		63.1	dB
LCeq - LAeq		10.9	dB
LAIeq		67.4	dB
LAeq		63.1	dB
LAIeq - LAeq		4.3	dB
Ldn		63.1	dB
LDay 07:00-23:00		63.1	dB
LNight 23:00-07:00		---	dB
Lden		63.1	dB
LDay 07:00-19:00		63.1	dB
LEvening 19:00-23:00		---	dB
LNight 23:00-07:00		---	dB
LAE		93.9	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

Statistics

LAS5.00	66.7	dBA
LAS10.00	66.3	dBA
LAS33.30	62.8	dBA
LAS50.00	61.7	dBA
LAS66.60	57.7	dBA
LAS90.00	52.8	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	17 / 347.8	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRM831	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	Bin Max	
Gain	+0	dB
Under Range Limit	26.1	dB
Under Range Peak	75.6	dB
Noise Floor	17.0	dB
Overload	143.1	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	66.7	66.1	71.1	71.6	64.9	59.5	59.6	58.3	56.2	51.8	46.8	44.6
LZSmax	82.6	84.9	82.2	89.3	77.1	67.1	72.4	76.6	76.6	69.0	67.7	63.1
LZSmin	46.5	55.4	53.6	59.0	55.2	49.9	45.5	43.6	40.9	37.7	39.6	42.8

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LZeq	63.6	61.5	59.8	58.7	60.7	63.4	67.2	66.6	65.3	65.7	67.5	67.2
LZSmax	80.9	76.9	73.6	75.5	79.8	83.7	80.9	76.8	78.9	83.8	87.4	88.8
LZSmin	37.3	40.3	43.7	45.3	48.2	51.5	55.9	60.4	54.9	53.2	57.5	47.0

Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LZeq	61.7	61.0	54.9	52.9	57.0	53.2	57.3	54.1	52.1	54.5	53.3	52.7
LZSmax	76.0	71.0	69.8	65.8	64.6	65.6	67.0	71.0	67.1	65.9	72.9	73.0
LZSmin	52.1	48.8	46.7	42.4	46.2	44.6	43.2	38.5	38.6	39.0	39.4	38.2

Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LZeq	52.5	50.9	50.7	49.0	46.4	44.5	43.0	41.7	41.1	40.0	39.6	40.0
LZSmax	75.9	69.6	63.7	63.8	64.4	64.7	63.3	62.7	62.7	60.8	57.9	52.5
LZSmin	37.2	35.4	34.6	33.1	32.6	32.8	33.6	34.7	35.9	36.7	37.7	39.4

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	27 Jul 2013 13:36:08	-25.6
PRM831	28 Apr 2013 15:34:24	-25.9
PRM831	23 Apr 2013 10:17:33	-25.0
PRM831	27 Feb 2013 19:15:30	-25.7
PRM831	24 Jan 2013 12:00:16	-25.6
PRM831	15 Jan 2013 07:50:44	-26.2
PRM831	04 Jan 2013 13:47:46	-26.5

t +1 213 267 2332 | **f** +1 213 318 0744
info@gentecsol.com | www.gentecsol.com
11900 W Olympic Blvd #450, Los Angeles, CA 90064
GTS | General Technologies and Solutions

MEMORANDUM

Date:	November 14, 2023	**GTS:** 231003.02
To:	Long Beach Unified School District	
From:	Ariel Godwin, Rawad Hani (GTS)	
CC:	Chambers Group	
Subject:	Drop-off / Pick-up Traffic Analysis - **DRAFT**	
Project:	Gant Elementary School Modernization Project	

This Traffic Analysis memorandum presents the Drop-off / Pick-up Traffic Analysis for Minnie Gant Elementary School, located at 1854 North Britton Drive in Long Beach, CA.

The following sections contain background information, a description of existing conditions, site observations, collision analysis, traffic volume data and analysis, analysis of the proposed options, and the findings of the traffic study.

1. Background

Gant Elementary School is located at 1854 North Britton Drive in the City of Long Beach. The site plan is shown in Figure 1, the location of the school within the eastern part of the City of Long Beach is shown in Figure 2, and the project vicinity is shown in Figure 3.

The grades served are Transitional Kindergarten (TK) through 5th grade, with an enrollment of 656 students during the 2022-2023 school year, distributed as shown in Figure 4.

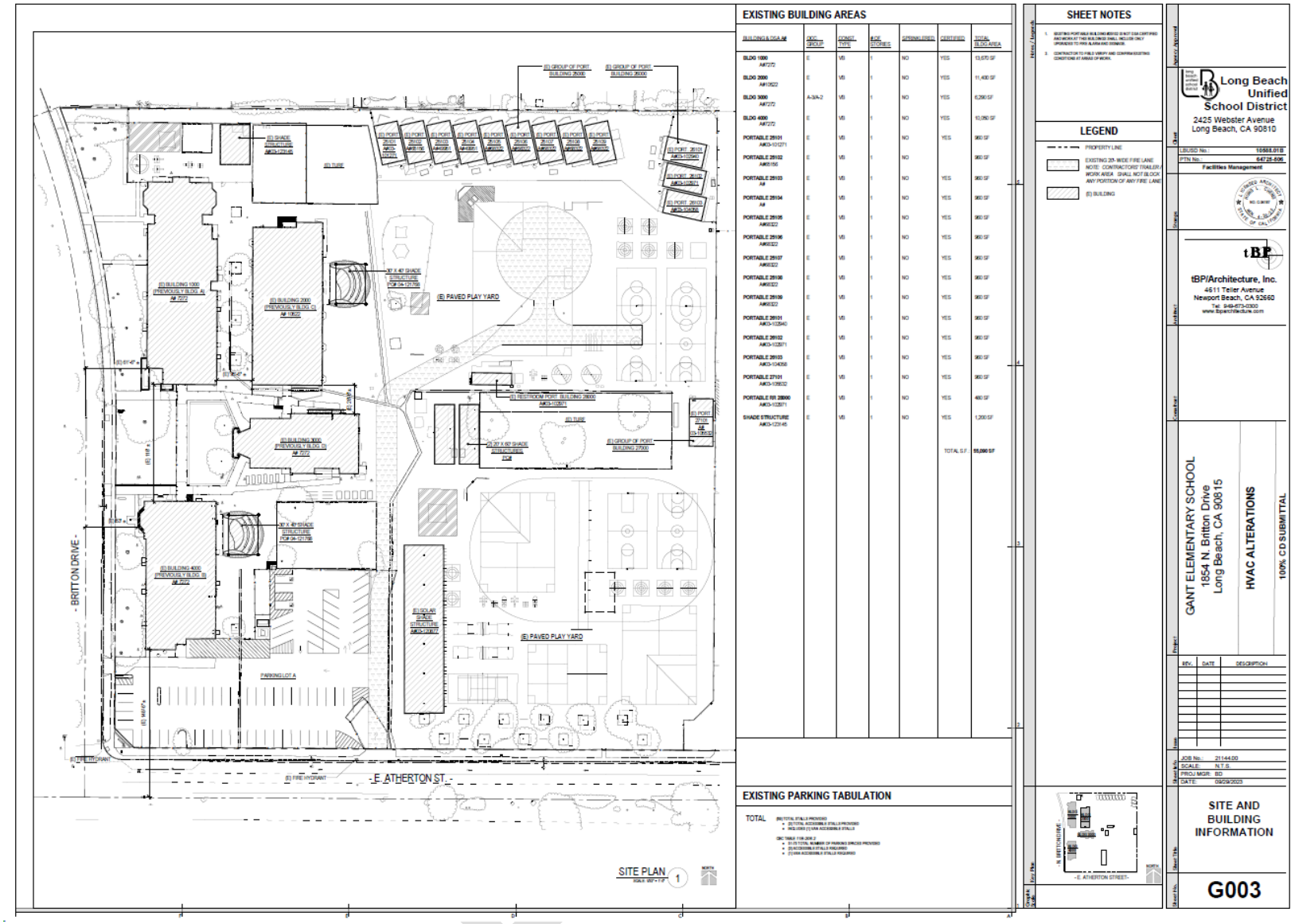
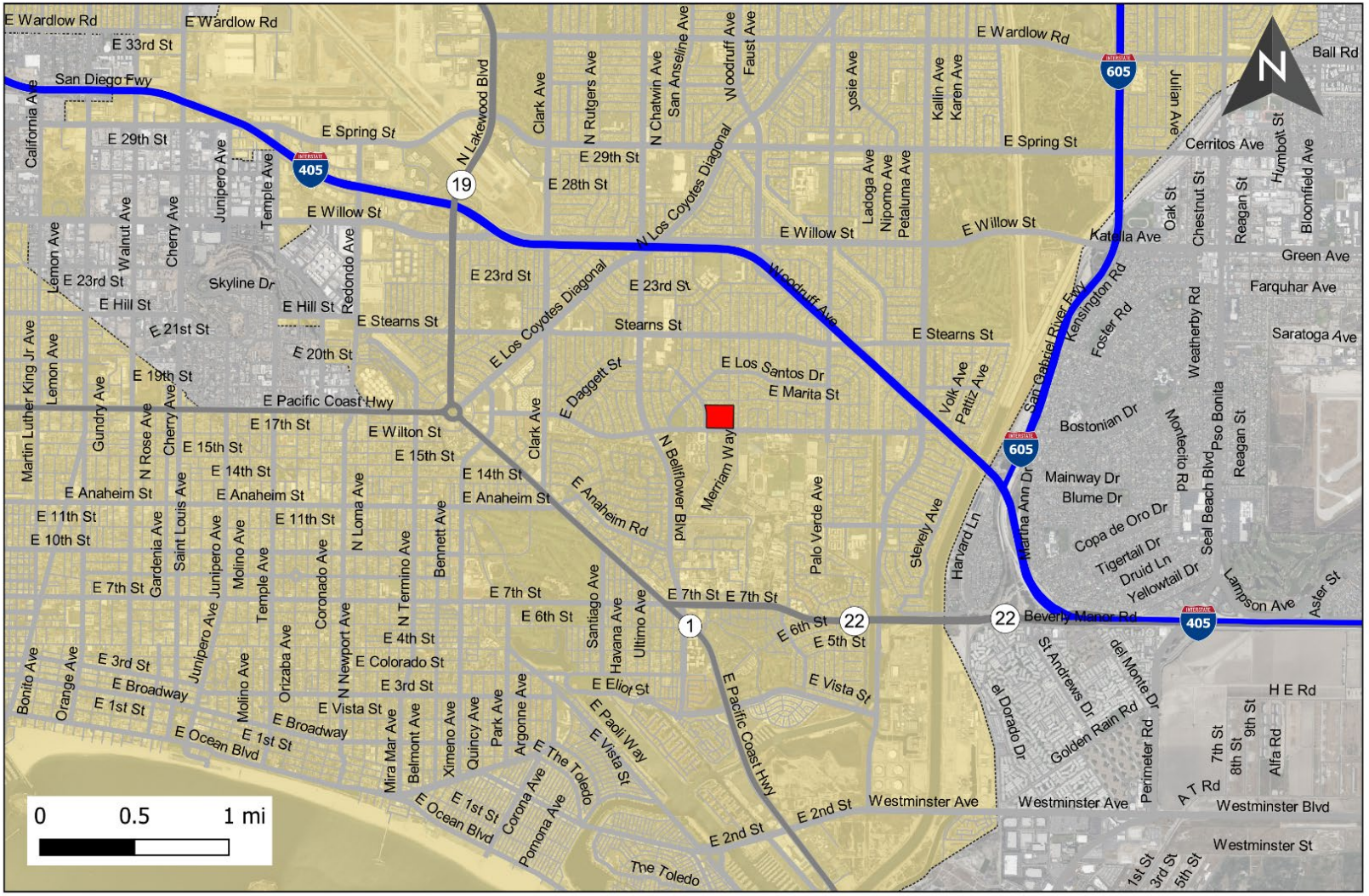


Figure 1. Site Plan



Location Map (Regional Context)

Gant Elementary School

GTS

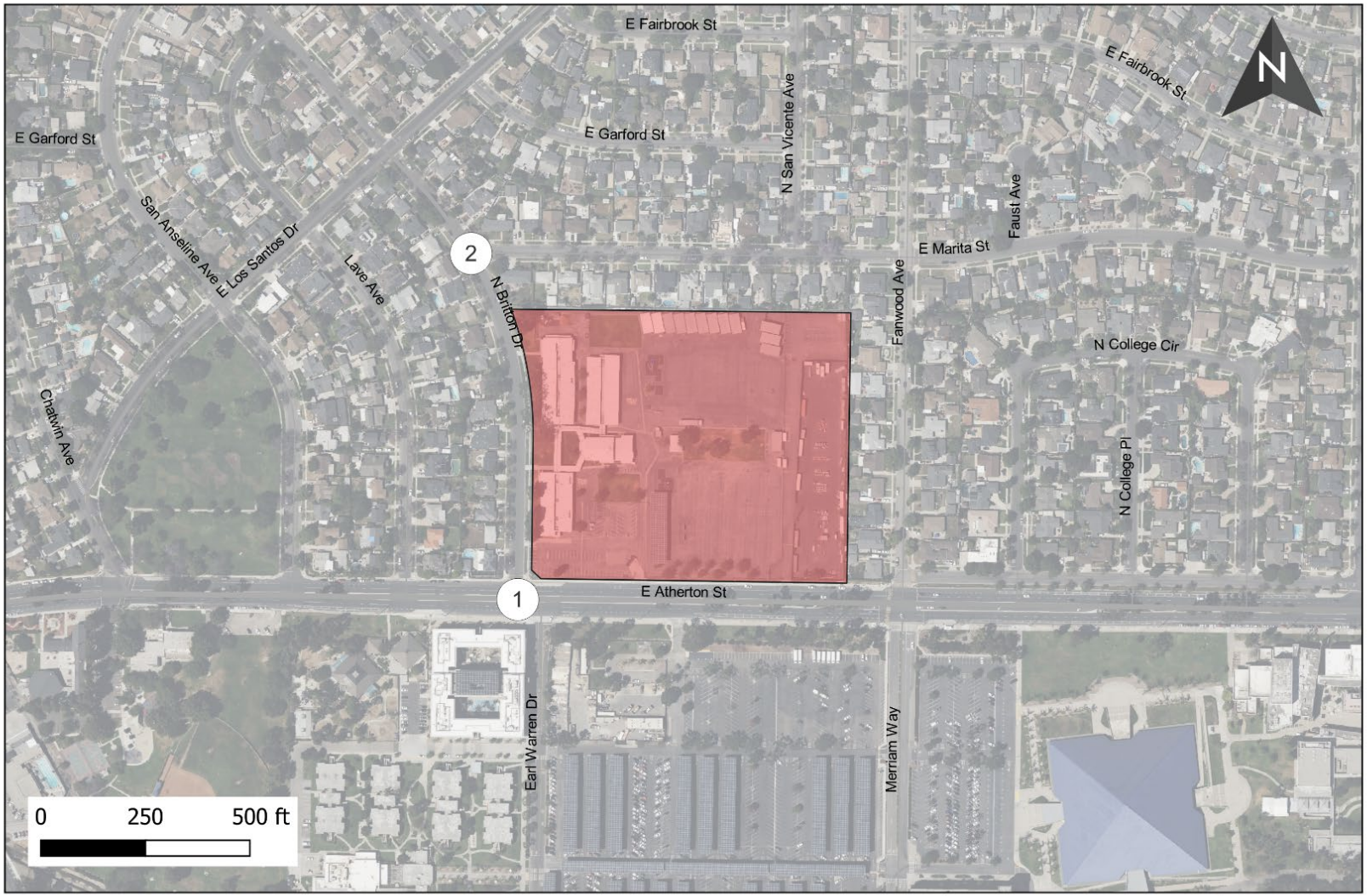
Legend

City of Long Beach

Project Site

FIGURE

2



Vicinity Map with Study Intersections

Gant Elementary School

FIGURE

3

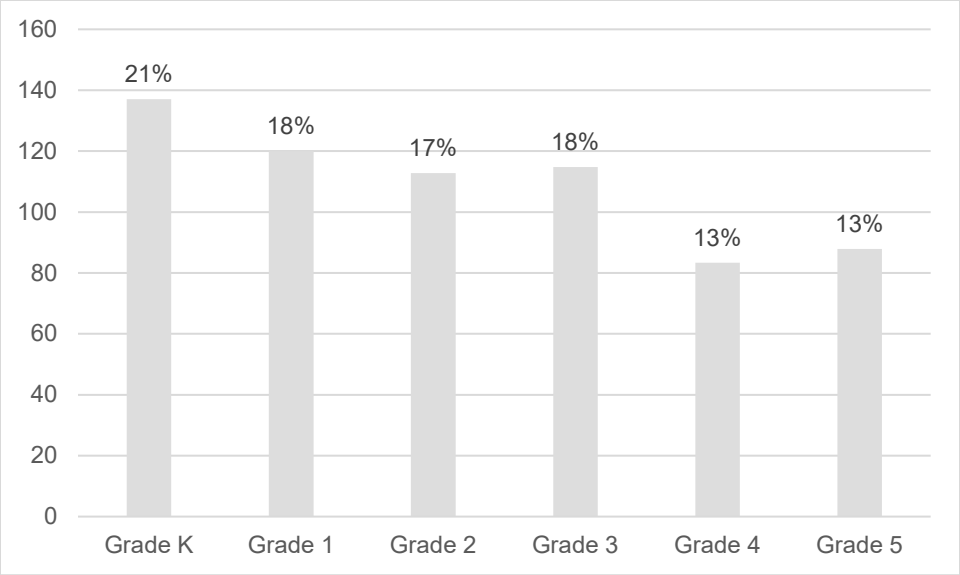


Figure 4. Enrollment by grade at Gant Elementary School (source: California Department of Education)

The Gant Elementary School Modernization Project consists of renovation of all the existing buildings on campus. The scope includes the following items:

- HVAC installation in classrooms, offices, and support spaces located in permanent buildings on site.
- Accessibility upgrades to paths of travel, parking, restrooms, and drinking fountains.
- Utility systems upgrades as required to support HVAC installation.
- Hardware upgrades (lighting, audio-visual system, projectors, etc.).
- Upgrades to building finishes (ceilings, flooring, painting)
- New tactile signage throughout the campus for rooms and exits.
- Window and/or door replacement.
- Campus-wide Fire Alarm upgrades.
- Site improvements, including a potential new drop-off area on the west side of campus along Britton Drive.

As part of the above scope, two options for the potential new drop-off area have been developed. The purpose of this memo is to analyze the potential effectiveness of these two options and to discuss alternative options.

2. Existing Conditions

Gant Elementary School is on an 11-acre parcel bounded on the west side by Britton Drive (classified as a local street in the City of Long Beach General Plan Circulation Element), on the south side by Atherton Street (classified as a minor avenue), and adjacent to the rear boundaries of residential parcels on the north and east sides. Due in part to the School Choice program, approximately half of the students live outside the neighborhood and are driven to school.

Figure 5. Drop-off area

The school day for all grades (TK through 5th) begins at 8:00 AM. On Monday, Tuesday, Wednesday, and Friday, dismissal times are staggered with the TK and K grades dismissed at 2:00 PM, 1st, 2nd, and 3rd grades dismissed at 2:05, and 4th and 5th grades dismissed at 2:10. On Thursdays, all grades are dismissed at 1:30 PM.

The school has two vehicular access points on Atherton Street and one on Britton Drive. The eastern Atherton two-way access serves the parking lot to the northeast of the school; the western Atherton driveway provides entrance to the staff parking area to the southwest of the campus, while the Britton driveway caters to traffic exiting the same lot.

Britton Drive is a residential street with one lane in each direction and on-street parking on both sides. The curb-to-curb width is 36 feet. There are 4-foot-wide sidewalks on both sides with 6-foot landscaped buffer zones. Marita Street is a residential street with the same street design and basic measurements as Britton Drive.

Atherton Street is a minor avenue with two lanes of through traffic in each direction, bike lanes on both sides, and a median punctuated by left-turn pockets. The curb-to-curb width is 80 feet. The vehicular through lanes are 10 feet wide, the median is 18 feet wide, and the additional space is used for buffering the bike lanes. Alongside Gant Elementary School, there is a combined bike lane and shoulder with a width of 12 feet.

Parking is prohibited along the east side of Britton Drive from Atherton Street to the north end of the drop-off area from 7:00 AM to 4:00 PM on school days. Parking on the west side of Britton Drive is limited to 2 hours from Monday to Friday, 9:00 AM to 6:00 PM except for district permit holders; this restriction is due to the neighborhood's proximity to the California State University Long Beach campus. In addition, for street sweeping, parking is prohibited on the east side of Britton Drive from 4:00 AM to 8:00 AM Fridays and on the west side from 5:00 AM to 8:00 AM Thursdays.

3. Site Observations and Meetings

GTS met with the school principal to discuss traffic and safety issues. The following items were noted:

- The school was originally designed for about 300 students, and now has over 600. This results in overall capacity-related problems for which there is no single solution.
- There are no enforcement personnel (police/sheriff) typically present around the school during drop-off or pick-up.
- The principal sends safety-related messages to parents regularly.
- Two (or sometimes three) volunteers act as valets, assisting with drop-off and pick-up. This helps to alleviate safety problems, but some drivers do not follow the valets' instructions.
- There is a perception that there is not enough parking for parents who want to park and drop their children off.
- Some parents park in the parking lot in front of the school to drop their children off. This makes parking spaces unavailable for school staff. Parking for staff is essential as the school has about 90 staff members.
- Some parents park in the restricted zone on Britton Drive to drop their children off.
- Some parents block residential driveways when stopping to drop their children off.
- Drop-off traffic includes two buses (holding 10 passengers each) that are part of the special education program (for students with disabilities), who may require extra time to disembark. Currently there are no regular school buses serving the school.

GTS visited the site at drop-off and pick-up times in October 2023. The following was observed during the morning drop-off time:

- Currently, parents line up along Britton Drive to drop off their children in a temporary drop-off area that is demarcated by traffic cones each morning and afternoon.
- The cone-delineated drop-off/pick-up area holds about 5 or 6 cars at a time.
- As shown in Figure 6, the volunteers stand in the street directing traffic.
- The vast majority of morning drop-offs occur within a 15-minute time window (7:45 – 8:00 AM).
- Many parents were seen walking with their children to school. Some appear to have walked from home, while others park near the school and walk from there.
- Some children also arrive by neighborhood electric vehicle (NEV), scooter, or bicycle. Some children ride their own bicycles and some parents carry children on bicycle attachments (seats, tag-alongs, etc.).
- A dedicated space for buses is available in the parking lot.
- The buses depart around 7:50 AM after unloading.
- Parents park on both sides of Britton Drive to drop off children.

- Parents also park along the north side of Atherton Street to drop off students; parking was observed to be almost full along the block from Fanwood Avenue to Britton Drive. The presence of a 12-foot-wide shoulder in this area allows parents to park in relative safety. However, it should also be noted that this shoulder lane is striped as a bicycle lane.
- Parking for school drop-off and pick-up extends to Marita Street and to Britton Drive north of Marita Street.
- Congestion peaks around 7:55 AM.

The following additional observations were made during the afternoon pick-up time:

- Parents start arriving 30 to 40 minutes before dismissal. On a Thursday (when dismissal is at 1:30), the block face on the school side of Britton Drive between Atherton Street and Marita Street was fully occupied by 1:00. Some cars were also parked on the opposite side. According to information from a parent volunteer, parents start arriving up to 45 minutes in advance given the difficulty of finding parking.
- The congestion and double-parking had mostly dissipated by 1:45 on Thursday (15 minutes after dismissal).

The following traffic and safety problems were observed:

- When the cones are in place and vehicles are parked on the opposite side of the street, the remaining available width of Britton Drive is not sufficient for two lanes of traffic. This creates congestion and the potential for collisions, since the street is curved and there is a limited view of vehicles coming in the opposite direction.
- Some parents make U-turns at various places along Britton Drive, including the Britton/Marita intersection. This results in some potential for collisions because of limited sight distance due to parked vehicles.
- Some parents allow children to walk across the drop-off line.
- Some parents hold up the line with slow drop-offs.
- A substantial number of parents unload in the parking lot at the front of the school, which is prohibited by the school (see Figure 7). Some parents double-park, blocking parking access, while others occupy parking spaces. This includes some parents unloading in the marked bus drop-off zone.
- When the cones are in place for the drop-off/pick-up area on Britton Drive, the effective width of the roadway is narrowed; this can be seen in Figure 6.
- The vehicle line for the drop-off area extends far beyond the area marked by cones, along Britton Drive all the way to the Atherton Street intersection. Because parents also park along the east side of Britton Drive and leave their vehicles (which is prohibited by posted signs as shown in Figure 8), this creates a double-parking situation where there is not enough room for through traffic on Britton Drive. This can be seen in Figure 9.
- Some parents park in the red-curb area on Atherton Street to drop off.
- Some parents walk across Britton Drive in an unsafe manner.

- Some vehicles enter the front parking lot from Britton Drive and exit onto Atherton Street, which is not legal per posted signs.
- Some parents on bicycles and scooters use the sidewalk since the street is not safe for them.
- Posted signs on Britton Drive show that there is no parking allowed on Fridays from 4:00 AM to 8:00 AM for street sweeping. This street sweeping schedule overlaps with school drop-off. Garbage pickup, which is on Tuesdays in this neighborhood, may also overlap with school traffic.

Figure 6. School drop-off as observed during site visits

Figure 7. Drop-off traffic in the front parking lot

Figure 8. Signage on Britton Drive for loading only / no parking

Figure 9. Double-parked drop-off traffic line on Britton Drive, with scooter riders coming through

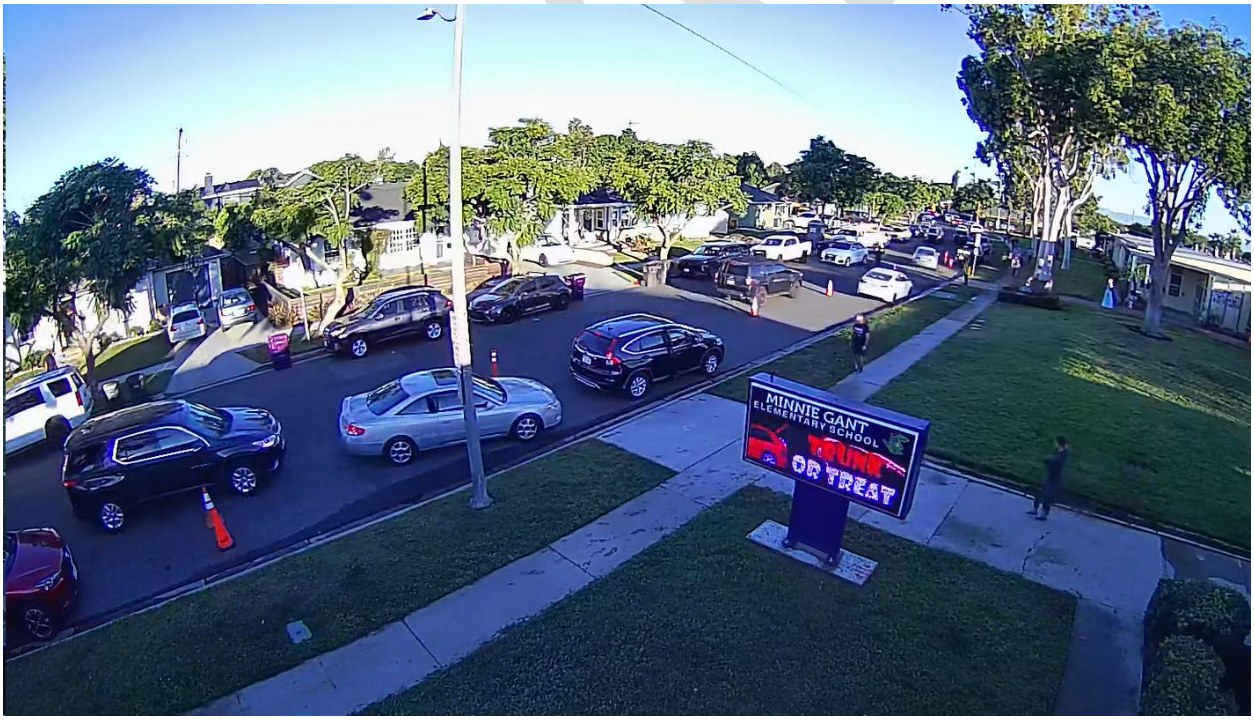


Figure 10. View of traffic congestion and narrowed two-way roadway on Britton Drive during drop-off

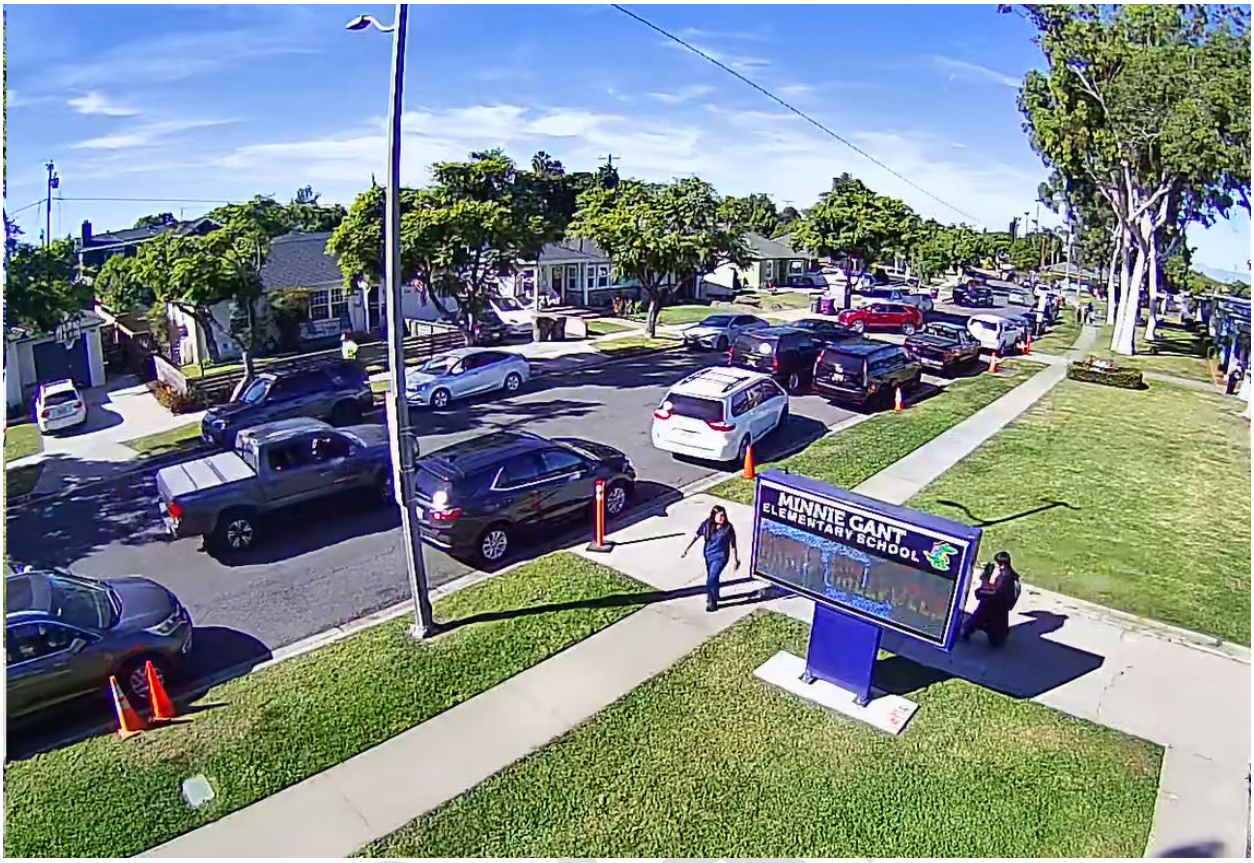


Figure 11. Similar congestion observed during pick-up

4. Collision Analysis

Collisions were reviewed for a five-year period (Jan. 1, 2018 to Dec. 31, 2022) using data available in the Transportation Injury Mapping System (TIMS). It should be noted that the TIMS database does not include collisions from which there was no injury (i.e., property damage only collisions). Only collisions resulting in bodily injury are included. The injury levels are classified as (1) Fatal, (2) Severe Injury, (3) Other Visible Injury, and (4) Complaint of Pain.

During the time period examined and according to the available data, there were no injury collisions on Britton Drive adjacent to the school or at the two study intersections (the intersections of Britton Drive with Atherton Street and Marita Street).

Within a 0.5-mile radius of Gant Elementary School, the following patterns are observed in the collision data:

- There were 71 injury collisions total in the 5-year period.
- There were 3 fatal collisions, all involving pedestrians.
- There were 7 severe-injury collisions, of which 3 involved pedestrians and one involved a bicyclist.
- Overall, 12 collisions (17%) involved pedestrians and 5 (7%) involved bicyclists. 7 (10%) involved motorcyclists.
- According to the data available, none of the collisions resulted in injuries of persons in the elementary school (K-5) age group.

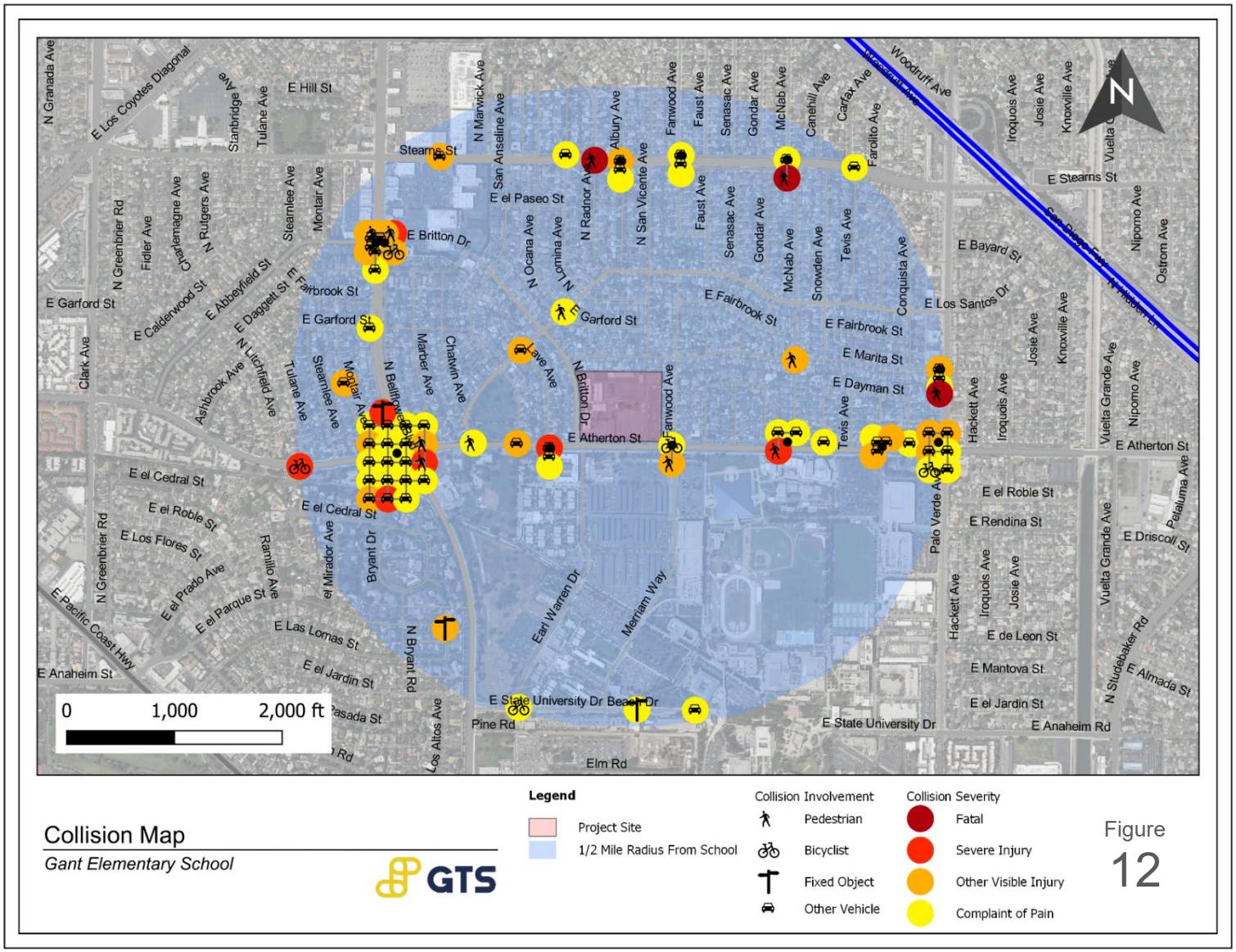


Figure 12. Collisions within half a mile of the school, 1/1/2018 - 12/31/2022

5. Traffic Volumes

Traffic volume and turning movement count data were collected on a typical school day in October 2023 at the following two intersections:

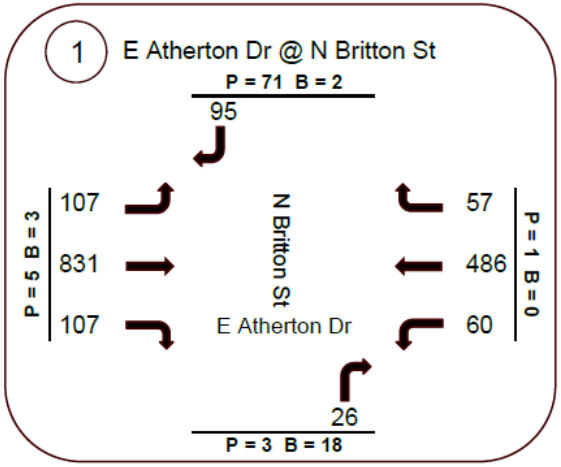
1. E Atherton St & N Britton Dr
2. N Britton Dr & E Marita St

Counts were carried out during the school drop-off and pick-up periods (7:00 – 9:00 AM and 1:00 – 3:00 PM). The turning movement volumes are shown in Figure 13.

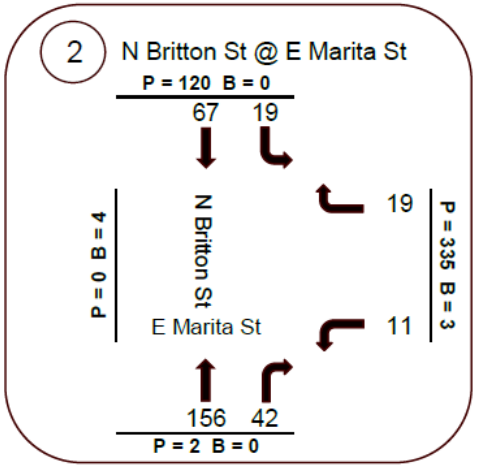
The following are the most noteworthy facts that can be deduced from the turning movement counts:

- Of the vehicles entering Britton Dr from Atherton St, more are coming from the west (turning left onto Britton Dr) than from the east (turning right onto Britton Dr). 71% were coming from the west during the AM peak hour, and 29% were coming from the east during the PM peak hour.
- On the south side of the intersection of Britton St and Marita St, there were 175 northbound vehicles and 78 southbound vehicles in the morning peak hour (69% NB / 31% SB). There were 132 northbound vehicles and 47 southbound vehicles in the afternoon peak hour (74% NB / 26% SB). Given the existing traffic pattern where the cone-delineated area temporarily reduces traffic to a single lane, this shows that there are significant traffic volumes in the two opposite directions with the potential to cause delays and safety concerns.

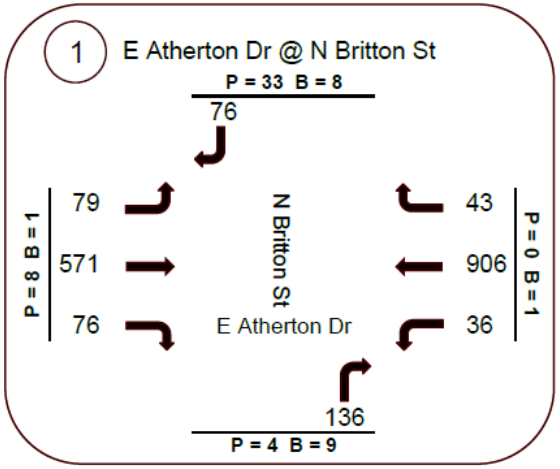
AM Peak Hour Volume



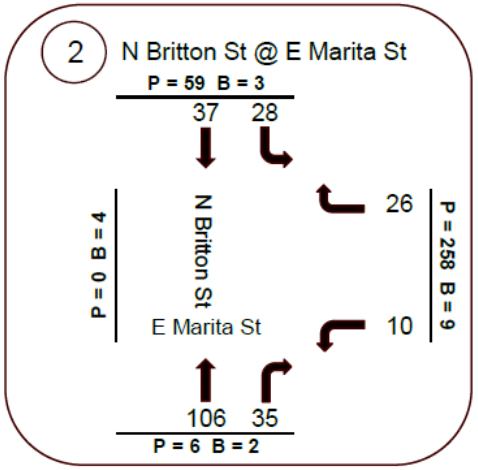
AM Peak Hour Volume



PM Peak Hour Volume



PM Peak Hour Volume



P = Pedestrians B = Bicyclists

Figure
13

GTS

Existing Turning Movement Volumes

Gant Elementary School Drop-off/Pick-up Analysis

6. Analysis of Proposed Options

Two options have been developed for creating a designated vehicular drop-off and pick-up area within the school campus. Plans of these options were provided to the school district along with 3D renderings.

Option 1 would create a circular driveway approximately 160 feet in length with an entrance and exit on Britton Drive. The driveway would have two lanes. The right lane, next to the curb, would be for drop-off and pick-up, and the left lane would be for passing stopped vehicles. There would also be a sidewalk going straight through. This option is preferred by the District and the Gant Elementary School leadership.

Option 2 would move the existing curb eastward to create a drop-off/pick-up area with 9 off-street spaces as well as 2 spaces striped on the street.

Figure 14 shows Option 1 and Option 2 overlaid on an aerial map with the dimensions of typical passenger vehicles indicated. It is assumed that there would be 5 feet of space between each vehicle in the drop-off/pick-up line.

Options 1 and 2 both have higher capacity than the current area delineated by cones, which holds 5 – 6 vehicles. However, with a capacity of 8 – 9 vehicles, the new drop-off/pick-up area will still be relatively small.

The following tables compare Option 1 and Option 2 in terms of safety (Table 1) and operations (Table 2). The metrics used for the comparison are discussed in detail below.

Safety Metrics

S1. Potential vehicular conflict points – Option 1 has fewer points with Britton Drive (see Figure 15). This implies a reduced potential for collisions and smoother flow.
S2. Accessibility – Option 1 provides closer access to the school building with a wider sidewalk.
S3. Potential for children to cross drop-off line between cars – with either option there is the possibility of parents trying to drop off children outside the line so that they cross between cars. With Option 1 this is expected to be easier to control and prevent than with Option 2. In either case this scenario should be prevented through enforcement and messaging (see Figure 16). With option 1, the curb lane outside the circle can be designated as a moving lane rather than a parking lane
S4. Potential for unsafe U-turns – with Option 2, there is the possibility of unpredictable U-turns at various points along the drop-off area (see Figure 17). With Option 1, only right turns out of the circular driveway will be permitted.
S5. Emergency access – Option 1 includes an off-street area that can be used by emergency vehicles, while Option 2 could require emergency vehicles to double-park, potentially blocking the street.
S6. Pedestrian conflict points – Option 1 has two potential pedestrian-vehicle conflict points while Option 2 has no potential conflict points (see Figure 18).
S7. Speed differential – many traffic incidents are attributed to differences in speed between adjacent lanes of traffic. Option 1 eliminates this issue to a large extent as the circular driveway separates drop-off and pick-up traffic from the travel lanes of Britton Drive. By contrast, Option 2 places drop-off and pick-up traffic next to through traffic on Britton Drive.

Operations Metrics

O1. Queueing capacity – Option 1 holds 8 vehicles, while Option 2 holds 9 vehicles. Option 1 allows for slightly higher queuing capacity as vehicles approach the drop-off lane (see Figure 19).
O2. Potential for double-parking – In Option 1, the drop-off line is separate from the street. The street-side design of the drop-off line in Option 2 may be conducive to double parking (see Figure 20).
O3. Pedestrian connectivity – Option 1 provides a continuous sidewalk, as well as a separate sidewalk that serves school traffic and allows for a pedestrian route that avoids the driveway crossings. With Option 2, the sidewalk is used for the school drop-off area (see Figure 23).
O4. Effects on neighboring homes – Option 1 places the drop-off area directly across 3 homes and 100 feet from them; Option 2 places the drop-off area across from 4 homes and about 60 feet from them (see Figure 24).

Table 1. Comparison of Options 1 and 2: Safety

Safety Metric	Option 1	Option 2
S1. Potential vehicular conflict points	**1** potential conflict point (egress driveway).	**9** potential conflict points (at each point where a vehicle can pull out of a parking spot).
S2. Accessibility	**Good** – the drop-off area is closer to the school building, and the sidewalk is wider.	**Moderate** – the drop-off area is farther from the school building, and the sidewalk is narrower.
S3. Potential for children to cross drop-off line between cars	**Low** – some parents may try to drop children curbside between the ingress and egress driveways, but this can be prevented by enforcement, messaging, and possibly traffic cones.	**High** – parents may double-park and let children out alongside the line of cars, and with a longer area this may be harder to control.
S4. Potential for unsafe U-turns	**Low** – The exit of the circular driveway will be right turn only.	**High** – drivers who want to go southbound may make U-turns directly out of the drop-off area, and controlling this will require enforcement.
S5. Emergency access	**Good** – emergency vehicles could use the off-street drop-off zone	**Moderate** – emergency vehicles might block the street, especially if cars are already double-parked
S6. Pedestrian conflict points	**2** pedestrian-vehicle conflict points.	**0** pedestrian-vehicle conflict points.
S7. Speed differential	**Safer** - the circular driveway separates drop-off and pick-up traffic from the travel lanes of Britton Drive.	**Less safe** - drop-off and pick-up traffic are next to through traffic on Britton Drive.

Table 2. Comparison of Options 1 and 2: Operations

Operations Metric	Option 1	Option 2
O1. Queueing capacity	**8** vehicles in the drop-off area **18** vehicles (450 ft assuming 25 ft per vehicle) upstream of the drop-off area.	**9** vehicles. **15** vehicles (375 ft assuming 25 ft per vehicle) upstream of the drop-off area.
O2. Potential for double-parking	**Low** – drop-off line is recessed from the street; double parking upstream of the drop-off area can be controlled by enforcement and messaging.	**High** – the open drop-off area invites double parking as some parents may be tempted to skip the line and pull up alongside.
O3. Pedestrian connectivity	**Good** – a continuous sidewalk is provided, as well as a separate sidewalk that serves school traffic and allows for a pedestrian route that avoids the driveway crossings.	**Moderate** – sidewalk is used for school drop-off area.
O4. Effects on neighboring homes	Drop-off area is directly across from **3** homes and is about **100** feet from homes.	Drop-off area is directly across from **4** homes and is about **60** feet from homes.

Option 1

Option 2

Drop-off / Pick-up Area Options

Gant Elementary School

GTS

0 25 50 ft

Figure 14

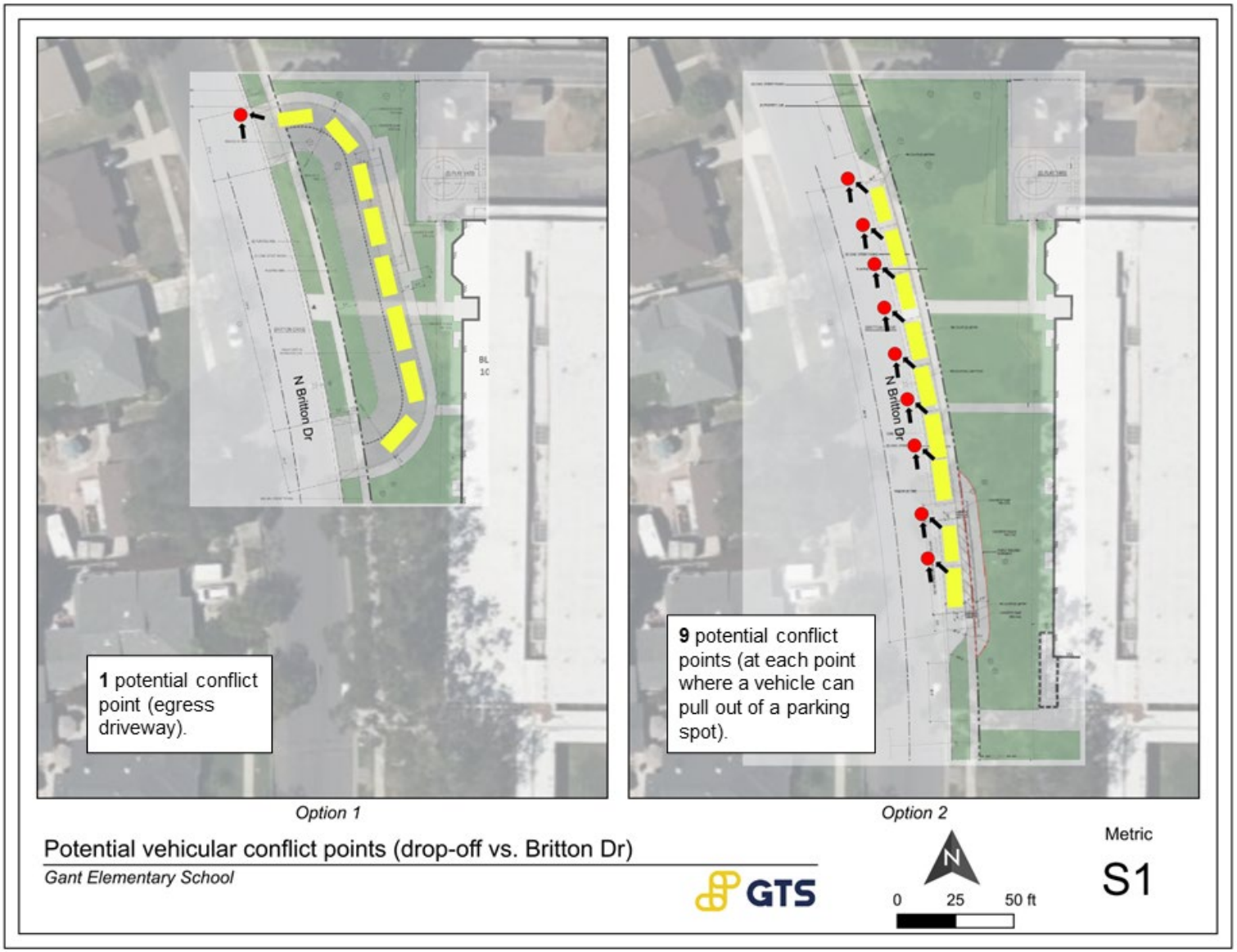


Figure 15. Safety Metric 1

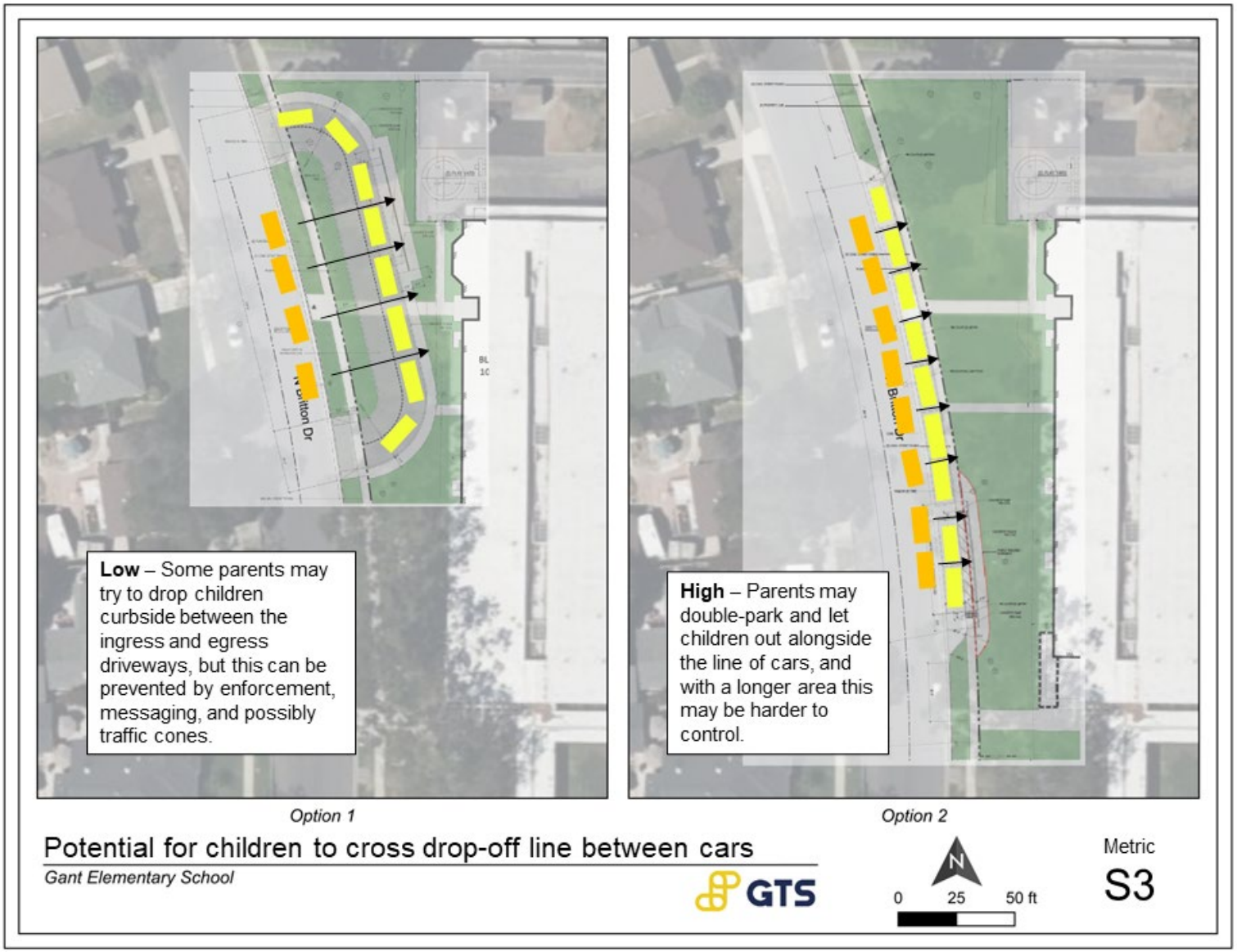


Figure 16. Safety Metric 3

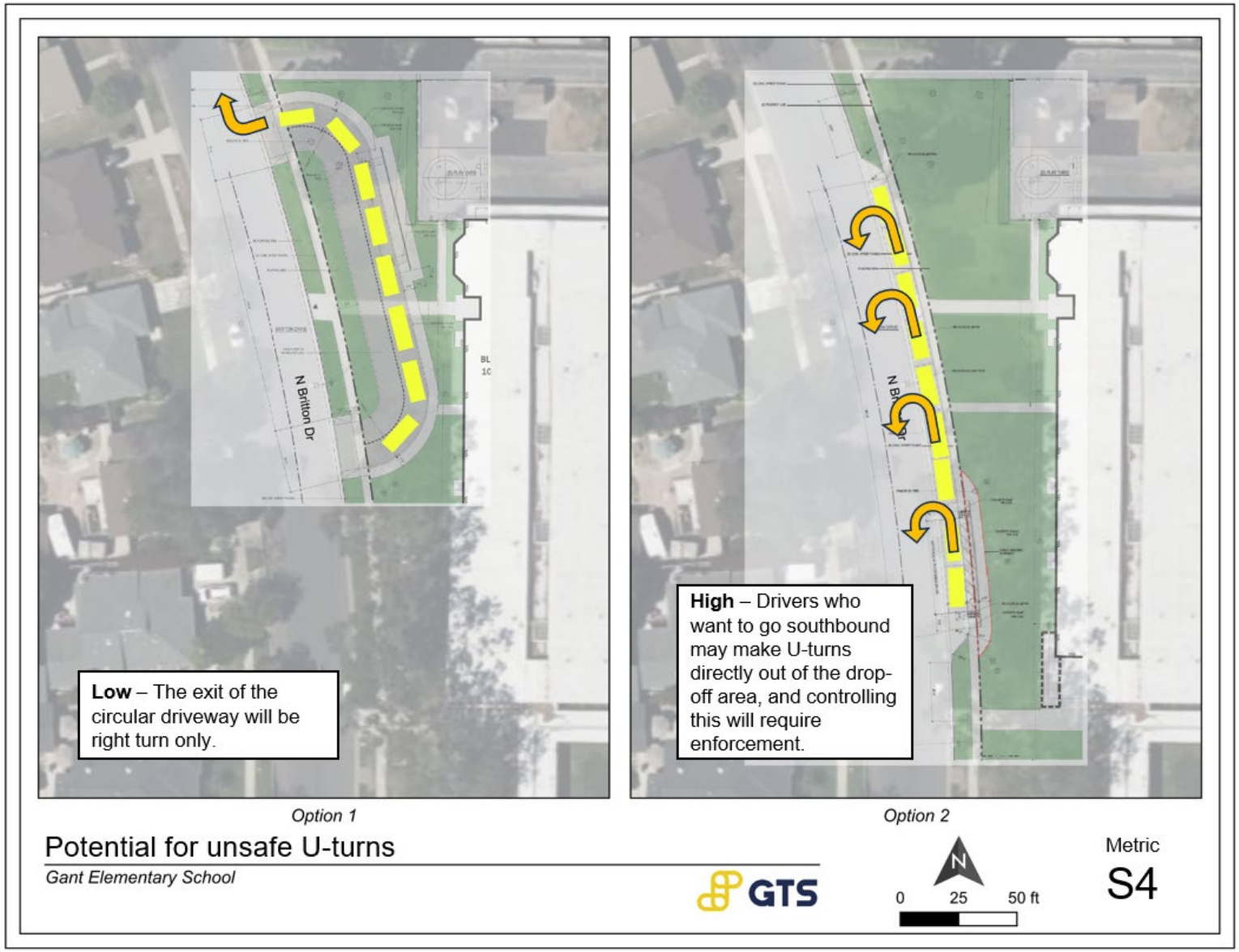


Figure 17. Safety Metric 4

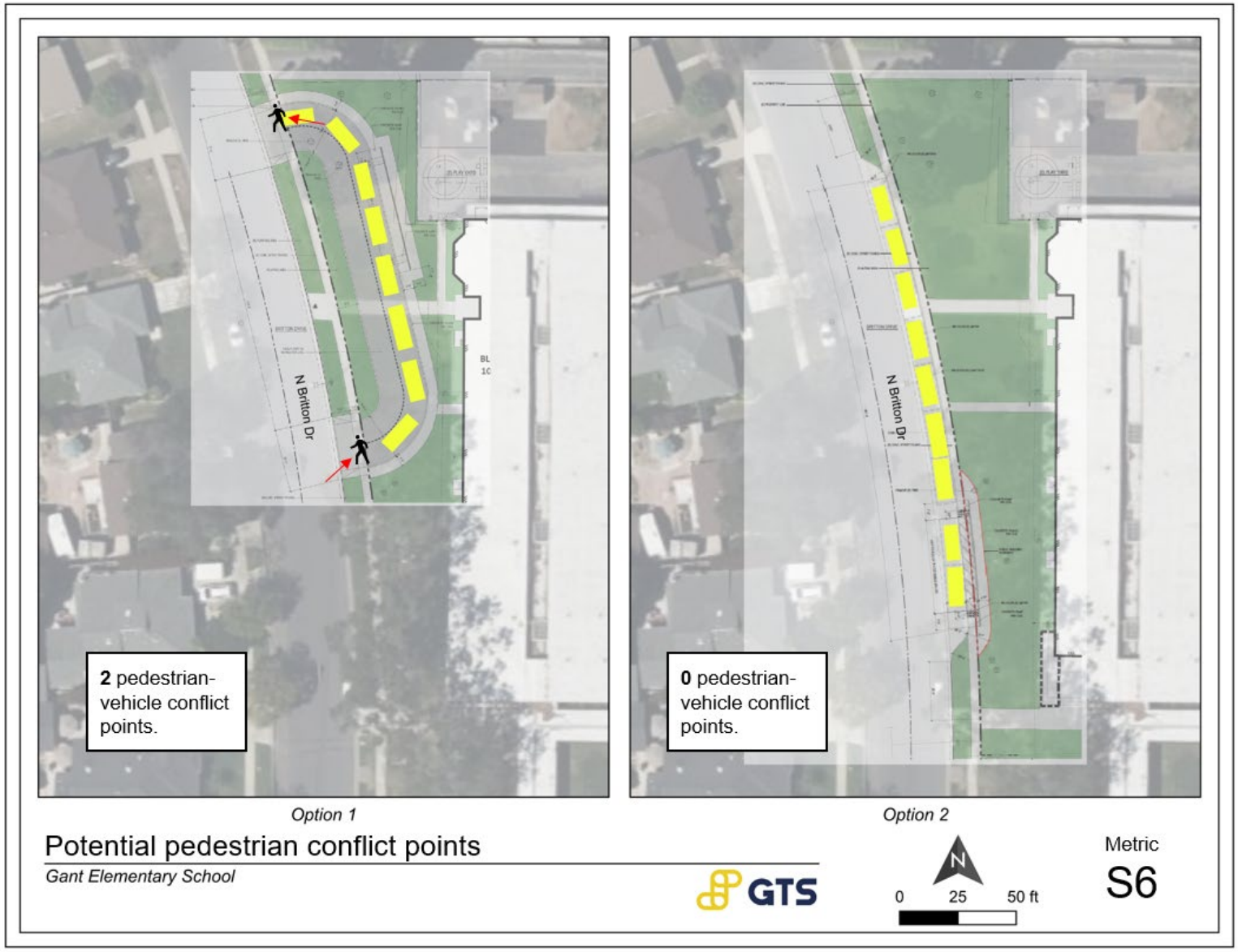


Figure 18. Safety Metric 6

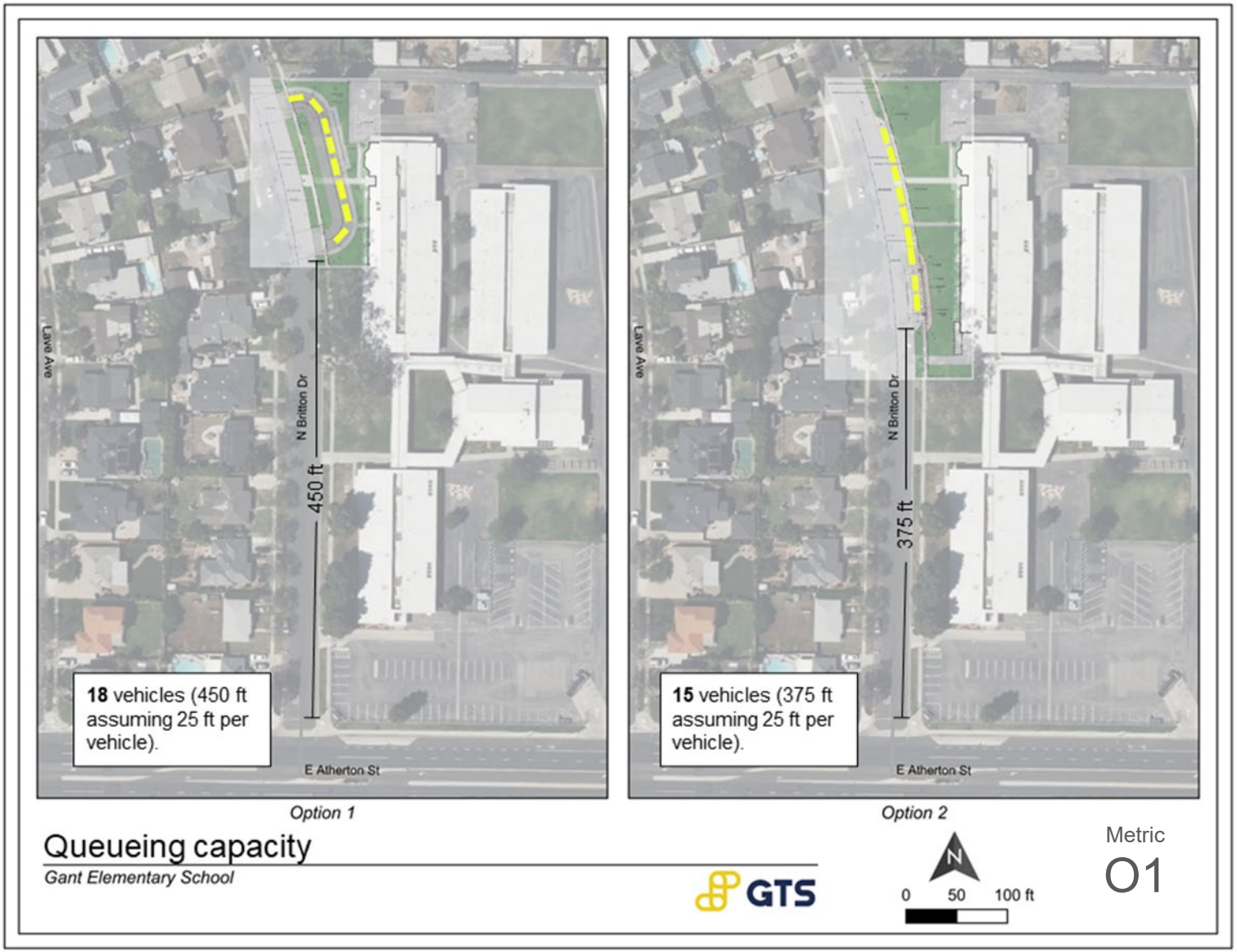


Figure 19. Operations Metric 1

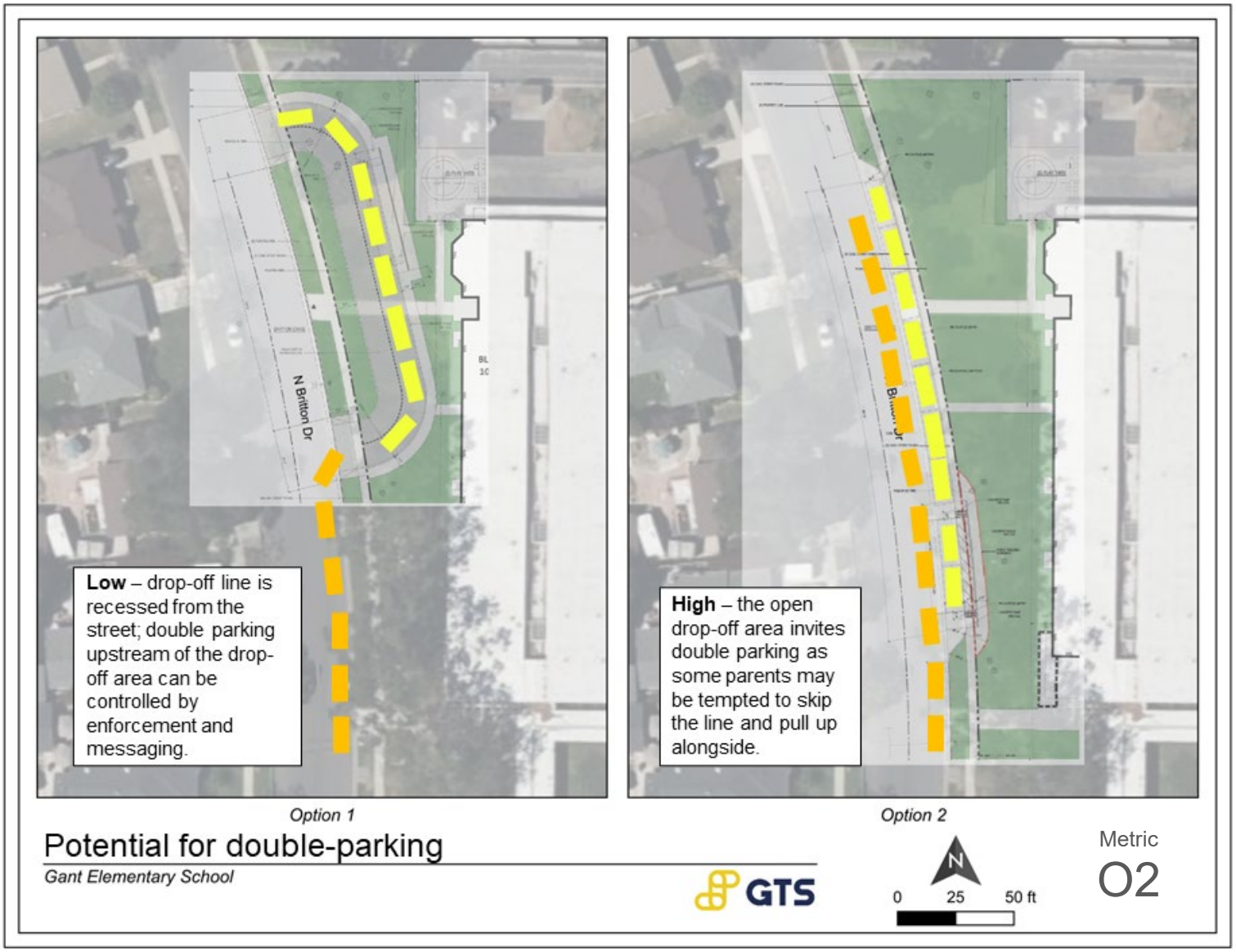


Figure 20. Operations Metric 3

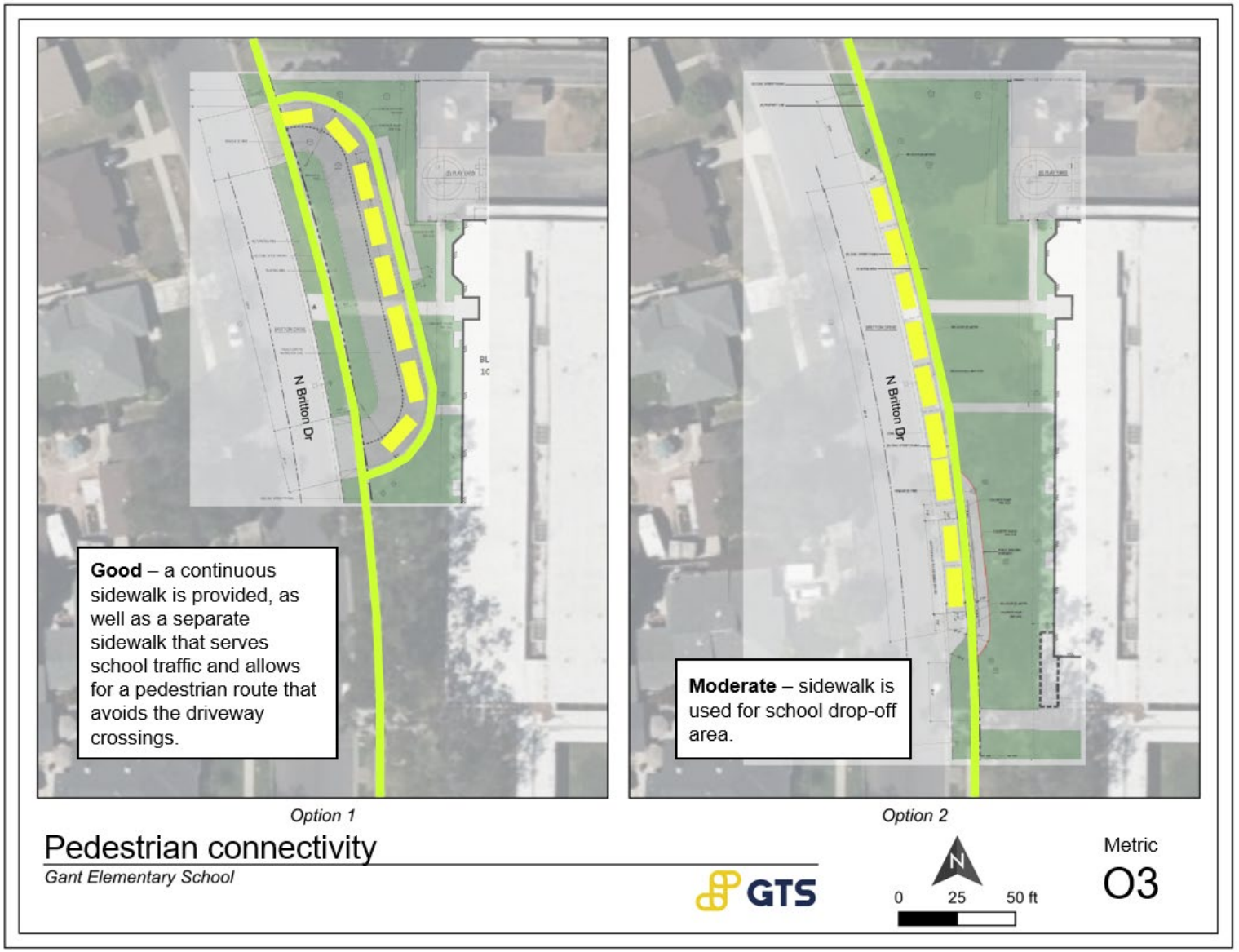


Figure 21. Operations Metric 6

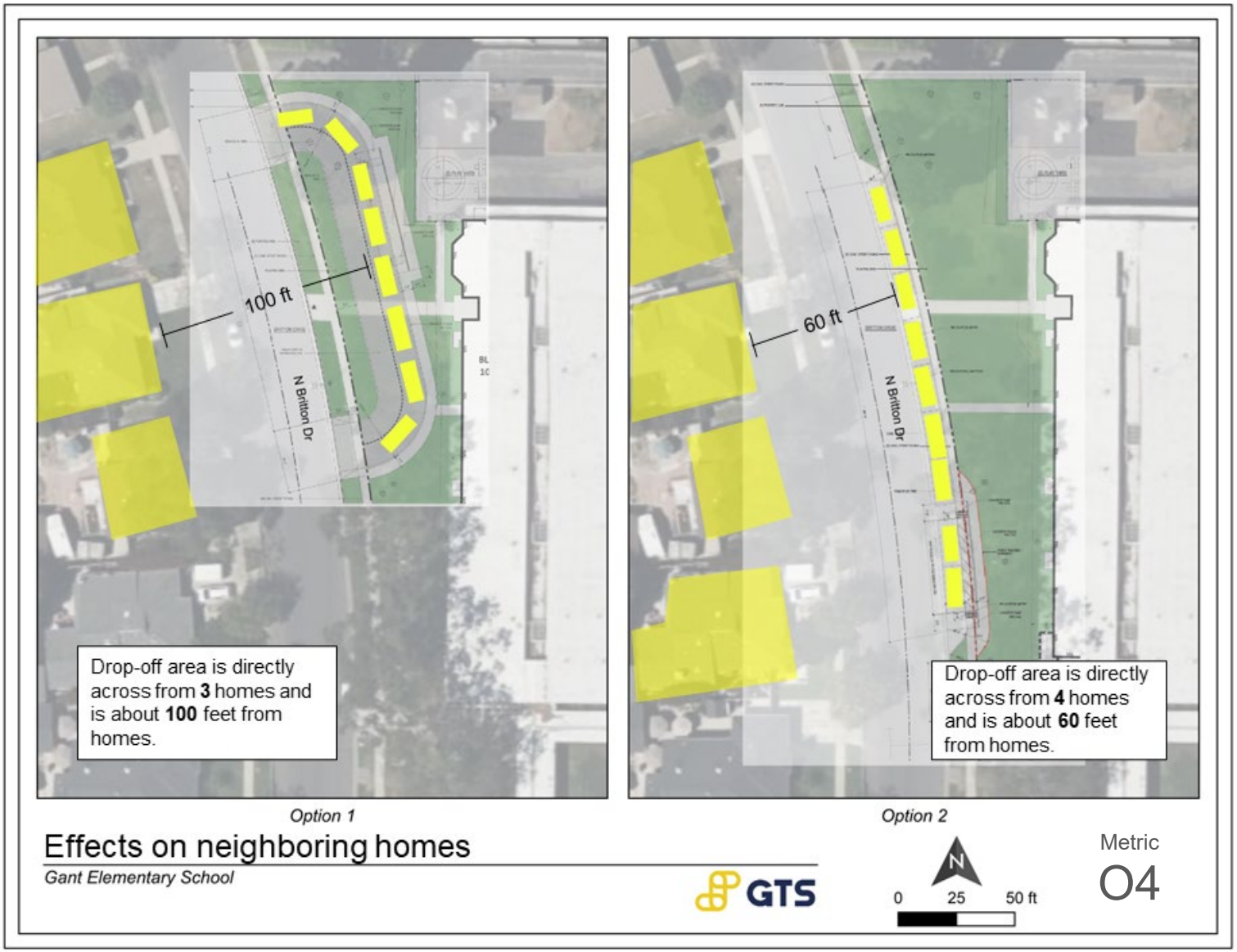


Figure 22. Operations Metric 7

7. Findings

1. Both Option 1 and Option 2 represent an improvement in terms of safety and operations compared to the status quo.

2. Neither option will greatly increase the drop-off/pick-up capacity. However, a major capacity increase should not be the goal. Dispersing pick-up and drop-off around the immediate neighborhood and keeping the designated drop-off/pick-up area relatively small is consistent with best practices in school site design.

3. As the school's enrollment continues to increase (with a predicted level of 700 students in the next few years), some traffic congestion can be expected. Site observations and data analysis indicate that the most congested period lasts about 15 minutes. Although the congestion may be frustrating for some, it is not appropriate to design the entire street around 15 minutes of the day.

8. Recommendations

1. Between Option 1 and Option 2, the former is preferred for the following main reasons:

    a. Option 1 avoids the need for volunteers to stand in the street to direct traffic. The volunteers are not trained traffic offers or flaggers, and should therefore not be in the street due to liability concerns.

    b. The status-quo involves double-parking as well as the potential for pedestrians and cyclists to cross the double-parked line of vehicles. The visibility of pedestrians and cyclists to vehicle drivers is often limited in this situation. Option 1 avoids this double-parking scenario, while Option 2 may cause the double-parking to continue.

    c. Option 1 creates a lower speed differential than Option 2, because the circular driveway creates substantial distance between drop-off/pick-up traffic and through traffic on Britton Drive. By contrast, with Option 2 the drop-off/pick-up lane is adjacent to the through traffic lane.

2. If Option 1 is selected, a signing and striping plan for the following traffic controls should be developed and implemented:

    a. At the entrance to the circular driveway, the School Crossing Assembly (S1-1 and W16-7P, or SW24-2(CA)) should be installed along with a yellow ladder-style crosswalk.

    b. At the exit of the circular driveway, a yellow ladder-style crosswalk, Stop sign (R1-1), and Right Turn Only sign (R3-5) should be installed and supplemented with "STOP" and right arrow pavement markings.

3. With outreach efforts and possibly the occasional sheriff/police drive-by (but recognizing that law enforcement has limited resources available), the school can continue to address parent driving behavior.

4. The school could develop a “Safe Driving Pledge”, similar to what has been done at other schools in the region. This is a document that parents sign at the beginning of the school year, in which they pledge to drive safely, follow school instructions, be considerate of others, etc. Examples are included in the Appendix.

1. The school could work with the City to modify existing street sweeping schedules so that there is no conflict between street sweeping and school drop-off. For example, instead of going until 8:00 AM, the parking restriction could end at 7:30 AM.

References

California Department of Education. School Site Design Diagrams: Site Design Standards for Pedestrian and Vehicular Safety. https://www.cde.ca.gov/ls/fa/sf/sitediagrams.asp

City of Long Beach. General Plan Mobility Element (2013). https://www.longbeach.gov/globalassets/lbcd/media-library/documents/orphans/mobility-element/320615_lbds_mobility_element_web

Safe Routes Partnership. Keep Calm and Carry On to School: Improving Arrival and Dismissal for Walking and Biking. https://www.saferoutespartnership.org/sites/default/files/resource_files/keep_calm_and_carry_on_to_school_-_improving_arrival_and_dismissal_for_walking_and_biking.pdf

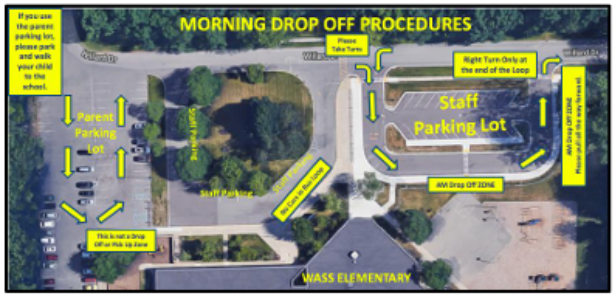
Appendix

Safe Driving Pledge Examples

WASS TRAFFIC PROCEDURES & POLICIES

PARENT PARKING LOT PLEDGE

All parents want their child to be safe before, during, and after school hours. In order to do this, we ALL need to agree to procedures and policies to create a safe environment beyond our school walls that extends into our parking lots, walkways, drop-off loops, and side streets. During the school year, we want our students to **Be Responsible, Be Respectful, Have Integrity, Show Perseverance, and Display Empathy to others.** I'm asking the parents, grandparents, family members, or siblings in our community to do the same thing by committing to a **Parent Parking Lot Pledge**. Please read the following procedures and policies, then sign and return this pledge by Friday, September 20, 2019.



MORNING DROP-OFF PROCEDURES (8:20-8:34 AM)

1. Do not park in the Student Drop-Off Loop.
2. Use the Drop-Off Loop only for dropping off students.
3. When dropping off students, pull up as far as possible.
4. Adults should stay in the car. Encourage students to exit your car quickly and safely (from the right side of the car only). If you can't use the right side of the car, please park in the parent parking lot and walk your child up to the sidewalk.
5. Do not "leap frog" other cars in the drive. Please stay behind the car in front of you and wait patiently.
6. Please make a right hand turn out of the Drop Off Loop.

PICKING STUDENTS UP AFTER SCHOOL – Dismissal at 3:37 PM

1. Do not enter the Bus Loop. Leave the Loop in front of the school free for school buses.
2. Park in the parent parking lot or legally on a neighboring street, meet your children at a pre-arranged location in front of school and walk them to your car. Do not have them walk by themselves to your car in the lot. Drivers backing up may not see them.
3. You may park in the Drop-Off Circle at the **end of the day.**
4. Consider parking on Highbury, English, or Crowfoot and having your child walk over to the car.
5. If someone else, such as an older sibling or grandparent, is picking up your child, please share this information with him or her.
6. Since children are not always paying attention, it is very important that adults are. Therefore, we ask that you do not use cell phones while driving near the school.
7. We encourage students to walk or ride their bikes to and from school.
8. Do NOT park in the Drop-Off Loop before 3:05 PM. We have a Head Start preschool program that dismisses at 3:00 PM and they will be using the Drop-Off Loop to pick up their preschoolers.

As a parent:

- **I will** NOT use my phone to talk or text while driving my vehicle on school property.
- **I will** follow the speed limit, stop at stop signs, and only park in appropriate areas when driving or parking on a neighboring street.
- **I will** use the Cross Walk at dismissal instead of cutting across Willard Drive.
- **I will** drop my child off at designated areas only *(drop-off loop or walk them up to school).*
- **I will** respect and follow the Morning Drop-Off Procedures.
- **I will** respect and follow the Dismissal Procedures.
- **I will** follow the one-way directional arrows in the parking lot.
- **I will** respect the staff and students serving the Wass community during drop-off and dismissal.
- **I will** share this information with anyone designated to pick-up or drop-off my child.

Please detach and return bottom portion only.

2019-2020 WASS PARENT PARKING LOT PLEDGE

*Please return by **Friday, Sept. 20, 2019** with your oldest or only child.*

I pledge to model the Wass Wolves' Way of being Responsible, Respectful, display Empathy to others, have Integrity at all times, and Persevere by showing patience when needed.

_____ _____

Print Your Name **Parent Signature**

My child/children's name is/are _____.

_____.

_____.

My child/children's teachers is/are: _____.

_____.

_____.

I'M SAFE!®

Safe Driving Pledge

Yes, I want to stop distracted driving!

Child: I promise to . . . Date: _____

- Ride quietly in my seat.
- Offer to hold or turn off the driver's cell phone, or take a message, if the driver says that's okay.
- Politely remind drivers to keep their eyes on the road.

Parent: I promise to . . .

- Turn off or put my cell phone in the back seat when I am driving, or ask my child to hold the phone for me.
- Pull to the side and stop in a safe place if I need to answer my phone, text someone or engage in any other activity that would distract me from watching the road.
- Keep my eyes on the road when I am driving.

Signed: **Child:** _____

Parent: _____

Visit www.imsafe.com for more distracted driving prevention tools.