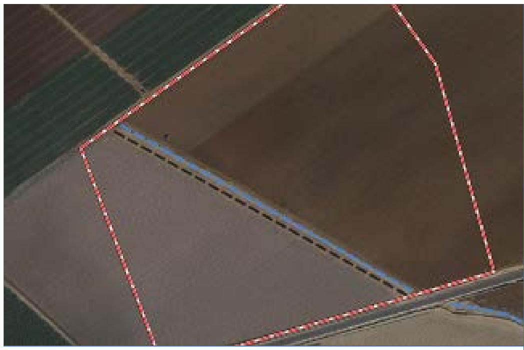
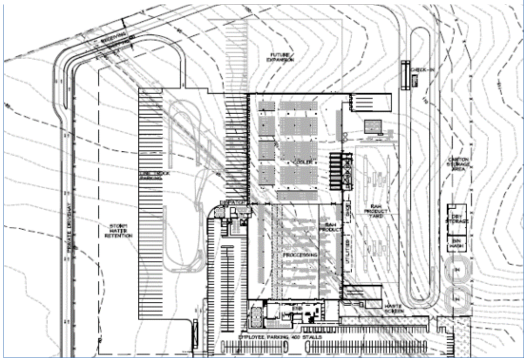
Public Review Mitigated Negative Declaration

Gloria Road Agricultural Cooler Project

City of Gonzales

March 10, 2023

Prepared by

EMC Planning Group

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

In compliance with the California Environmental Quality Act (CEQA), the City of Gonzales has undertaken environmental review for the proposed Gloria Road Agricultural Cooler Project located on Gloria Road, and intends to adopt a Mitigated Negative Declaration. The City of Gonzales invites all interested persons and agencies to comment on the proposed Gloria Road Agricultural Cooler Project.

Lead Agency:	City of Gonzales
Project Location:	Gloria Road, east of the Gloria Road/U.S. Highway 101 interchange in unincorporated Monterey County
Project Description:	The proposed project is an agricultural processing facility consisting of 313,800 square feet of building area proposed within a 32.1-acre development footprint. The base facility configuration includes 210,000 square feet of building area for raw product cold storage and processing lines, and approximately 33,800 square feet of office administration space and miscellaneous mechanical and storage rooms and shop area. The remaining 70,000 square feet of building is proposed for construction in the future with planned operations consisting of additional cooler space, truck dock spaces, and additional uses that are the same as the initial cooler building. A substantial portion of the balance of the site will be paved for parking, truck circulation, and siting refrigeration and other equipment. Process wastewater will be treated and stored for use as agricultural irrigation supply. Planned offsite improvements include a water main and a recycled process wastewater storage pond. Operations would be seasonal, with the peak season from April to November. The project would generate approximately 426 new jobs during the peak season, 80 jobs during the off season. The facility site is within the City of Gonzales Sphere of Influence. Annexation and General Plan Amendment approvals are required.
Public Review Period:	Begins: March 15, 2023 Ends: April 13, 2023
Proposed Mitigated Negative Declaration is Available for Public Review at:	City Hall - 147 Fourth Street, Gonzales, CA 93926; Gonzales Library Branch - 851 Fifth Street, Gonzales, CA 93926; and City website - https://gonzalesca.gov/services/community-development/development-activity-projects
Written Comments May be Sent to:	Taven Kinison Brown, Community Development Director Gonzales Community Development Department 147 Fourth Street, Gonzales, CA 93926 tkinisonbrown@ci.gonzales.ca.us
Public Hearing:	Date: Monday, April 24, 2023 (Planning Commission Special Meeting) Time: 6:00 PM Location: City of Gonzales City Council Chambers

PROPOSED MITIGATED NEGATIVE DECLARATION

GLORIA ROAD AGRICULTURAL COOLER PROJECT

CITY OF GONZALES

PREPARED FOR

City of Gonzales

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March 10, 2023

MITIGATED NEGATIVE DECLARATION

In Compliance with the California Environmental Quality Act (CEQA)

Project Name	Gloria Road Agricultural Cooler Project
Lead Agency	City of Gonzales
Project Proponent	Rianda Family Partnership
Project Location	Gloria Road, east of the Gloria Road/U.S. Highway 101 interchange in unincorporated Monterey County
Project Description	The proposed project is an agricultural processing facility consisting of 313,800 square feet of building area proposed within a 32.1-acre development footprint. The base facility configuration includes 210,000 square feet of building area for raw product cold storage and processing lines, and approximately 33,800 square feet of office administration space and miscellaneous mechanical and storage rooms and shop area. The remaining 70,000 square feet of building is proposed for construction in the future with planned operations consisting of additional cooler space, truck dock spaces, and additional uses that are the same as the initial cooler building. A substantial portion of the balance of the site will be paved for parking, truck circulation, and siting refrigeration and other equipment. Process water will be treated and stored for use as agricultural irrigation supply. Planned off-site improvements include water and wastewater mains and a recycled process water storage pond. Operations would be seasonal, with the peak season from April to November. The project would generate approximately 426 new jobs during the peak season, 80 jobs during the off season. The facility site is within the City of Gonzales Sphere of Influence. Annexation and General Plan Amendment approvals are required.
Public Review Period	March 15, 2023 to April 13, 2023
Written Comments To	Taven Kinison Brown, Community Development Director Gonzales Community Development Department 147 Fourth Street, Gonzales, CA 93926 tkinisonbrown@ci.gonzales.ca.us

Proposed Findings	The City of Gonzales is the custodian of the documents and other material that constitute the record of proceedings upon which this decision is based. The initial study indicates that the proposed project has the potential to result in significant adverse environmental impacts. However, the mitigation measures identified in the initial study would reduce the impacts to a less-than-significant level. There is no substantial evidence, in light of the whole record before the lead agency City of Gonzales that the project, with mitigation measures incorporated, may have a significant effect on the environment. See the following project-specific mitigation measures:

Mitigation Measures

Aesthetics

AES-1 The applicant shall revise the proposed Site Lighting Diagram/Photometric Study to ensure that no facility lighting will create light splay onto land located outside the eastern fence line of the cooler facility fence line on to land that will remain designated Neighborhood Residential in the general plan. In general, the lighting design shall be designed to prioritize directing lighting away from all adjacent land to the east of the facility fence line for this purpose. Prior to approval of a building permit, the applicant shall submit the revised Site Lighting Diagram/Photometric Study for review and approval of the Community Development Director to ensure compliance with this mitigation.

Agricultural Resources

AG-1 The applicant shall provide agricultural mitigation consistent with one or a combination of the agricultural mitigation options identified in the City's draft agricultural mitigation program if the City has not formally adopted an agricultural mitigation program at the time the City considers approving the annexation, general plan amendment, and other project-specific discretionary actions required for the proposed project. If formal adoption has occurred by that time, the applicant shall provide agricultural mitigation consistent with the adopted program. Draft program mitigation options currently include:

a. Offer easements on similar soils classified as prime farmland and farmland of statewide importance, proximate to Gonzales. Provide for the in-kind one-to-one (1:1) acquisition of agricultural mitigation easements, and the dedication of those mitigation easements to an agricultural land trust or other qualifying entity.

Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

b. Purchase easements on similar soils classified as farmland and farmland of statewide importance, proximate to Gonzales. Provide for the in-kind direct purchase of an agricultural mitigation easement at a one-to-one (1:1) ratio and dedicate the easement to an agricultural land trust or other qualifying entity. Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

c. Purchase agricultural banked mitigation credits at a 1:1 ratio from a qualifying entity, or the City of Gonzales, if available; and/or

d. Pay a fee in-lieu to the City of Gonzales, or a qualifying entity (e.g., agricultural land trust) to accept fees in-lieu where the fee value is based on a 1:1 mitigation ratio, and the fee amount is independently appraised and sufficient and timely for the City or qualifying entity to purchase equivalent agricultural mitigation easements and to fund administrative stewardship of the mitigation easements; and/or

e. Implement another approach as approved by the City or combination of the above options, that:

   i. Results in the preservation of agricultural land at a 1:1 ratio proximate to the City of Gonzales, or

   ii. Includes new easements in areas targeted by the City as described in the 2014 MOA. Priority areas for the City of Gonzales to establish new agricultural easements to perfect the Permanent Agricultural Edge per the 2014 MOA with the County of Monterey.

Air Quality

AQ-1 To reduce dust emissions and TACs from grading and construction activities, the applicant shall prepare a Construction Management Plan for review and approval of the Community Development Director or his/her designate prior to issuance of a grading permit. The Construction Management Plan shall include the following language in all bid documents and grading and construction plans, with measures to be implemented by the project contractor:

1. All exposed surfaces (e.g., parking areas, staging area, soil piles, graded areas, and unpaved access roads) will be watered with non-potable water twice per day, at a minimum;

2. All haul trucks transporting soil, sand, or other loose material off-site will be covered;

3. All vehicle speeds on unpaved roads will be limited to 15 miles per hour;

4. All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used;

5. Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points;

6. All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation; and

7. Stage construction equipment and materials as far away from residential land uses to the extent feasible.

8. Heavy-duty diesel vehicles will have 2010 or newer model year engines, in compliance with the California Air Resources Board's Truck and Bus Regulation, and will not be staged within 500 feet of occupied residences; and

9. All non-road diesel construction equipment will, at a minimum, meet Tier 3 emission standards listed in the Code of Federal Regulations Title 40, Part 89, Subpart B, Section 89.112. Further, where feasible, construction equipment will use alternative fuels such as compressed natural gas, propane, electricity or biodiesel.

Biological Resources

BIO-1 Prior to ground disturbance at the project site or off-site improvement locations, a biologist qualified in botany shall conduct a focused survey for Congdon's tarplant in accordance with current CDFW and CNPS rare plant survey protocols (CDFW 2018 and CNPS 2001). The survey shall occur during the peak blooming period for this species to determine its presence or absence (typically August through September). If possible, a known reference population of the target species in the project vicinity shall first be visited to verify that the species is observable, and the focused survey shall be conducted within two weeks of observing the reference population in full bloom.

The biologist shall then prepare a brief report documenting the results of the survey and, if appropriate, propose measures for avoiding or minimizing possible impacts to Congdon's tarplant before and during construction, as included below. If the focused survey concludes the species is not present within the project site boundary or at off-site improvement locations, or if it is present but impacts to it can be completely avoided, then no mitigation would be required.

If the focused surveys identify Congdon's tarplant within the project site boundary or at off-site improvement locations and it would be affected by the proposed project, then appropriate mitigation shall be developed by the biologist and implemented by the applicant prior to issuance of a grading permit. Measures may include, but are not limited to:

a. A qualified biologist shall identify an on-site or off-site mitigation area suitable for restoration of habitat and seed transplantation for this annual herb. The applicant shall be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity.

b. Prior to approval of a grading permit, a qualified biologist or native plant specialist shall perform seed collection from all special-status plants located within the impact areas and implement seed installation at the mitigation area at the optimal time. Additionally, topsoil from the special-status species occurrence area(s) shall be salvaged (where practical) for use in the mitigation area.

c. A maintenance and monitoring program shall be developed by a qualified biologist and established for a minimum of five years after mitigation area installation to verify that restoration activities have been successful. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native plants. Monitoring shall include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years. The performance standard for successful mitigation shall be a minimum 3:1 replacement ratio (i.e., three plants observed in mitigation area for each plant lost from the project site or off-site locations) achieved in at least one of the five years of monitoring.

BIO-2 Prior ground disturbance at the project site or off-site improvement locations, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of special-status species potentially occurring in the project vicinity, including, but not limited to, California tiger salamander, burrowing owl, and nesting birds and raptors. Their habitats, general measures that are being implemented to conserve species as they relate to the project, and the boundaries within which construction activities will occur will be explained. Informational handouts with photographs clearly illustrating the species' appearances shall be used in the training session. All new construction personnel shall undergo this mandatory environmental awareness training.

The qualified biologist will train biological monitors selected from the construction crew by the construction contractor (typically the project foreman). Before the start of work each day, the monitor will check for animals under any equipment such as vehicles and stored pipes within active construction zones. The monitor will also check all excavated steep-walled holes or trenches greater than one foot deep for trapped animals. If a special-status species is observed within an active construction zone, the qualified biologist will be notified immediately and all work within 50 feet of the individual will be halted and all equipment turned off until the individual has left the construction area.

Evidence of completion of this training shall be submitted to City of Gonzales Community Development department prior to ground disturbance.

BIO-3 Prior to ground disturbance, the applicant shall initiate consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to determine the appropriate path forward for a construction project within the immediate vicinity of known hybridized (Ambystoma californiense X Ambystoma tigrinum) salamander populations.

If determined necessary during consultation, the applicant shall hire a qualified biologist to collect genetic samples of salamanders occupying agricultural detention basins or ponds within or adjacent to the project site and off-site improvement locations at least once per month in March, April, and May. The DNA shall then be analyzed to determine the genetic composition of the samples. If no salamanders are found, no further mitigation other than construction personnel training (Mitigation Measure 2) is necessary.

If salamanders are found, the applicant shall submit the results of the genetic analysis to U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife and obtain Incidental Take Authorization from the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, if necessary. Applications for Incidental Take Authorization require the identification of measures suitable to avoid, minimize, or mitigate impacts to the species and its habitat. In addition to protective measures implemented during construction specified in the permits, mitigation for the loss of breeding, aestivation, and/or dispersal habitat will also be a part of the permit requirements. The appropriate method of conservation and number of credits required will be determined during the consultation process.

Documentation of compliance with this measure shall be submitted to the City of Gonzales Community Development Department prior to ground disturbance.

BIO-4 To avoid loss of or harm to burrowing owl, the following measures shall be implemented:

a. Prior to ground disturbance within the project site or at off-site improvement locations, the applicant shall retain a biologist qualified in ornithology to conduct surveys for burrowing owl. The qualified biologist shall conduct a two-visit (i.e., morning and evening) presence/absence survey at areas of suitable habitat on and adjacent to the project site boundary, and at off-site improvement locations, no less than 14 days prior to the start of construction or ground disturbance activities. Surveys shall be conducted according to the methods for take avoidance described in the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) and the Staff Report on Burrowing Owl

Mitigation (CDFW 2012). If no burrowing owls are found, a letter report confirming absence shall be prepared and submitted to the City of Gonzales Community Development Department and no further measures are required.

b. Because burrowing owls occupy habitat year-round, seasonal no-disturbance buffers, as outlined in the Burrowing Owl Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) and the Staff Report on Burrowing Owl Mitigation (CDFW 2012), shall be in place around occupied habitat prior to and during any ground disturbance activities. The following table includes buffer areas based on the time of year and level of disturbance (CDFW 2012), unless a qualified biologist approved by the California Department of Fish and Wildlife verifies through non-invasive measures that either: 1) birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance Buffers (meters)		
		Low	Med	High
Nesting Sites	April 1 – Aug 15	200 m	500 m	500 m
Nesting Sites	Aug 16 – Oct 15	200 m	200 m	500 m
Nesting Sites	Oct 16 – Mar 31	50 m	100 m	500 m

BIO-5 It is possible that birds may nest in locations other than actively farmed agricultural fields. These locations could include the planned process water storage pond area and areas where planned off-site water main and sewer main alignments pass through non-actively farmed agricultural fields. To avoid impacts to nesting birds during the nesting season (January 15 through September 15), all construction activities in these areas should be conducted between September 16 and January 14, which is outside of the bird nesting season. If construction or project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys in these areas as follows.

a. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available, if any, may be surveyed from public areas. If no nesting birds are found, a letter report confirming absence shall be submitted to the City of Gonzales Community Development Department and no further mitigation is required.

b. If the qualified biologist documents active nests, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. Once the absence of nesting birds has been confirmed, a letter report shall be submitted to the City of Gonzales Community Development Department.

BIO-6 Prior to initiation of ground disturbance or construction activities that affect the drainage ditch that traverses the project site, the drainage ditch along the south side of Gloria Road that could be affected by Gloria Road widening construction activities, and the drainage ditches that would be affected by constructing either off-site water main alignment, the applicant will retain a qualified biologist to determine the extent of potential wetlands and waterways regulated by the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

If the USACE claims jurisdiction, the applicant shall obtain a Clean Water Act Section 404 Nationwide Permit. If the impacts to the drainage ditches do not qualify for a Nationwide Permit, the applicant will proceed in obtaining an Individual Permit from the USACE. The applicant will then coordinate with the RWQCB to obtain a Clean Water Act Section 401 Water Quality Certification. If necessary, the applicant will coordinate with the CDFW to obtain a Streambed Alteration Agreement.

To compensate for temporary and/or permanent impacts to wetlands and Waters of the U.S. that would be impacted as a result of the proposed project, mitigation shall be provided as required by the regulatory permits. Mitigation would be provided through one of the following mechanisms:

a. A Wetland Mitigation and Monitoring Plan shall be developed that outlines mitigation and monitoring obligations for temporary impacts to wetlands and other waters as a result of construction activities. The Wetland Mitigation and Monitoring Plan would include thresholds of success, monitoring and reporting requirements, and site-specific plans to compensate for wetland losses resulting from the project. The Wetland Mitigation and Monitoring Plan shall be submitted to the appropriate regulatory agencies for review and approval during the permit application process.

b. To compensate for permanent impacts, the purchase and/or dedication of land to provide suitable wetland restoration or creation shall ensure a no net loss of wetland values or functions. If restoration is available and feasible, a minimum 1:1 impact to mitigation ratio would apply to projects for which mitigation is provided in advance.

For improvements on the project site or off-site improvement locations, the applicant shall comply with terms and conditions of the permits, including measures to protect and maintain water quality, restore work sites, and mitigation to offset temporary and/or permanent wetland impacts. The applicant shall be responsible for implementation of this mitigation measure prior to issuance of a grading permit.

Cultural Resources

CUL-1 If archaeological resources are discovered during soil-disturbing activities, then work should be stopped within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. If the find is determined to be significant, then appropriate mitigation measures will be formulated and implemented. The following language shall also be included on all project plans:

"If any archaeological resources are discovered during grading or construction, all work shall be immediately halted and appropriate personnel, including a qualified Native American representative, shall be contacted and consulted. Based on these consultations, appropriate measures shall be taken to protect the discovered resources, and only after such measures have been implemented shall grading or construction continue."

CUL-2 If human remains are found during construction activities, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Monterey County is contacted to determine that no investigation of the cause of death is required.

If the coroner determines the remains to be Native American, the coroner will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The most likely descendent may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in California Public Resources Code Section 5097.98.

The landowner or their authorized representative will rebury the Native American human remains and associated grave goods, with appropriate dignity, on the property in a location not subject to further disturbance if: a) the Native American Heritage Commission is unable to identify the most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being allowed access to the site; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

Greenhouse Gas

GHG-1 Prior to issuance of a building permits for the proposed project, the applicant shall prepare a Greenhouse Gas (GHG) Reduction Plan. The GHG Reduction Plan shall demonstrate, with substantial evidence, that GHG emissions will be reduced to the year 2030 service population threshold of significance of 0.64 MT CO_2e per year per service population. This would require that the project emissions of 1,960.4 CO_2e per year be reduced by 1,678.60 MT CO_2e per year to 281.80 MT CO_2e per year.

The GHG Reduction Plan shall prioritize on-site GHG reduction design features and/or other project specific measures. One such on-site measure that shall be included is to meet the voluntary Tier 2 electric vehicle performance standards for non-residential development included in effect at the time a building permit is issued (currently the 2022 California Green Building Code). For projects with 201 or more parking spaces, 20 percent of the total must be electric vehicle capable spaces, and 25 percent of the electric vehicle capable spaces must include electric vehicle supply equipment.

In addition to one or more of the on-site project design/project specific measures, the applicant may include in the Reduction Plan and take credit for GHG reductions resulting from making direct investments in off-site GHG reduction activities and/or programs in the vicinity. Examples of direct investments include building retrofit programs that pay for cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting energy efficient windows, and insulation. Other examples include financing programs for installing electric vehicle charging stations, electrifying school buses, and/or planting local urban forests.

The applicant shall retain a qualified air quality/GHG professional to quantify the GHG reductions that would result from implementing the Reduction Plan based on substantial evidence to be included in the Reduction Plan. The GHG reduction measures should be implemented even if their implementation would result in a GHG reduction, but the reduction cannot be reliably quantified. The GHG emissions reduction volume resulting from implementing the Reduction Plan measures may then be subtracted from the required 1,678.60 MT CO_2e per year reduction volume in order to reduce or avoid the significant GHG impact.

If the GHG emissions reductions from implementing the GHG Reduction Plan are insufficient to reduce project emissions by a minimum of 1,678.60 MT CO_2e per year or more, the applicant may secure the balance of the required GHG emissions reduction volume by purchasing and retiring voluntary carbon offset credits (not credits created for transactions in California's regulatory Cap and Trade Program). The carbon offset credits shall meet the following performance standards:

- Carbon offset credits shall be issued by a recognized, reputable and accredited registry that mandates the use of established protocols for quantifying and issuing the offset credits. Credits issued based on protocols approved by CARB should be prioritized. Examples of such registries include the Climate Action Reserve, American Carbon Registry, and Vierra.
- In order of priority, the carbon offset credits should be obtained from projects developed in local vicinity/region, the state, national, or international projects. Priority is on offset credits available through registries approved by CARB. Credits from projects developed internationally should not be used unless the applicant demonstrates with substantial evidence that sufficient carbon offsets from projects in vicinity/region, state, or U.S. are unavailable. International offsets must be quantified and issued using established protocols that are recognized in the United States and that are issued by recognized, reputable and accredited registries.
- All carbon offset credits purchased to reduce GHG emissions, must meet the criteria of being real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2).

Prior to the City issuing a building permit for the proposed project, the applicant shall submit the GHG Reduction Plan for review and approval of the Community Development Director. The Reduction Plan shall demonstrate that GHG emissions from the project will be substantially reduced. If on-site design and off-site program investments do not result in reducing the GHG impact to less than significant, the applicant shall, prior to approval of an occupancy permit, provide documentation in the form of an executed contract or other certification that the balance of emissions reduction required has been obtained through purchase of carbon offset credits, subject to the performance standards listed above.

Hazards and Hazardous Materials

HAZ-1 Prior to the issuance of a grading permit, the applicant shall prepare a Phase I Environmental Site Assessment to determine the potential for or actual presence of hazardous material conditions, including agricultural chemical residues, in all locations that would be disturbed to construct the project, including off-site improvement locations. The applicant shall report the results of the Phase I Environmental Assessment to the Community Development Director prior to issuance of a grading permit. If potential or actual hazardous materials conditions are identified that require preparation of a Phase II Environmental Site Assessment, the applicant shall be responsible for conducting the assessment and shall submit the assessment to the Community Development Director for review. The applicant shall be responsible for implementing all recommendations and requirements for remediation of hazardous materials conditions identified therein, should such conditions be identified. Hazardous materials removed from the site shall be managed consistent with regulations contained in the California Code of Regulations, Title 22 Division 4.5. Certification that remediation actions have been completed shall be provided to the City of Gonzales Community Development Director prior to issuance of a grading permit.

Noise

N-1. The applicant shall implement one or a combination of measures to reduce noise levels along at the eastern fence line of the facility to City standards. The measure options include, but may not be limited to:

a. Construct a soundwall along the entire eastern facility fence line to a minimum height of 8.5-feet above the receiver site elevation to reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation at potential ground level outdoor activity at potential future, adjacent noise sensitive uses. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall; and/or

b. Incorporate industrial types of sound attenuating enclosures, sound absorbing materials, or other appropriate localized sound attenuation measures to reduce noise levels at/near the individual processing equipment noise sources. The attenuation measures and their effectiveness shall be selected in consultation with a qualified acoustical consultant to be retained by the applicant; and/or;

c. Redesign the project site plan to locate noise-producing equipment further from the eastern property line (e.g., along the south side of the facility).

If the applicant chooses to construct a soundwall, plans for the soundwall shall be included on the construction drawings and soundwall height and specifications confirmed by the City of Gonzales Building Department prior to issuance of a building permit. If "at source" noise reduction measures and/or site redesign options are pursued by the applicant, the applicant shall retain a qualified acoustical consultant to evaluate and demonstrate that measures have been selected which are sufficient to meet the City's noise standards at the eastern facility fence line. The measures shall be included in the project plans for review and approval by the Community Development Director prior to issuance of a building permit. If a soundwall is constructed, it shall be completed prior to issuance of a building permit for any future project which places noise sensitive receptors within 350 feet of the eastern facility fence line.

N-2 The applicant shall either construct a soundwall along the entire northern facility fence line (parcel boundary) or eliminate loading dock activities between 10:00 p.m. and 7:00 a.m. If the soundwall option is selected, it shall be constructed to a minimum height of 8.5-feet above the receiver site elevation to reduce noise levels north of the northern facility fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would reduce nighttime loading dock noise levels at the northern fence line to below City threshold by providing adequate noise attenuation at ground level outdoor activity areas of potential future, adjacent noise sensitive uses. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall

If the applicant chooses to construct a soundwall, plans for the soundwall shall be included on the construction drawings and soundwall height and specifications confirmed by the City of Gonzales Building Department prior to issuance of a building permit. If a soundwall is constructed, it shall be completed prior to issuance of a building permit for any future project which places noise sensitive receptors within 300 feet of the northern facility fence line. If the applicant choses to prohibit loading dock activities from 10:00 p.m. and 7:00 a.m., this shall be attached a condition of project approval by the Community Development Director prior to approval of a general plan amendment or a project-specific entitlement if one is required by the City.

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INITIAL STUDY

Gloria Road Agricultural Cooler Project

City of Gonzales

PREPARED FOR

City of Gonzales

Taven Kinison Brown, Community Development Director

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March 10, 2023

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Appendices

Figures

Tables

A. Background

Project Title	Gloria Road Agricultural Cooler Project
Lead Agency Contact Person and Phone Number	City of Gonzales Taven Kinison Brown, Community Development Director 831-755-5000
Date Prepared	March 10, 2023
Study Prepared by	EMC Planning Group Inc. 301 Lighthouse Avenue, Suite C Monterey, CA 93940
Project Location	Gloria Road, east of the Gloria Road/U.S. Highway 101 interchange in unincorporated Monterey County
Project Sponsor Name and Address	Rianda Family Partnership 31958 Gloria Road Gonzales, CA 93926
General Plan Designation	Monterey County – Farmlands 40-Acre Minimum City of Gonzales – Neighborhood Residential
Zoning	Monterey County – F/40 (Farmland 40-acre Minimum

Setting

The proposed project site is located just outside the City of Gonzales ("City") along Gloria Road, approximately 1,750 feet east of the Gloria Road/U.S. Highway 101 interchange. Figure 1, Location Map, shows the regional and vicinity location. The proposed facility is planned on a portion of a 44.8-acre area that is in turn, a portion of an approximately 107.15-acre parcel (APN 223-032-019) owned by the project applicant.

There are four components of the 107.15-acre parcel that are described here (sequentially from west to east). These are shown on Figure 2, Project Location Detail. The first component is the westernmost approximately 26.7 acres that are located within the city limits of Gonzales. There is no development proposed for this area as part of the current project. The 80.45-acre balance of the parcel is within Monterey County and within the City of Gonzales Sphere of Influence (SOI). Of this area, the second component is an approximately 5.1-acre strip of land that is being reserved by the applicant for dedication to the City for a future extension of Herold Parkway from its current terminus through to Gloria Road. The extension is part of the City's planned circulation network as identified in the *Gonzales 2010 General Plan* (City of Gonzales 2011, updated in 2018) ("general plan"). The third component is the 44.8-acre area, which is referenced in this initial study as the "project site". The proposed cooler facility would be constructed within a 32.1-acre footprint of the 44.8-acre area; the 11.9-acre balance of this area is not a functional part of the cooler project and would remain vacant. The entire 44.8-acre area is proposed for annexation to the City. The fourth component is the easternmost 36.6-acre "remainder" of the parcel. There is no development proposed for this remainder area as part of the current proposed project. It is not proposed for annexation to the City as part of the current proposal and would remain in agricultural production. Note that the cooler facility site plan shown in the figure has been updated. The current site plan is described and illustrated below.

The northern and southern boundaries of the cooler facility footprint are co-terminus with the overall parcel boundary. The western and eastern boundaries of the cooler facility footprint would be defined by facility fence lines.

The proposed project includes off-site infrastructure improvements. These include water and wastewater conveyance infrastructure, circulation improvements, and process water conveyance and associated storage pond infrastructure. These improvements and their settings are described below and in individual sections of this initial study where necessary.

The term "proposed project" is used in this initial study to refer to the proposed facility and the proposed off-site improvements as a whole.

The project site is currently in agricultural row crop production. It is bisected by a topographical grade break, along which run a farm road and an agricultural drainage ditch. Adjacent land on the west, north and east is also in active agricultural production. Gloria Road borders the site on the south, with agricultural land to the south of the road. The nearest developed urban uses are about one-half mile to the northwest on the opposite side of U.S. Highway 101. The nearest existing residential neighborhoods are to the north/northwest, about 0.76 miles west and .72 miles east of the highway, respectively.

Figure 3, Aerial Photograph, shows existing site features, as well as other features in the immediate vicinity.

General Plan and Growth Planning

The project site is within one of several locations the City of Gonzales identified as a future development area in the general plan. In May 2014, the Monterey County Local Agency Formation Commission (LAFCO) approved the City's request to include these growth areas in the City's sphere of influence (SOI). The SOI which is a planning boundary outside of a city's legal boundary that represents a city's probable future growth boundary and service area. The project site is located within the SOI.

Figure 4, Existing General Plan Land Use, shows existing land use designations for the project and surrounding properties. It also shows the SOI boundary in the immediate project area. The project site is currently designated Neighborhood Residential. This designation allows a full range of housing types at densities ranging from two units per acre to 24 units per acre provided the average within a neighborhood is between seven and nine units per gross acre. The project site is within an area which the general plan envisions being developed with a large, residential-oriented neighborhood supported by a mix of commercial, park, school, and limited light commercial uses that are compatible with planned adjacent residential uses. That development would be guided by a specific plan, which is required by the City for major new developments within the SOI.

An application for a specific project known as Puente del Monte was filed with the City in 2018. The Puente del Monte Specific Plan boundary includes the land on which the current cooler facility is proposed. The development review process for the specific plan has since been delayed for a variety of reasons. If the City approves the proposed project, the Puente del Monte Specific Plan project description would need to be modified to exclude the current project site; additional land use design changes would also likely be required to promote land use compatibility between future specific plan uses and the cooler facility.

Project Description

The applicant has submitted an extensive application package that includes a range of descriptive, graphic, and technical information and analyses. The application package is available for review at the City of Gonzales Community Development Department at 147 4th Street, Gonzales, California. Much of the information in this project description section is derived from the application package. Information from the application package is also referenced in the discussions of several environmental topics.

Project Overview

The proposed project is an agricultural processing/cooler facility. The facility will receive agricultural crops from nearby fields, where they will be cooled, processed and then shipped to customers. The applicant is proposing the project in Gonzales because it is centrally located to the fields in the Salinas Valley where raw agricultural crops are grown. The proposed project would replace the applicant's existing agricultural processing/cooler facility now located in the City of Salinas off of Abbott Street. The existing facility would be closed, with those operations moved to the proposed Gonzales location. The scale/function of the existing operations in Salinas and the scale/functions of the proposed operations in Gonzales would be similar in terms of number of processing lines and volume of produce processed; number, type, and classifications of jobs; resource demand (e.g., water demand); etc.

On-Site Improvements and Processes

Figure 5, Cooler Site Plan, shows the locations and types of major planned on-site improvements. A total of 313,800 square feet of building area is proposed on the 32.1-acre facility site. The base facility configuration includes 243,800 square feet of building area. The remaining 70,000 square feet is not being proposed for construction at this time, but is being planned as a future expansion. The base configuration includes approximately 210,000 square feet of raw product cold storage and processing lines where the produce will be cleaned, sized, and packaged, before shipping. Refrigeration equipment including ammonia engine rooms, condensing towers, and vacuum tubes will be utilized as part of the process, to be located outside within a raw product yard where crops are initially received. The remaining approximately 33,800 square feet consists of office administration space and miscellaneous mechanical and storage rooms and shop areas. Operations for the 70,00 square-foot future expansion will primarily consist of additional cooler space and 18 truck dock spaces, within additional uses that are the same as the initial cooler building. This initial study evaluates the impacts of constructing the entire 313,800 square feet of building and operating the facility at this maximum buildout and operations level. All data presented herein (e.g., employment, vehicle trip volume, water demand, wastewater generation, etc.) is based on operations at full buildout of all 313,800 square feet of building.

In addition to proposed buildings, other impervious surfaces cover a substantial portion of the site. These include access drives for line trucks and fire equipment, line truck parking, a 400-space employee/visitor parking area (including spaces dedicated for employees that carpool), the outdoor raw product yard, and carton storage area. Additional improvements include landscaping and lighting, and perimeter fencing required per food safety regulations.

A storm water retention pond is planned along the western edge of the site. Stormwater detention capacity will be determined in part by the amount of impervious surface cover and stormwater that will be generated during storm events. The applicant has prepared a preliminary stormwater control plan to evaluate storage requirements and other on-site water quality best management practices that will be employed to meet water quality requirements.

Table 1, Cooler Facility Coverage Summary, identifies the major components of the site plan along with their acreages and status as pervious or impervious cover.

Table 1 Cooler Facility Coverage Summary

Site Plan Component	Acreage[1]
Impervious Area	
Site Paving	1.3
Employee Parking	3.2
Line Truck Parking	7.1
Cooler Building Footprint	7.1
Raw Product Yard	11.1
Subtotal	29.8
Pervious Area	
Landscaping	1.9
Detention Basin	1.2
Additional Pervious Area	11.9
Subtotal	15.0

SOURCE: Peartree+Belli Architects 2022
NOTE: Total acreage is approximate and varies with rounding.

Figure 6, Proposed Project Visual Perspectives, shows representative “blocked in” views of the planned buildings and partial site layout. Figure 7, Building Elevations, shows representative elevations of the cooler building. Maximum building height is planned at 39 feet (at the top of the building parapet).

Process wastewater refers to wastewater generated from washing agricultural crop inputs. Wastewater from the processing process will be collected, treated, and reused. An on-site pre-treatment facility is planned for this purpose. Treated process water will be conveyed via pipeline to a parcel south of Gloria Road owned by the applicant. The treated process water would be used as agricultural irrigation supply for application to crops in this same area. The water would be stored during winter months when irrigation demands decrease. Figure 8, Process Water Recycle/Reuse Plan, shows the locations of the noted on- and off-site components of the process water recycling/reuse system. The off-site components are described below.

Figure 9, Landscaping Plan, shows proposed landscape plantings along Gloria Road. Tree species that include oak, olive, western redbud, and Victorian box will be planted. A fescue groundcover would be planted through the landscaped area.

Lighting is required to illuminate exterior areas of the site, including employee parking, entry-exist drives, the outdoor break area, the processing yard, and truck parking and loading areas. The applicant has prepared an exterior lighting schedule and photometric plan showing fixture number, type and locations and lighting intensity. Light locations and areas of illumination are illustrated in Figure 10, Lighting Plan.

The applicant is proposing to produce renewable energy to off-set project electricity demand. A rooftop solar energy plan has been prepared as illustrated in Figure 11, Solar Energy Plan. The system is expected to produce approximately 3,758,000 kilowatt hours of electricity.

Off-Site Improvements

Off-site infrastructure improvements must be constructed. Each of these is summarized below.

Water Supply Main. Water supply will be obtained from the City through its distribution system. There are no existing water mains available at the site. One of two potential alignments for an off-site main to connect the site to the existing system will be selected, along which a new main would be constructed as shown in Figure 12, Off-Site Water and Wastewater Main Locations. No other information about these mains is currently available other than their conceptual alignments. One of the options shows the main extending west down Gloria Road, where it would be constructed under U.S. Highway 101 to the segment of existing Gloria Road and onwards to the point of interconnect with the existing water system. It is assumed that a “jack and bore” construction method would be used to install the main under the highway. This method consists of using an auger to drill a horizontal bore hole and to install piping within the bore as the boring progresses. The jack and bore system is commonly used to install pipelines under roads and railroad lines because it generally causes minimal disruption to the roadway/rail line and traffic/rail operations.

The second potential alignment is along the assumed plan line/right-of-way for extending existing Herold Parkway through to Gloria Road from its existing terminus north and east of the project site. The roadway extension has been identified by the City as a necessary component of the cumulative circulation improvements needed to accommodate cumulative development within the SOI. The proposed project would not trigger the need to construct the extension; it would be constructed in the future once additional development occurs within the SOI. Consequently, if this optional water supply main location is selected, easements may be required from the owners of the properties through which the main would be constructed.

Wastewater Conveyance Main. Domestic wastewater from the facility must be conveyed to the City's existing conveyance system for delivery to the wastewater treatment plant. There are no existing wastewater mains available in Gloria Road. A new main is planned as part of the project. It would extend down Gloria Road to its intersection with the plan line for extending existing Herold Parkway through to Gloria Road. The new main would then be constructed within the plan line/right-of-way to a point of connection with the existing wastewater conveyance system that is located within an existing street. The wastewater main location is shown in Figure 12. An easement may be required from the owners of the properties through which Herold Parkway extension portion of the main would be constructed.

Process Wastewater. The applicant is proposing to treat and reuse collected process water. After treating the wastewater onsite, the applicant proposes to pump, convey, store and reuse the water for agricultural irrigation. A conveyance force main would extend onto the adjacent property on the east, which is owned by the applicant. From there, the main would turn south and cross under Gloria Road. An existing pipeline under the road would be used. The pipeline would extend onto the parcel of land on the south side of Gloria Road that is owned by the applicant, and discharge to a storage pond. The land is within unincorporated Monterey County and outside of the City's SOI.

Based on analyses provided by the applicant, approximately 85,000 gallons per day of process wastewater would be treated. To store this water when monthly irrigation demand is lowest (and the required storage volume is highest), a lined, aeriated storage pond 600 feet long, 300 feet wide and up to 15 feet deep with a capacity of about 42.7 acre feet must be constructed on the parcel south of Gloria Road. A portion of the proposed pond footprint incorporates an existing agricultural irrigation pond. More information about this system is provided in Section 10, Hydrology and Water Quality. Refer to Figure 8, Process Water Recycling/Reuse Plan for the improvement locations. Engineered drawings of the system are not currently available.

Circulation Improvements. The *City of Gonzales Sphere of Influence (SOI) Circulation Study* (Kimley-Horn 2019) includes an analysis of circulation network improvements needed to accommodate future growth within the SOI as planned in the general plan. Improvement requirements throughout the SOI include new traffic signals and/or new roundabouts and roadway widening in specific locations. The circulation study identifies the need to widen Gloria Road to accommodate 2035 cumulative traffic conditions and includes standards for the ultimate improvements to the road. The ultimate roadway section is shown in Figure 13, Gloria Road Cross Section. The applicant will be required to construct improvements along the project site frontage consistent with those standards. The applicant would be required to construct the north side of the section plus one travel lane and a shoulder on the south side of the centerline along the project frontage. The applicant will be required to submit detailed plans for these improvement for City review and approval.

Pending the applicant's submittal of Gloria Road improvement plans, assumptions are made here based on the ultimate Gloria Road cross section regarding areas outside the existing Gloria Road paved section and shoulders that would be disturbed to construct improvements that will be required of the applicant. The existing two-lane road has about 24 feet of pavement and approximately 5-foot-wide shoulders on each side for a total width of about 34 feet (17 feet on each side of the centerline). The new cross section standards show an 81-foot improved road section. The applicant would be required to construct approximately 48 feet of new road section on the north side of the new centerline, such that an additional approximately 30-40 feet outside the existing shoulder along the project site frontage would be disturbed to construct the improvements. Improvements to conform with existing improvements would also be needed to the west of the project site boundary. The segment of Gloria Road between the project site and U.S. Highway 101 would be improved to the full section standards as future development occurs within the SOI. The improvements required of the applicant on the south side of the new centerline appear to be feasible within the existing south side paved/shoulder width.

A transportation analysis was conducted for the proposed project. It is discussed in Section 17, Transportation. As part of that analysis, the need for other circulation system improvements to accommodate the project was studied. No improvements other than those proposed for Gloria Road were identified as necessary. The applicant will be required to pay traffic impact fees to fund the project contribution to demand for cumulative transportation improvements needed with future buildout of the SOI.

Seasonal Operations and Associated Employment Generation

Agricultural coolers in Monterey County generally operate on a seasonal basis. The peak season is generally from April to November when coolers are receiving, processing, and shipping locally grown crops. The off-season is from December to March when agricultural processing activities shift to other locations (e.g., Yuma Arizona) where local crops are being harvested and in need of processing.

During the peak processing season from April-November, approximately 436 employees will be onsite each day. The majority would be involved in processing activities, while others serve a facility maintenance and function capacity. Office staff constitute a significant percentage as well. Operations will occur 24 hours per day during the peak season.

Total employee number will decline to approximately 80 during the off-season period from December-March. The 80 off-season employees are a subset of the peak season employment, not in addition to. During the off-season, on-site processing operations cease. Facility maintenance and office operations are the main functions that remain active. Up to six trucks per day (three in and three out) would deliver prepackaged produce to the facility from where it is transferred for shipping (no associated processing, cooling or packaging activity occurs). It is expected that the new jobs will be filled by existing residents from Gonzales and other nearby Salinas Valley cities.

The facility will operate on a shift schedule during both seasons, so not all employees are on site at the same time during either season. The applicant has submitted a detailed schedule of employee number per shift time for peak and off-peak seasons.

Entitlement Requirements

City of Gonzales

As identified previously, the project site is designated Neighborhood Residential in the general plan. Agricultural services such as food processing are prohibited uses within areas that carry this land use designation. Consequently, the applicant is requesting approval of a general plan amendment to change the land use designation to Industrial/Manufacturing. Agricultural services are allowed in areas with this designation. The City may also require approval of other project-specific entitlements such as a use permit or site plan review.

The City is initiating an additional general plan amendment as part of the project. General plan policy LU-2.1 and implementing action LU-2.1.1 require that a specific plan be prepared for new development within the City's growth area (SOI), which includes the project site. Individual projects in this area were not contemplated in the general plan. The City is proposing to amend the general plan to allow individual projects in the growth area without the requirement to prepare a specific plan. A series of amendments to general plan amendment text, tables, and figures would also be needed to reflect the proposed change in land use for the project site its incorporation into the city limits.

Because the strip of land being reserved for extending Herold Parkway and the project site are outside of the city limits, but within the SOI, both can and must be annexed to the city before the roadway extension and proposed project can be developed under City jurisdiction. The applicant is; therefore, requesting that the City approve annexation of both areas. Both areas are also within the boundaries of the Monterey County Resource Conservation District and the Gonzales Rural Fire Protection District. As part of the "boundary reorganization" process that includes annexation, both areas would be detached from the boundaries of these two districts.

As part of the annexation process, both areas must also be pre-zoned to a zoning classification that allows the road extension and that implements the proposed Industrial/Manufacturing land use designation. The City's Industrial (I) zoning designation allows roadways and agricultural services uses as a permitted uses per Zoning Code section 12.56.040. The applicant is requesting the site to be pre-zoned to this designation.

Monterey County LAFCO

LAFCO has discretionary approval over reorganizations of public agency boundaries, including annexations and attachments/detachments from special districts. The applicant is requesting the City approve the annexation, then forward a resolution of application for reorganization to LAFCO. The project site is also within the boundaries of the Monterey County Resource Conservation District and the Gonzales Rural Fire Protection District. As part of the boundary reorganization process, the project site would also be detached from the boundaries of these two districts. After the City acts to approve a resolution of reorganization, the City would forward the resolution of application for reorganization to LAFCO. The annexation and detachments would become effective upon LAFCO's approval of the reorganization, subject to any conditions imposed by LAFCO.

Monterey County

As previously described, the applicant intends to construct a process wastewater storage pond on the parcel south of Gloria Road. That parcel is within the control of the applicant, but not within the city limits or the City's SOI. Because the property is not within the SOI, it cannot be annexed to the city. Therefore, the City would have no jurisdiction to approve constructing the pond. That jurisdiction would rest with Monterey County. Consequently, it is assumed that the applicant will be required to obtain a grading permit or similar discretionary approval from the County to construct the pond.

Other Public Agencies Whose Approval is or May be Required

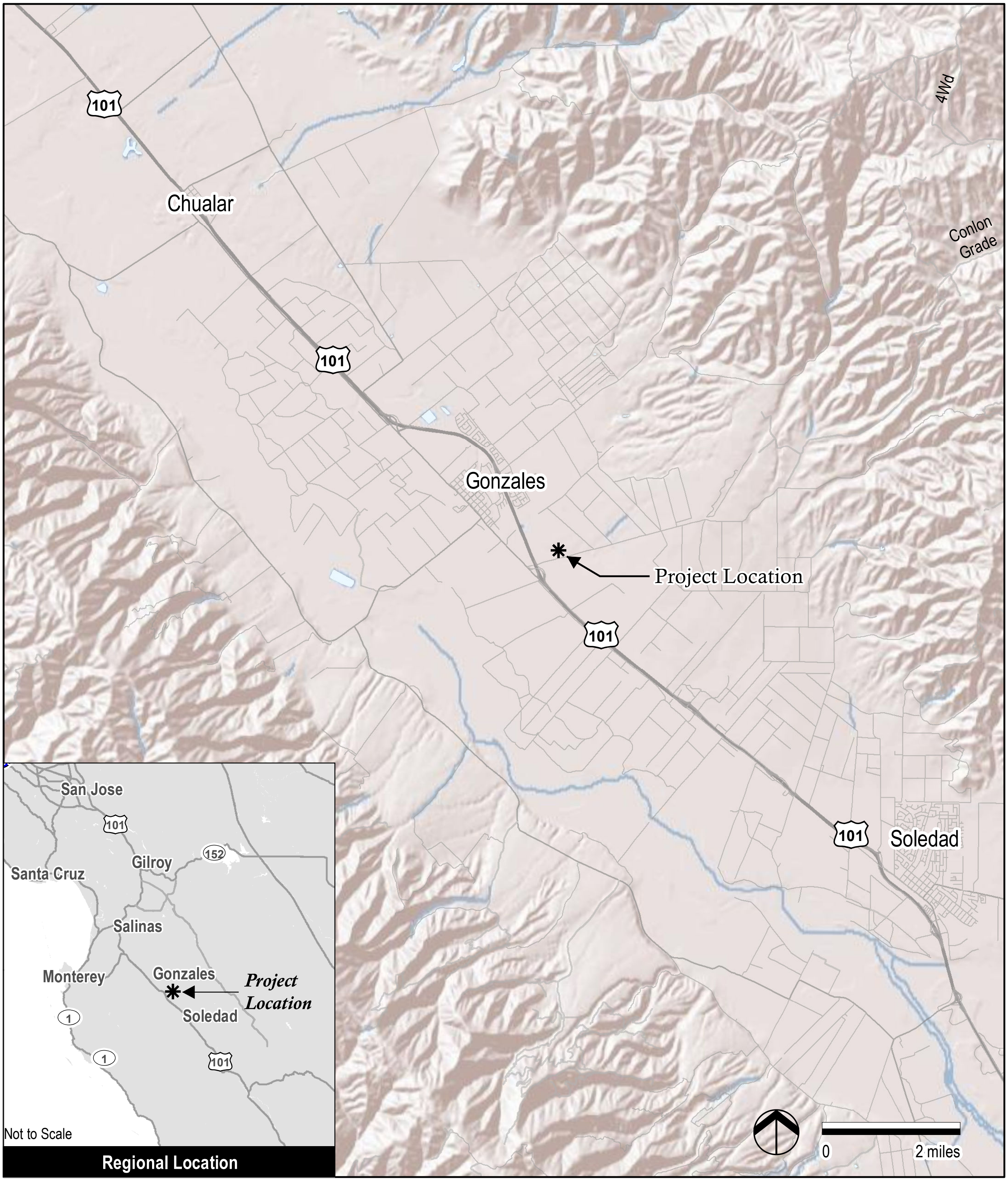
- Monterey County Local Agency Formation Commission – boundary reorganization approval (annexation and district boundary changes);
- Monterey County – grading permit for constructing off-site process stormwater conveyance main and storage pond;
- California Regional Water Quality Control Board – approval of waste discharge requirements for discharges of fruit and vegetable processing waste (General Discharge Order for Discharges of Fruit and Vegetable Processing Waste – Order No. R3-2004-0066);
- California Department of Transportation (Caltrans) – encroachment permit for construction within U.S. Highway 101 right-of-way (if the optional water main alignment under the highway is implemented);
- U.S. Army Corps of Engineers, California Regional Water Quality Control Board and California Department of Fish and Wildlife – permits for impacts to agricultural drainage ditches if determined to be jurisdictional; and
- U.S. Environmental Protection Agency and Monterey County Environmental Health Department - review of Ammonia System Risk Management Program (per 40 Code of Federal Regulations Part 68), and Monterey County Health Department Review of Ammonia System Risk Management Program (per California Accidental Release Prevention Program).

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public

Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

On December 16, 2022, the City submitted a formal offer of consultation to the Ohlone/Costanoan-Esselen Nation pursuant to California Assembly Bill 52. City staff followed up with a call to the tribe. No response requesting consultation was received by the City within 30 days of the date of the offer of consultation.



Source: ESRI 2014

Figure 1
Location Map
Gloria Road Agricultural Cooler

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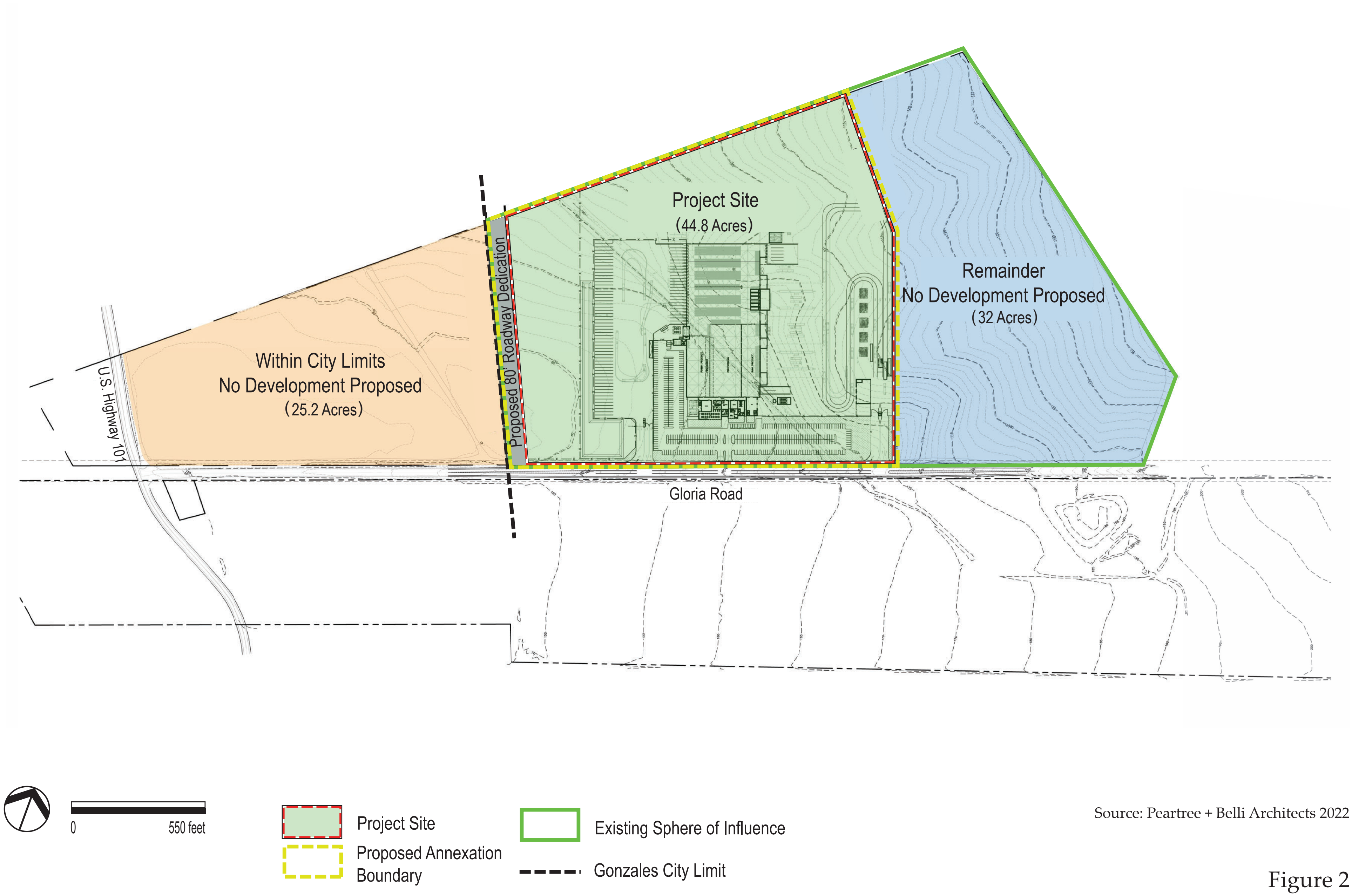

Source: Peartree + Belli Architects 2022

Figure 2
Project Location Detail

Gloria Road Agricultural Cooler

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Source: Peartree + Belli Architects

Figure 3

Aerial Photograph

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Gloria Road Agricultural Cooler

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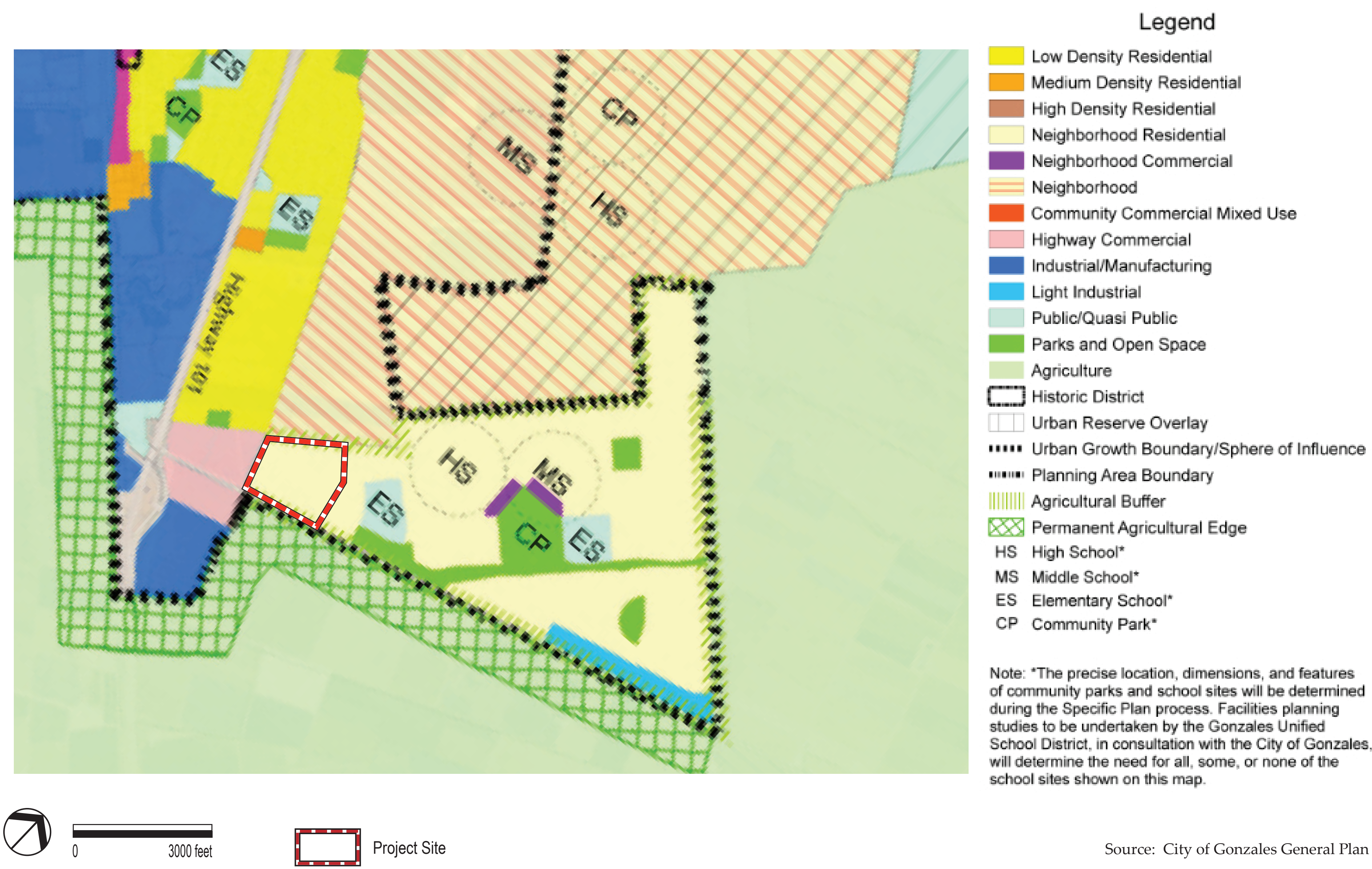

Source: City of Gonzales General Plan 2016

Figure 4

Existing General Plan Land Use

Gloria Road Agricultural Cooler

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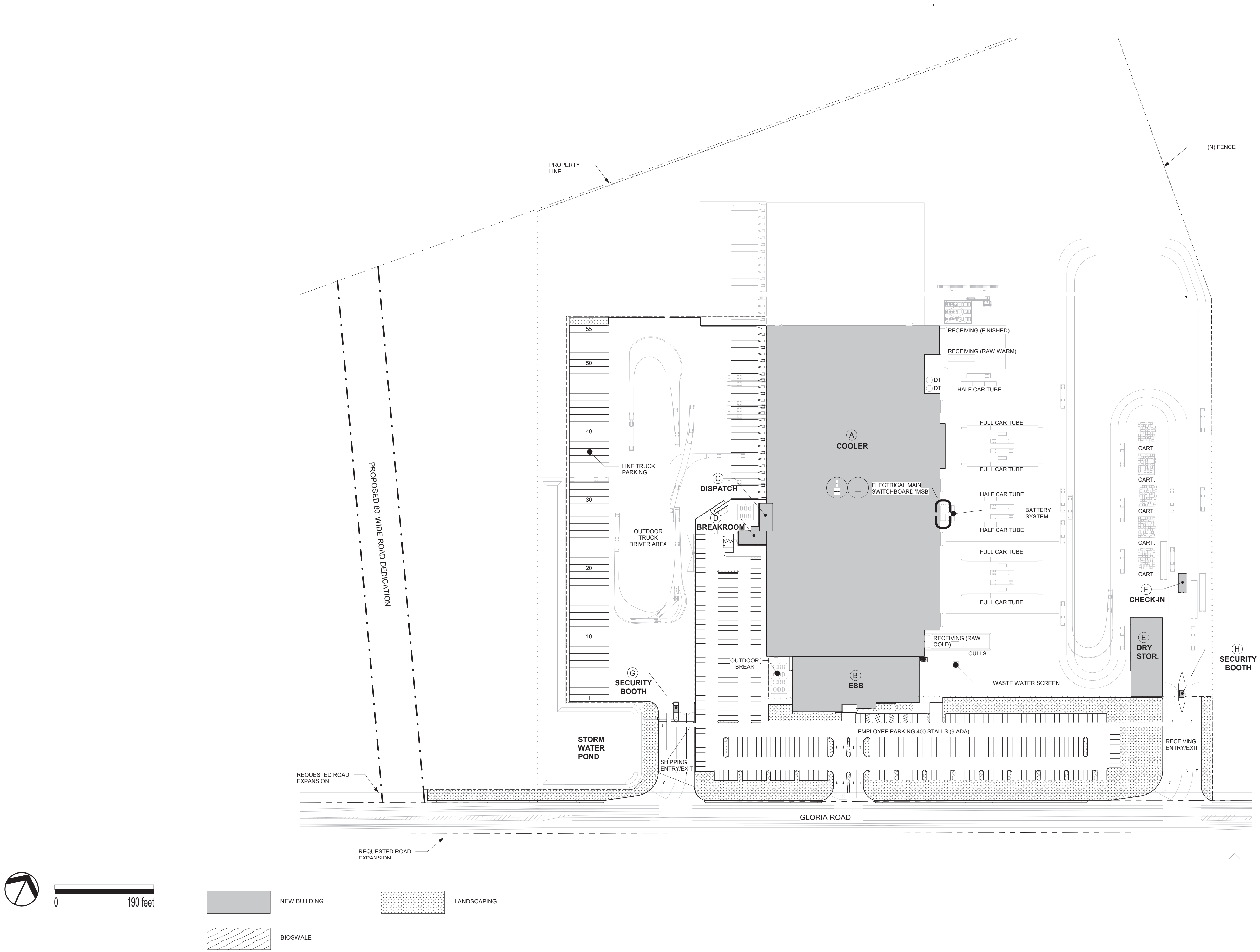

Source: Peartree + Belli Architects 2022

Figure 5
Cooler Site Plan

Gloria Road Agricultural Cooler

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Source: Peartree + Belli 2022

Figure 6
Proposed Project Visual Perspectives

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Gloria Road Agricultural Cooler

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1 EXTERIOR ELEVATION – SOUTH

SCALE: 1″ = 60′-0″

2 EXTERIOR ELEVATION – EAST

SCALE: 1″ = 60′-0″

Source: Peartree + Belli 2022

Figure 7

Representative Building Elevations

Gloria Road Agricultural Cooler

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REFERENCE NOTES:

	DESCRIPTION
1	PROPOSED PROCESSING FACILITY
2	PROCESS WASTEWATER FORCEMAIN
3	30 ACRE PROCESS WASTEWATER REUSE AREA - BOUNDARY APPROXIMATE
4	LINED PROCESS WASTEWATER STORAGE POND (600' X 300')
5	POTENTIAL FUTURE HEROLD PARKWAY EXTENSION
6	REUSE EXISTING PIPELINE UNDER GLORIA ROAD
7	APPLICANT OWNED PARCEL

0 745 feet

Source: Peartree + Belli 2022

Figure 8

Process Water Recycling/Reuse Plan

Gloria Road Agricultural Cooler

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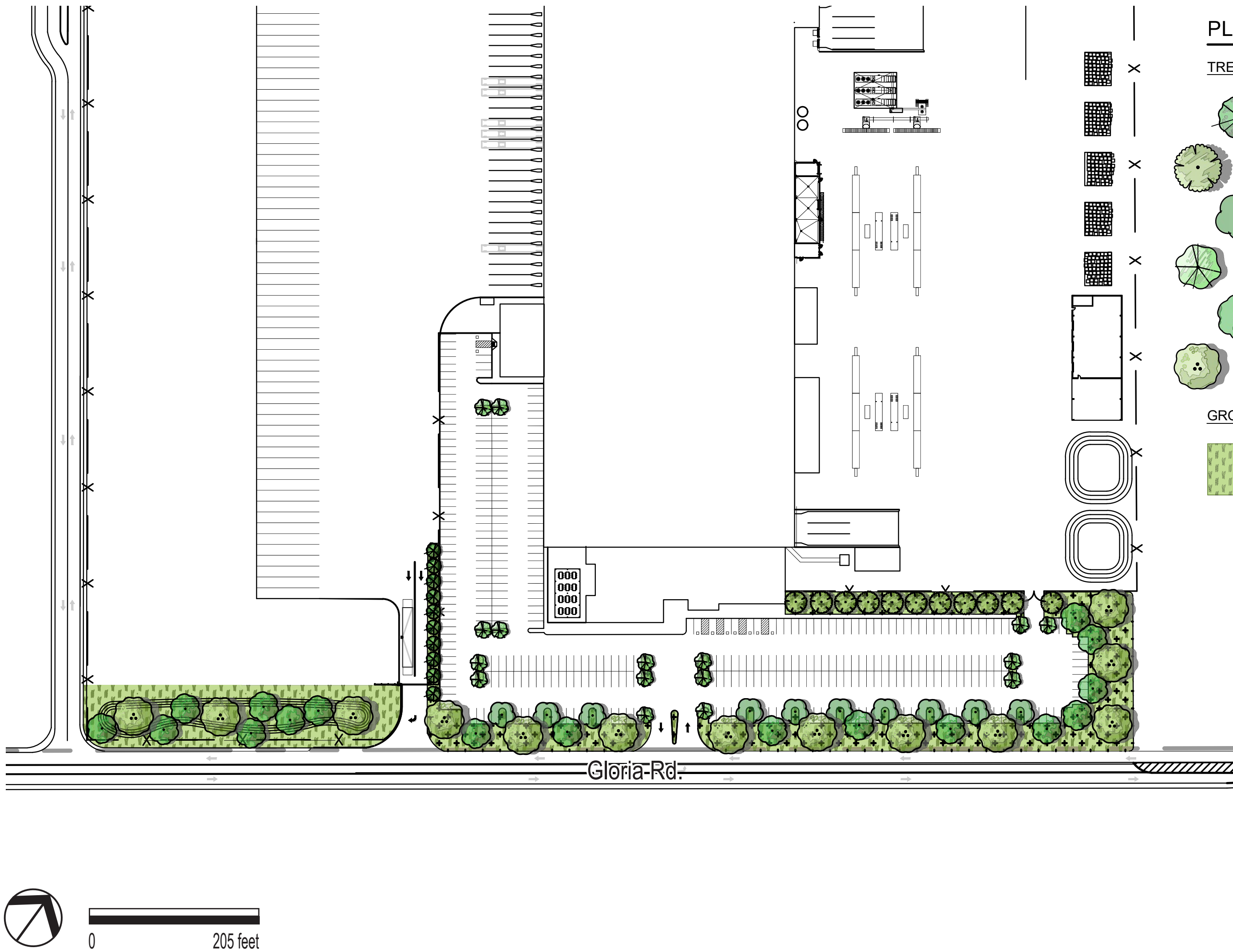

PLANT SCHEDULE

TREES	BOTANICAL / COMMON NAME
	Cercis occidentalis / Western Redbud California Native - 10-18' tall & wide
	Olea europaea `Majestic Beauty` / Fruitless Olive 25-30' tall & wide
	Pittosporum undulatum / Victorian Box 30-40' tall & wide
	Pyrus calleryana 'Aristocrat' TM / Aristocrat Callery Pear 35-40' tall x 20' wide
	Quercus agrifolia / Multi-Trunk Coast Live Oak CA Native - 20-70' tall & wide
	Quercus lobata / Valley Oak CA Native - 30-70' tall & wide
GROUND COVERS	**BOTANICAL / COMMON NAME**
	Festuca rubra / Red Fescue California Native Grass Mix mowable

Source: Peartree + Belli Architects 2022

Figure 9

Landscaping Plan

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Gloria Road Agricultural Cooler

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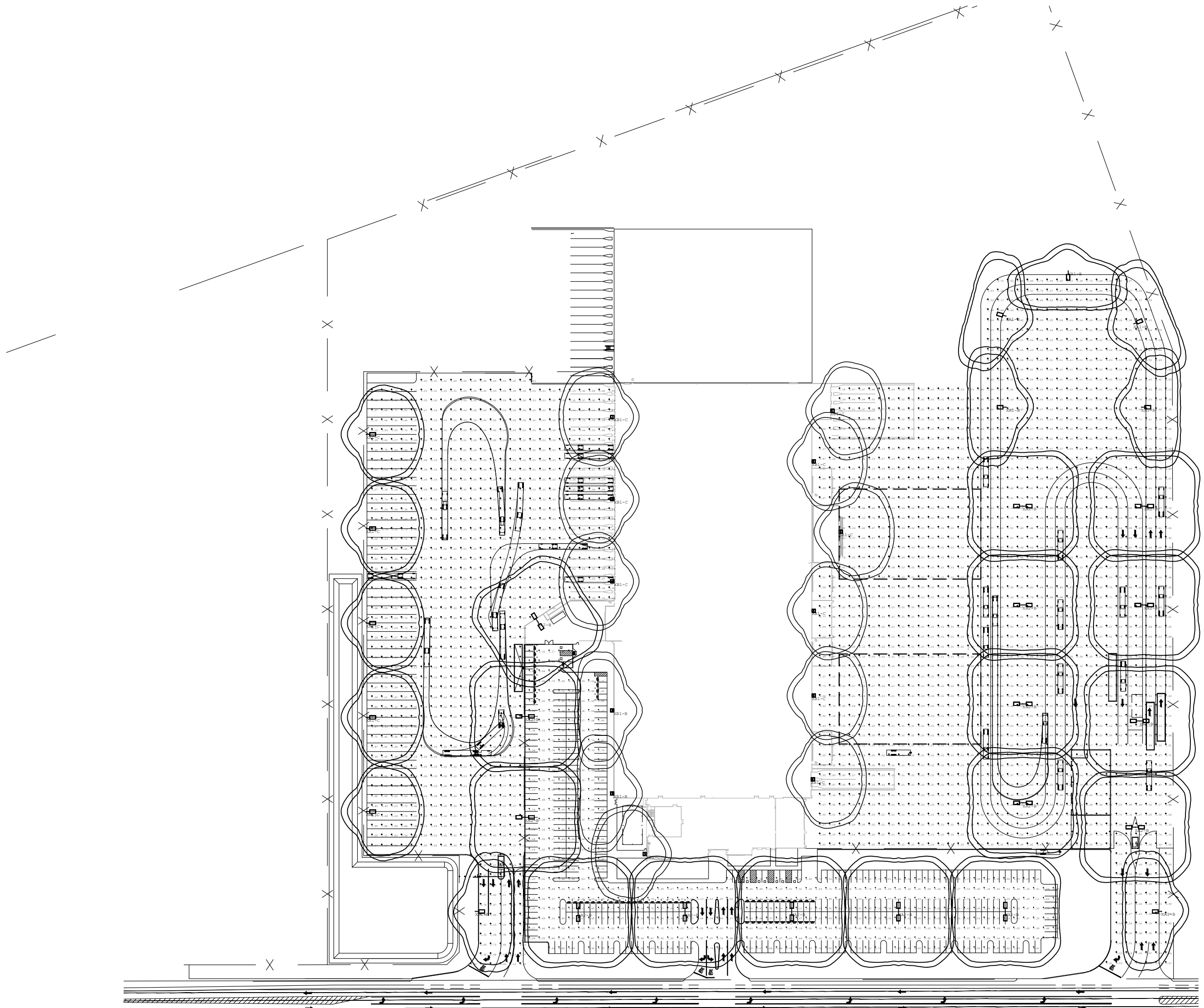
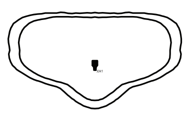


0 267 feet



Representative light fixture
and area of direct illumination

Source: Peartree + Belli Architects 2022

Figure 10
Lighting Plan

Gloria Road Agricultural Cooler

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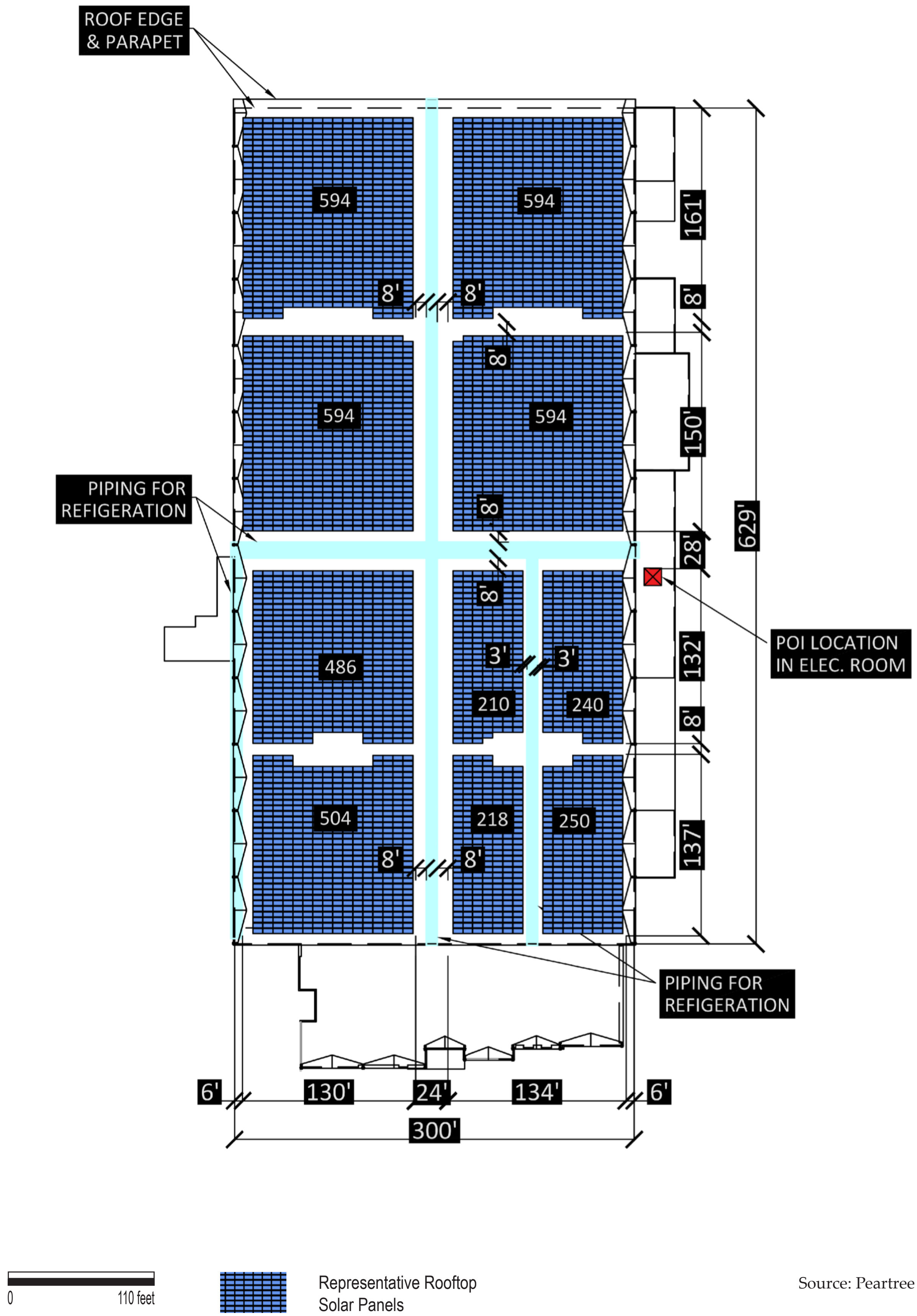

Source: Peartree + Belli 2022

Figure 11

Solar Energy Plan

Gloria Road Agricultural Cooler

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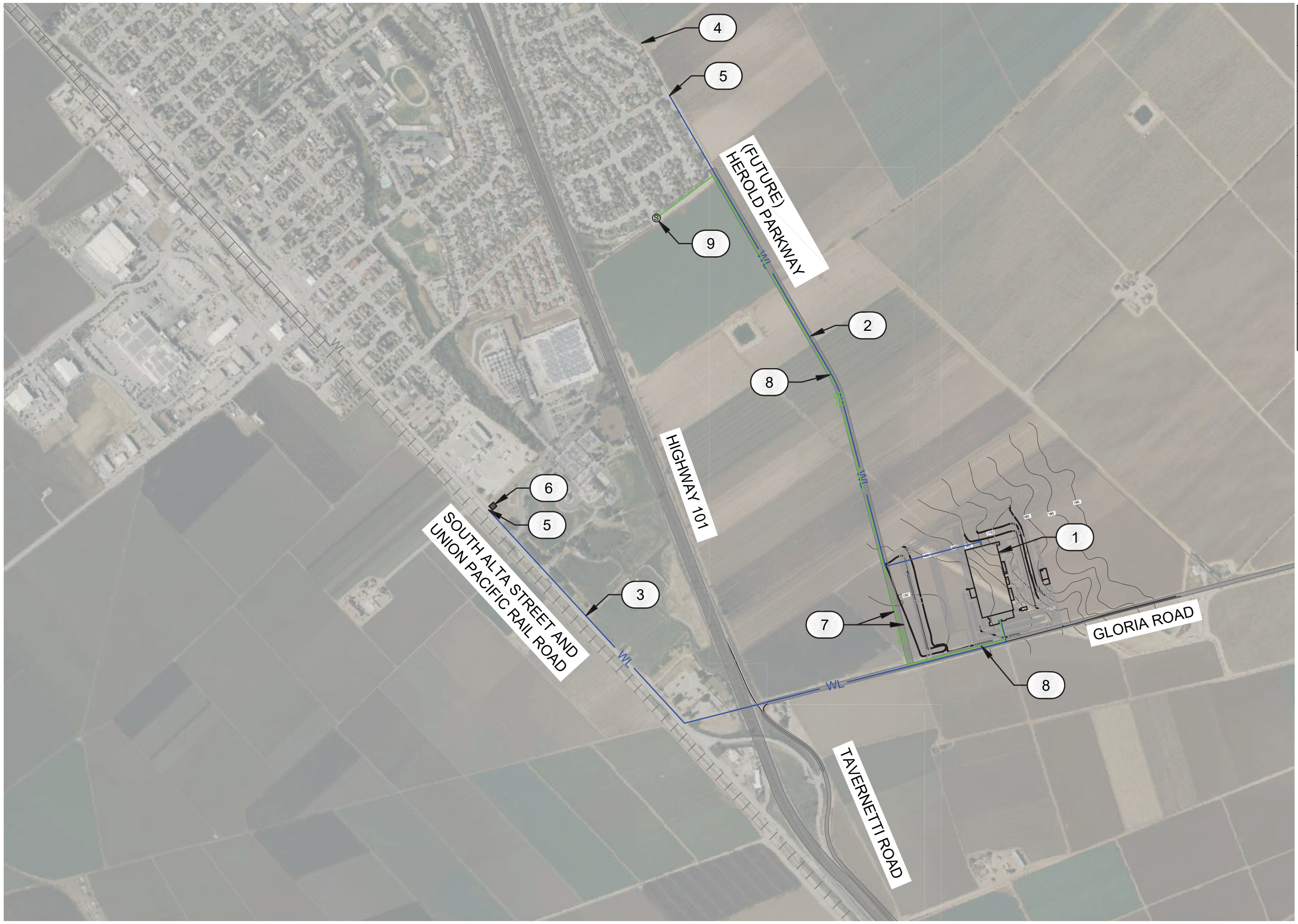

REFERENCE NOTES:

	DESCRIPTION
1	PROPOSED PROCESSING FACILITY
2	PREFERRED WATER SERVICE EXTENSION ALIGNMENT - 16" WATER LINE
3	SECONDARY WATER SERVICE EXTENSION ALIGNMENT - 20" WATER LINE
4	EXISTING CITY OF GONZALES 12" WATER LINE
5	POINT OF CONNECTION TO CITY OF GONZALES WATER SYSTEM
6	EXISTING CITY OF GONZALES PUMP STATION
7	HEROLD PARKWAY EXTENSION
8	DOMESTIC WASTEWATER LATERAL - UP TO 3" FORCEMAIN
9	EXISTING CITY OF GONZALES SEWER MANHOLE AT CHAROLAIS DRIVE AND HEROLD PARKWAY.

0 1840 feet

Source: Peartree + Belli 2023

Figure 12

Off-Site Water and Wastewater Main Locations

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Gloria Road Agricultural Cooler

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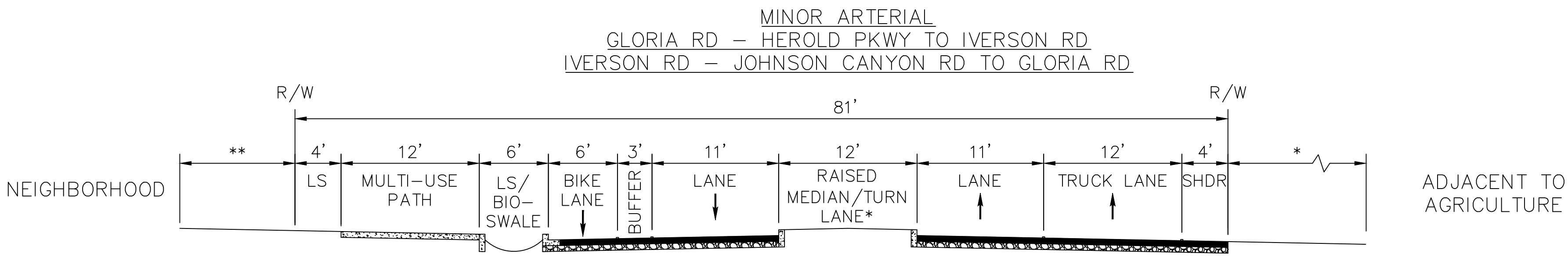

Source: Kimley Horn 2019

Figure 13
Gloria Road Cross Section

Gloria Road Agricultural Cooler

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B. Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

C. Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Taven M-Kinison Brown March 14, 2023

Name and Title Date

D. EVALUATION OF ENVIRONMENTAL IMPACTS

Notes

1. All answers take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
2. Once it has been determined that a particular physical impact may occur, then the checklist answers indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
3. "Negative Declaration: Less-Than-Significant Impact with Mitigation Measures 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 section XVII, "Earlier Analyses," may be cross-referenced).
4. Earlier analyses are 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 would identify the following:
    a. "Earlier Analysis Used" identifies and states where such document is available for review.
    b. "Impact Adequately Addressed" identifies which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and states whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. "Mitigation Measures"—For effects that are "Less-Than-Significant Impact with Mitigation Measures Incorporated," mitigation measures are described which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
5. Checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances, etc.) are incorporated. Each reference to a previously prepared or outside document, where appropriate, includes a reference to the page or pages where the statement is substantiated.
6. "Supporting Information Sources"—A source list is attached, and other sources used or individuals contacted are cited in the discussion.
7. The explanation of each issue identifies:
    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.

General Plan Amendment and Environmental Analysis Approach

The proposed project includes a general plan amendment. That amendment would modify the land use designations identified in the general plan for the project site. The project site overlays land designated for Neighborhood Residential use as shown in the general plan in the "Land Use Diagram Inset #3" diagram included in the general plan. The general plan states that the location of land uses in the inset diagram are general and that their precise locations would be defined through a future specific plan process. Nevertheless, for discussion purposes here, it is assumed that the Neighborhood Residential designation would change to Industrial/Manufacturing with the City's approval of the applicant's proposed general plan amendment.

Where appropriate in this initial study, the environmental effects of the proposed project relative to those that generally would result from development per the existing general plan designation are qualitatively discussed. For many effects such as biological resources, cultural resources, etc., the effects of the proposed project would be similar to those of development per the existing general plan land use, as both would result in developing the project site; the type and/or intensity of development would not affect the significance of impacts. Where appropriate, potential effects of locating an industrial use adjacent to land designated Neighborhood Residential are also discussed. These land use compatibility issues are generally related to visual resources, air quality and noise.

As with the proposed project, off-site improvements would also be required to serve development that would occur under the Neighborhood Residential designation. The precise types and locations of the latter cannot be identified with specificity for purposes of this analysis. Nevertheless, it is assumed the environmental effects of constructing off-site improvements would generally be similar for both the proposed project as for development per the existing Neighborhood Residential designation.

Proposed Project Contribution to Significant Unavoidable Impacts Identified in the General Plan EIR

The *Gonzales 2010 General Plan Environmental Impact Report, SCH# 2009121017 Public Review Draft* (City of Gonzales 2010) ("general plan EIR") identifies a number of significant unavoidable impacts resulting from implementing the general plan. Mitigation measures are identified to lessen the unavoidable impacts where possible. Mitigation takes the form of new mitigation measures to be incorporated into the general plan and/or in the form of general plan policies or implanting actions.

Where the proposed project contributes to a significant unavoidable impact identified in the general plan EIR, this is so noted in the discussions of individual environmental topics in this initial study. For these project effects, the "Potentially Significant Impact" checkbox is marked. This is done solely to note that the project contributes to an unavoidable impact. If and where the project itself results in a project-specific significant impact that cannot be mitigated to less than significant, the "Potentially Significant Impact" checkbox is also marked and analysis is provided to support this determination.

1. AESTHETICS

Except as provided in Public Resources Code Section 21099 (Modernization of Transportation Analysis for Transit-Oriented Infill Projects), would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) 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?	☒	☐	☐	☐

Comments:

a. The general plan EIR does not specifically describe scenic vistas to be considered from a CEQA perspective. It is assumed for the purpose of this initial study that the views of the distant mountain ranges from major public viewing areas (Gabilan and Santa Lucia) are considered sensitive.

The general plan EIR considered the effects of cumulative buildout of the city, including development of the project site and adjacent properties with a large, residential-oriented neighborhood supported by a mix of commercial, park, school, and limited light industrial uses. The project site itself is designated for neighborhood residential, open space, and school uses. The proposed project represents a development type that was not anticipated in the general plan for the project site. The cooler building would of greater mass and height that was contemplated for the area. Refer back to Figures 6 and 7 for building elevations and perspectives, respectively. The tallest element of the cooler building would be 39 feet high.

The extent to which the proposed project may have potential to block views of the Gabilan Mountains to the east of the site and city is considered to be a measure of its potential to adversely affect a scenic vista. Figures 4.3.1 in the general plan EIR shows viewpoints in the city which the city considered to be representative of public viewing locations. The nearest view point location to the site (viewpoint 5) is on the north side of

Gloria Road, east of its intersection with the northbound State Highway 101 onramp, a viewing direction from which a large number and frequency of public views toward the site would be available (for travelers on State Highway 101). Viewpoint 5 is approximately 1,500 feet from the cooler building. At this distance, the cooler building would not have potential to substantially block views of the Gabilan Mountains relative to urban development that could otherwise occur on the site. Nor would the project represent a development type that is unique to the Salinas Valley such that its visual character would be substantially different from other agricultural industrial and commercial uses in the vicinity that are common in the Salinas Valley and can be seen from State Highway 101. For these reasons, the proposed project would not have a substantial adverse impact on a scenic vista and is associated impact would be less than significant.

b. There are no state scenic highways within or adjacent to the city (Caltrans 2022). Therefore, the proposed project would not substantially damage scenic resources within a scenic highway.

c. The project site is located within a non-urbanized area as it is currently in agricultural production and surrounded by agricultural land. The project site is within the City's SOI and planned for future urban development in the general plan. The general plan EIR concludes that buildout of the general plan, including urban development planned for the project site and all areas of the SOI, would substantially degrade the intrinsic open space character of the area and defines the impact as significant and unavoidable. Mitigation measure AES-1 in the general plan EIR requires that a visual screen be constructed for development proposed along the planned permanent agricultural edge of the city (i.e., edge of the SOI).

All development within the SOI, including development of the project site, would contribute to the significant unavoidable impact. While an agricultural industrial use was not contemplated for this site in the general plan, agricultural industrial uses were anticipated in the general plan, including within the Gonzales Agricultural Industrial Park site located west of State Route 101. These uses were assumed to contribute to the significant unavoidable impact. Similarly, the proposed industrial use would contribute to the significant and unavoidable impact.

The project site is located along the southern boundary of the SOI, which is defined by Gloria Road. Consequently, to lessen its visual impact, the applicant must implement mitigation measure AES-1 regarding visual screening. The applicant has submitted a Landscape Concept Plan (refer back to Figure 9, Landscaping Plan). The plan shows landscape plantings, including trees, planned along the project site frontage with Gloria Road. This plan is considered to meet the intent of mitigation measure AES-1.

Although the proposed project would contribute to a significant unavoidable visual impact on visual character and quality, CEQA Guidelines Section 15063(b)(1) states that if an agency determines through an initial study that the significant impact of a project was already examined in an earlier EIR or negative declaration, that an EIR need not be prepared due to the project contribution to that impact. This is the case here. The landscape would implement mitigation measure AES-1 and lessen the project impact contribution to the unavoidable impact consistent with direction provided in the general plan EIR. No further analysis is required.

d. The proposed project would place an industrial structure on a site that is currently used for agricultural production. Therefore, the proposed project would create a new source of light and glare.

Glare. The general plan EIR concluded that significant and unavoidable impacts associated with reflective glass exteriors and glare from cumulative development in the general plan boundary could occur, even with implementation of general plan EIR mitigation measure AES-2. The mitigation measure prohibits building exteriors with large expanses of glass or other reflective material that could be a significant source of glare.

The land uses planned in the general plan EIR for the project site and area (residential-oriented neighborhood uses) would not have been a significant source of glare because that type of development would not involve large expanses of glass or other reflective materials. The proposed project, an industrial building, is designed to include a limited area of glass surface on the south side of the building that faces Gloria Road. Three of the four sides of the building have little to no glass. The building is not designed with large expanses of glass. Consequently, the proposed project contribution to the potential unavoidable impact would be less than considerable and its glare impact would be less-than-significant.

Lighting. The proposed project has specific lighting requirements given its operational needs. Employee and truck parking lots, on-site truck circulation routes, and outdoor operations areas all will require lighting, including during evening hours. Exterior building lighting will also be required. Lighting requirements would be substantial relative to the residential neighborhood uses that could be constructed on the site and in the immediate project area per the existing general plan land use designation.

The applicant has submitted a Site Lighting Diagram/Photometric Study (refer to Figure 10, Lighting Plan), which identifies the exterior lighting schedule and photometric plan, including lighting fixture number, types and locations, lighting intensity and areas of illumination for each light fixture. The applicant has stated that all project lighting has been designed to meet the latest California Title 24 requirements for energy usage, and that all exterior fixtures are specified as "full cut-off" fixtures to allow only for downlighting and to mitigate light leaving the site. Figure 10 shows that the direct areas of illumination (the concentric rings around each light fixture) do not extend off of the site in any location other marginally than along the eastern site boundary.

General plan implementing action CC-8.1.8, Reduce Light Pollution, requires that new development, with special attention to commercial and industrial development, reduce light pollution by designing exterior lighting to be downward cast and hooded. Chapter 12.120.100(B) of the municipal code partially addresses the implementation action by requiring parking lot lighting to be directed downward and away from residential areas. If residential uses were to be located directly adjacent to the eastern facility boundary as could occur under the Neighborhood Residential land use designation, lighting cast outside the facility boundary could adversely impact those uses and may be inconsistent with general plan police CC-8.1.8 and municipal code Chapter 12.120.100(B). This would be a significant impact of the proposed project. The following mitigation would reduce this impact to less than significant.

Mitigation Measure

AES-1 The applicant shall revise the proposed Site Lighting Diagram/Photometric Study to ensure that no facility lighting will create light splay onto land located outside the eastern fence line of the cooler facility fence line onto land that will remain designated Neighborhood Residential. In general, the lighting design shall prioritize directing lighting away from all adjacent land to the east of the facility fence line for this purpose. Prior to approval of a building permit, the applicant shall submit the revised Site Lighting Diagram/Photometric Study for review and approval of the Community Development Director to ensure compliance with this mitigation.

Future development within the SOI, including the project site, as planned in the general plan, would introduce new sources of light that affect nighttime views. The general plan EIR found that nighttime lighting from that development could result in light trespass and light pollution that adversely affects night time views. This impact was found to be significant. Implementation action CC 8.1.8 was identified as partially mitigating the impact, but the impact was determined to be significant and unavoidable.

While an agricultural industrial use was not contemplated for the site in the general plan, industrial uses, including agricultural industrial uses, were planned in the general plan for the area west of the U.S. Highway 101 known as the Gonzales Agricultural Industrial Park. These uses would (and currently do) introduce night time lighting that contributes to the significant unavoidable impact. Similarly, as an agricultural industrial use, the proposed industrial use would contribute to the significant and unavoidable impact with similar types, sources, and intensity of lighting applications.

CEQA Guidelines Section 15063(b)(1) states that if an agency determines through an initial study that the significant impact of a project was already examined in an earlier EIR or negative declaration, that an EIR need not be prepared due to the project contribution to that impact. This is the case here. Further, consistent with implementation action CC 8.1.8, the applicant has demonstrated that the project lighting plan includes measures to reduce light trespass, slight splay to off-site properties, and would not cast light directly into the night sky. The lighting plan meets the intent of the implementing action to lessen the significant unavoidable impact. Consequently, the proposed project contribution to the potential unavoidable impact would be less than considerable and its lighting impact would be less-than-significant.

2. AGRICULTURE AND FOREST RESOURCES

In determining whether impacts on agricultural resources are significant environmental effects and in assessing impacts on agriculture and farmland, 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 Impact with Mitigation Measures 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 conversion of forest land to non-forest use?	☐	☐	☐	☒

Comments:

a. The portion of the site located west of the agricultural road and drainage ditch that traverse through the site (refer back to Figure 3, Aerial Photograph) is classified by the California Department of Agriculture Farmland Mapping and Monitoring Program as Prime Farmland. The portion of the site east of these features is classified as Farmland of Statewide Significance. The parcel on the south side of Gloria Road where the process water storage pond is planned is also classified as Farmland of Statewide Significance

Project Site. The general plan EIR identifies significant agricultural resources impacts that include conversion of prime farmland and farmland of statewide importance to non-agricultural use, and conflicts with existing agricultural Williamson Act contracts. These arose primarily due to planned urban growth east of U.S. Highway 101 within the SOI, including urban growth within the project site. The impact of converting farmland to non-residential use was found to be significant and unavoidable even with implementation of general plan policies that would lessen the impact.

Urban uses that would occur on the site per the general plan would convert farmland to non-agricultural use. The general plan policies that partially mitigate this impact are found in section 4.2.3.1 of the general plan EIR. These policies address topics that include phasing growth to manage the pace of converting farmland, maintaining compact growth to reduce the acreage of converted farmland, minimizing conflicts between urban growth and adjacent agricultural uses through the use of buffers (described in the general plan as typically 200 feet in width), requiring no-access utility prohibition strips be included in specific plans along boundaries with agricultural land, right-to-farm agreements, establishing permanent agricultural edges to the city, establishing an agricultural impact fund to purchase agricultural land conservation easements in areas adjacent to the city, and promoting Williamson Act contracts for areas outside the general plan growth area.

Converting farmland to non-agricultural use would be a significant impact regardless of whether the conversion occurs due to development consistent with existing general land use designations or per the proposed industrial use. However, CEQA Guidelines Section 15063(b)(1) states that if an agency determines through an initial study that the significant impact of a project was already examined in an earlier EIR or negative declaration, that an EIR need not be prepared due to the project contribution to that impact. The general plan EIR already found this impact to be significant and unavoidable.

Off-Site Process Water Infrastructure. The parcel to the south of Gloria Road on which the approximately 4.1-acre (300' x 600'/43,560 square feet per acre) process wastewater storage pond would be constructed is designated Industrial/Manufacturing in the general plan. Converting this area to non-agricultural use was found to contribute to the significant unavoidable impact of implementing the general plan. The area south of Gloria Road was subsequently not included in the City's current SOI and remains in the county. As shown in Figure 8, Process Water Recycling/Reuse Plan, approximately half, or about 2.05 acres, of the area within the proposed pond footprint is already used as an agricultural pond. This area is degraded and its productive agricultural soil has been removed; its return to productive agricultural use would be unlikely. With this assumption, about 2.05 acres of farmland would be converted from row crop production to an agricultural use-supporting infrastructure use.

Removal of about 2.05 acres from row crop production is not considered to be significant for several reasons. First, the proposed pond would not compromise use of the remaining parcel for continued agricultural use, nor would it be incompatible with continued agricultural use. Second, as a point of reference, the Monterey County General Plan EIR identifies that the minimum parcel size for agricultural land classified as

Farmland of Statewide Importance to be entered into a Williamson Act contract (to preserve the agricultural activity for a minimum of 20 years) is 10 acres (Monterey County 2010, p. 4.2-23). This suggests that conserving agricultural land of less than 10 acres is not a priority of the California State Department of Conservation, which oversees the Williamson Act program. Third, the conversion is for an agricultural production-support use that would benefit agriculture by providing a significant irrigation water source and reducing demand on groundwater pumping for irrigation. Assuming that approximately 85 percent of the 85,000 gallons per day of process wastewater volume that is treated and available every day over the course of the seven-month peak-season operational period (April to November) is available and used for irrigation, a total of about 47 acre-feet per year of groundwater extraction would be avoided (.85 x 85,000 x 210 days during peak season/325,840 gallons per acre foot).

The proposed improvements to Gloria Road would also convert farmland to non-agricultural use, most significantly along the north side of Gloria Road along the project site frontage as described in the project description.

In 2014, the City of Gonzales and the County of Monterey entered into the "Memorandum of Agreement between the City of Gonzales and the County of Monterey Regarding Working Cooperatively on Common Planning, Growth and Development Issues in Order to be as Effective as Possible in the Implementation of their Respective General Plans" (City of Gonzales and County of Monterey 2014) ("City/County MOA"). The document was negotiated as a precursor to the Monterey County Local Agency Formation Commission consideration of a City of Gonzales request to amend its SOI. The SOI amendment request was made to support implementation of the general plan by expanding the SOI to include the growth areas identified in the general plan, including the project site.

The City/County MOA reiterates the City's commitments to reducing impacts on agricultural land the SOI is developed over time. The commitments are based on the policy and actions in the general plan that address this issue. Among other things, the City agreed to a number of actions that pertain directly or indirectly to the proposed project. The key action was to adopt an agricultural land conservation program which requires landowners/developers to implement one or more agricultural land conservation actions. The MOA notes possible actions that include: a) purchase/acquire agricultural easements at a 1:1 ratio and dedicate the easement to an agricultural land trust or other qualifying entity (considered by the City and County to be the priority use of agricultural mitigation fees); b) purchase agricultural banked mitigation credits at a 1:1 ratio from a qualifying entity; c) pay an in-lieu mitigation fee; and/or d) implement other innovative approaches that result in agricultural land preservation within areas targeted by Gonzales.

The project impact from converting farmland must be mitigated to the extent feasible. In part to implement the City/County MOA and associated general plan policy for partially mitigating cumulative impacts, the City is developing an agricultural mitigation program that will be adopted by ordinance. The program is currently in draft form and is subject to change. Adoption is anticipated in April-June 2023. The program contains the fundamental components/requirements for mitigating conversion of agricultural land that the City will apply to new development within the SOI. Key elements of the draft program include, but are not limited to:

1. The program applies to conversion of prime farmland and farmland of statewide importance where the activity that is converting the farmland is a non-agricultural use. Agricultural uses are exempt from the mitigation requirements. Agricultural uses include using land to produce food, fiber, or livestock for commercial purposes, and agricultural support uses such as agricultural processing, agricultural coolers, and other direct agriculture value added activities.

2. Mitigation options include:

    a. Offer easements on similar soils classified as prime farmland and farmland of statewide importance, proximate to Gonzales. Provide for the in-kind one-to-one (1:1) acquisition of agricultural mitigation easements, and the dedication of those mitigation easements to an agricultural land trust or other qualifying entity. Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

    b. Purchase easements on similar soils classified as prime farmland and farmland of statewide importance proximate to Gonzales. Provide for the in-kind direct purchase of an agricultural mitigation easement at a one-to-one (1:1) ratio and dedicate the easement to an agricultural land trust or other qualifying entity. Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

    c. Purchase agricultural banked mitigation credits at a 1:1 ratio from a qualifying entity, or the City of Gonzales, if available; and/or

    d. Pay a fee in-lieu to the City of Gonzales, or a qualifying entity (e.g., agricultural land trust) where the fee value is based on a 1:1 mitigation ratio, and the fee amount is independently appraised and sufficient and timely for the City or qualifying entity to purchase equivalent agricultural mitigation easements and to fund administrative stewardship of the mitigation easements; and/or

    e. Implement another approach as approved by the City or combination of the above options, that:

        i. Results in the preservation of agricultural land at a 1:1 ratio proximate to the City of Gonzales, or

        ii. Includes new easements in areas targeted by the City as described in the 2014 MOA. Priority areas for the City of Gonzales to establish new agricultural easements to perfect the Permanent Agricultural Edge per the 2014 MOA with the County of Monterey.

The City also requires site design measures for new non-agricultural related development that is typically considered to be incompatible with the types of nuisances that can be generated by agricultural operations on adjacent properties (e.g., noise, dust, agricultural chemical drift, etc.). These measures typically include buffers between property to be developed and property to remain in agricultural use, and granting a strip of land within such buffers to permanently establish a "hard edge" around the City outside of which development cannot occur in the future. Buffers may be temporary when an adjacent agricultural use is designated for conversion to urban use as part of the general plan. Such site design measures are not required for the proposed project because it is compatible with the adjacent agricultural uses adjacent to the facility site. The City's agricultural mitigation program would also function to implement key general plan policies and implementing actions regarding protecting and conserving.

Based on the current draft agricultural mitigation program, the proposed project would not be subject to the agricultural mitigation because agricultural coolers are considered an agricultural use. However, because the draft agricultural mitigation program is still undergoing refinement and has not yet been adopted by the City Council, it is possible that the proposed project could yet be subject to agricultural mitigation. To be conservative, it is being assumed that the project does convert prime farmland and farmland of statewide importance to a non-agricultural use and will contribute to the significant unavoidable impact of such conversion as identified in the general plan EIR.

To partially mitigate for the impact of converting farmland to non-agricultural use, the following mitigation measure shall be implemented.

Mitigation Measure

AG-1 The applicant shall provide agricultural mitigation consistent with one or a combination of the agricultural mitigation options identified in the City's draft agricultural mitigation program if the City has not formally adopted an agricultural mitigation program at the time the City considers approving the annexation, general plan amendment, and other project-specific discretionary actions required for the proposed project. If formal adoption has occurred by that time, the applicant shall provide agricultural mitigation consistent with the adopted program. Draft program mitigation options currently include:

a. Offer easements on similar soils classified as prime farmland and farmland of statewide importance, proximate to Gonzales. Provide for the in-kind one-to-one (1:1) acquisition of agricultural mitigation easements, and the dedication of those mitigation easements to an agricultural land trust or other qualifying entity. Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

b. Purchase easements on similar soils classified as farmland and farmland of statewide importance, proximate to Gonzales. Provide for the in-kind direct purchase of an agricultural mitigation easement at a one-to-one (1:1) ratio and dedicate the easement to an agricultural land trust or other qualifying entity. Demonstrate that administrative and monitoring expenses for stewardship of the easement in perpetuity have been arranged; and/or

c. Purchase agricultural banked mitigation credits at a 1:1 ratio from a qualifying entity, or the City of Gonzales, if available; and/or

d. Pay a fee in-lieu to the City of Gonzales, or a qualifying entity (e.g., agricultural land trust) to accept fees in-lieu where the fee value is based on a 1:1 mitigation ratio, and the fee amount is independently appraised and sufficient and timely for the City or qualifying entity to purchase equivalent agricultural mitigation easements and to fund administrative stewardship of the mitigation easements; and/or

e. Implement another approach as approved by the City or combination of the above options, that:

   i. Results in the preservation of agricultural land at a 1:1 ratio proximate to the City of Gonzales, or

   ii. Includes new easements in areas targeted by the City as described in the 2014 MOA. Priority areas for the City of Gonzales to establish new agricultural easements to perfect the Permanent Agricultural Edge per the 2014 MOA with the County of Monterey.

b. Neither the project site, nor the parcel south of Gloria Road on which process wastewater storage improvements will be placed are under Williamson Act contract. The project would have no impact from conflict with zoning for agricultural use or with Williamson Act zoning.

c. The project site is not zoned for forest land, timberland or Timberland Production. The project would have no impact from conflict with such zoning.

d. The project site does not contain forest land. The project would have no impact from impacting forest resources.

e. The proposed project is an industrial, agricultural support use. It supports the local and regional agricultural economy by creating value-added agricultural products derived from agricultural crops gown locally. From a land use standpoint, the proposed project is compatible with the existing agricultural uses that border the project site as it would not include operations that would adversely affect continued agricultural production. Nor would the proposed project be sensitive to nuisances created by agricultural operations (e.g., noise, dust, agricultural chemical drift, etc.) such that the operator/owner of the proposed project would seek to request limitations on or cessation of adjacent agricultural operations. Therefore, the impact is less than significant.

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
d. Result in other emissions, such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

Comments:

The City of Gonzales is within the North Central Coast Air Basin (air basin), and within the Monterey Bay Air Resources District (air district). The discussion in this section is based primarily on the air district's *CEQA Air Quality Guidelines* (2008) (CEQA Guidelines) guidance, the air district's *2012 – 2015 Air Quality Management Plan* (2017) (air quality management plan), and the results of emissions modeling using the California Emission Estimation Model (CalEEMod) version 2020.4 software. A memo summarizing modeling assumptions and modeling results ("AQ/GHG memo") and the CalEEMod results are included in Appendix A.

a. The air district uses consistency with the air quality management plan to determine a project's cumulative impact on regional air quality under CEQA. Projects related directly to population growth generate population-related emissions (e.g., motor vehicles, residential heating and cooling emissions). The air district has established a consistency determination procedure tied to population growth and consequently, a project that does not result in an increase in population beyond that projected by the Association of Monterey Bay Area Governments is considered not to conflict with the air quality management plan. The proposed industrial project would not result in an increase in population. Therefore, it would not exceed the population projections upon which the air quality management emissions forecasts are based. The proposed project would not conflict with or obstruct implementation of the air quality management plan and would have not related impact.

b. The six most common and widespread air pollutants of concern, or "criteria pollutants," are ground-level ozone, nitrogen dioxide, particulate matter, carbon monoxide, sulfur dioxide, and lead. In addition, reactive organic gases (ROG) also referred to as volatile organic gases (VOC) are a key contributor to the criteria air pollutants because they react with other substances to form ground-level ozone. Health effects from prolonged exposures to criteria air pollutants include asthma, bronchitis, chest pain, coughing, and heart diseases.

The air district has primary responsibility for assuring that national and state ambient air quality standards are attained and maintained in the air basin. The air district is responsible for monitoring air quality in the air basin, which is designated under state criteria as a nonattainment area for ozone and suspended particulate matter (PM_{10}). Under federal criteria, the air basin is at attainment (8-hour standard) for ozone and particulates. The air district has developed criteria pollutant emissions thresholds which are used to determine whether or not a proposed project would violate an air quality standard or contribute to an existing violation during operations and/or construction.

State standards are promulgated by the California Air Resources Board as mandated by the California Clean Air Act. The air district has developed criteria pollutant emissions thresholds, which are used to determine whether or not a proposed project would violate an air quality standard or contribute to an existing violation during operations and/or construction. Based on the air district's CEQA guidelines, a project would have a significant air quality impact if it would:

- Emit 137 pounds per day or more of an ozone precursor air pollutant (volatile organic compounds or nitrogen oxides);
- Directly emit 550 pounds per day or more of carbon monoxide;
- Generate traffic that significantly affects levels of service (result in a significant localized source of emission of carbon monoxide);
- Emit 82 pounds per day or more of suspended particulate matter on-site, which is equivalent to general construction activity over an area of at least 8.1 acres per day, or grading/excavation over an area of at least 2.2 acres per day; or
- Emit 82 pounds per day or more of suspended particulate matter from vehicle travel on unpaved roads.

The air district CEQA guidelines also note that construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit ozone precursors such as volatile organic compounds (VOC/ROG) or oxides of nitrogen (NOx) are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone thresholds. However, air district CEQA Guidelines Table 5-2, Construction Activity with Potentially Significant Impacts, identifies the level of construction activity that could result in significant temporary fugitive dust (PM_{10}) impacts if not mitigated:

- Construction site with minimal earthmoving 8.1 acres per day.
- Construction site with heavy earthmoving (grading, excavation) 2.2 acres per day.

Construction projects that fall below the screening level thresholds are assumed to be below the 82 lb/day threshold of significance, while projects with activity levels higher than the screening level thresholds may have a significant impact on air quality due to fugitive dust emissions.

Operational Emissions

The proposed project would generate operational mobile and area source emissions. According to air district CEQA Guidelines Table 5-4, the proposed building footprint of 313,800 square-feet is well below the air district's 1.04 million square feet screening size for industrial development that could potentially generate significant operational criteria air pollutant emissions.

Emissions modeling using CalEEMod version 2020.4 was conducted to estimate criteria air pollutant emissions generated by construction activities on and off the site, and during project operations. Model data inputs were derived from project information provided by the applicant and trip generation estimates provided in the project transportation impact analysis (Hexagon 2022). The model assumptions, methodology and results are presented in greater detail in the AQ/GHG memo in Appendix A.

The model results for unmitigated operational criteria air pollutant emissions are compared with the air district thresholds in Table 2, Unmitigated Operational Criteria Air Pollutant Emissions.

Table 2 Unmitigated Operational Criteria Air Pollutant Emissions

Emissions	Reactive Organic Gases (ROG)[1,2]	Nitrogen Oxides (NOx)[1,2]	Suspended Particulate Matter (PM_{10})[1,2]	Carbon Monoxide (CO)[1,2]
Winter	13.5	7	12.6	51.5
Summer	13.6	6.1	12.6	48
Air District Thresholds	137	137	82	550
Exceeds Thresholds?	NO	NO	NO	NO

SOURCE: EMC Planning Group 2023
NOTES:
1. Amounts are rounded and may vary.
2. Units are pounds per day.

Consistent with the air district's project screening size assumptions, the model results indicate that project operational emissions would not exceed the air district criteria air pollutants emissions thresholds for ambient air quality. Therefore, the proposed project contribution to cumulative air quality impacts would be less than significant.

Construction Emissions

Construction activities are temporary and commonly occur over a limited time period. Construction emissions have the potential to significantly impact local air quality, or pose localized health risks. Localized health risks are discussed under item "c" of this section. Construction emissions include equipment exhaust and fugitive dust emissions generated during grading, and ozone precursor emissions generated during the application of architectural coatings and asphalt paving material.

Construction activities could potentially disturb more than 8.1 acres per day during on-site grading and grading for Gloria Road improvements. Off-site construction activity is assumed to occur concurrently in the modeled construction year of 2024. Table 3, Unmitigated Construction Criteria Pollutant Emissions, summarizes unmitigated criteria air pollutant emissions from project construction activity.

Table 3 Unmitigated Construction Criteria Pollutant Emissions

Emissions Source	Reactive Organic Gases (ROG)[1,2]	Nitrogen Oxides (NO_X)[1,2]	Suspended Particulates (PM_{10})[1,2]	Carbon Monoxide (CO)[1,2]
On-site Construction	92[3]	32[3]	21[3]	53[4]
Off-site Construction[5]	7	27	21	20
Total Construction[6]	99	59	42	73
Air District Threshold	137	137	82	550
Exceeds Thresholds?	NO	NO	NO	NO

SOURCE: EMC Planning Group 2023
NOTES:
1. Results may vary due to rounding.
2. Units are pounds per day.
3. Worst year construction emissions occur during winter months and are reported.
4. Worst year construction emissions occur during summer months and are reported.
5. Year 2024.
6. Worst-case emissions volumes per day.

The model results indicate that construction emissions would not exceed criteria air pollutants emissions thresholds for ambient air quality even when on- and off-site construction activity occurs concurrently. Therefore, the proposed project would not result in significant impacts to regional air quality during construction and its contribution to cumulative regional air quality impacts from construction emissions would be less than significant. The potential for localized air quality impacts from construction activity conducted in proximity to sensitive receptors is discussed in item "c".

c. As shown in Figure 4, land adjacent to the project site is designated Neighborhood Residential and general locations for school sites are shown near the project site. Further, there are two existing single-family homes in the vicinity of the project site. The proposed project would generate diesel powered truck trips. Diesel exhaust contains toxic air contaminants (TACs), with diesel particulate matter (DPM) being the primary TAC of concern in diesel exhaust. These pollutants can result in an increase in mortality or serious illness or may pose a present or potential hazard to human health at elevated concentrations over an extended period of exposure. Health effects include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. TACs are found in ambient air, especially in urban areas, and are generated by other sources including industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners).

Health risks from both on- and off-site project truck operations associated with the proposed project were evaluated in the *Gloria Road Agricultural Cooler Project Air Quality Health Risk Assessment* (Illingworth and Rodkin 2023) ("health risk assessment"). The health risk assessment is included in Appendix B. The information in this discussion is taken largely from the health risk assessment.

Project operations would increase TAC emissions. On-site project operations, primarily truck movements and idling, would be new sources of TAC emissions with potential to affect sensitive receptors that could locate adjacent to the facility per existing general plan land use designations. The proposed project would also generate off-site mobile sources of TACs from truck trips on truck travel routes to and from the facility. Truck exhaust would exposure sensitive receptors along these routes, particularly Gloria Road, to increased TAC levels. The air district CEQA guidelines state that sensitive receptors are generally defined as human populations, especially children, seniors, and sick persons, that are located where there is reasonable expectation of continuous human exposure to harmful emissions. These typically include residences, hospitals, and schools.

The air district thresholds of significance for TACs are exposures that result in increased cancer risk greater than 10 cases per million and increased chronic non-cancer health indexes greater than 1.0 (Monterey Bay Air Resources District 2008). The California Air Resources Board (CARB) and the California Office of Environmental Health Hazard Assessment recommend a screening distance of 1,000 feet within which potentially significant exposures to TAC emissions may occur and within which TAC exposures should be evaluated.

The U.S. EPA AERMOD dispersion model was used to predict DPM concentrations at sensitive receptors in the vicinity of the facility. The modeling used a five-year meteorological data set (2016-2020) for use with the AERMOD model by the CARB for use in health risk assessment modeling.

TACs from truck operations were modeled for the worst-case peak season conditions from April through November where 436 total truck trips per day would travel to and from the facility. Truck emissions were modeled as occurring daily over 24 hours. Annual DPM concentrations during 2025 were computed at existing residential receptors and at nearby potential future residential and school receptors using the model. For the potential future receptors, a grid of receptors spaced about every 15 meters (49 feet) and extending out 300 feet from the project facility boundary was used.

Health Risk Results – On-Site Operations. Most trucks would be equipped with transportation refrigeration units that are assumed to be powered by small diesel motors. Truck and transportation refrigeration units were modeled as occurring for 244 days per year, 24 hours/day. All shipping and cross dock trucks were assumed to have transportation refrigeration units operating while traveling onsite and offsite, and for two hours while at the on-site loading dock. All other trucks were assumed to not have transportation refrigeration units.

The maximum-modeled DPM concentration at a potential future residential receptor would occur adjacent to the northern boundary of the project site. This is considered to be the location of the residential maximally exposed individual (MEI). The receptor location is shown in Figure 1 of the health risk assessment. The maximum cancer risk at this potential future residential MEI would be 8.9 in one million, which is below the air district threshold of greater than 10 excess cancer cases per million. Therefore, health risks from truck operations within the proposed facility on potential future adjacent sensitive receptors would be less than significant.

Cancer risks for school children were also evaluated, as the general location of a future elementary school is shown near the project site in the general plan. To be conservative, the maximum DPM concentration for a potential future resident was used to calculate the maximum school child cancer risk. The school child exposure was assumed to occur for a period of six years (kindergarten through sixth grade) for nine hours per day, 250 days per year. The maximum school child cancer risk would be 1.6 in one million, which is below the air district's threshold of greater than 10 excess cancer cases per million. Consequently, the proposed project would have less-than-significant potential health risks at an school that could locate near the facility in the future.

Health Risks – Off-Site Truck Traffic. All trucks would travel Gloria Road on approach to and departure from the site. Truck trip distribution on U.S. Highway 101 is both to the south and the north. Consequently, the highest volume of truck trips is on Gloria Road. The maximum-modeled DPM concentration at an existing residential receptor occurred at the single-family residence located west of the site at the Gloria Road/Tavernetti Road intersection. This is considered to be the location of the existing MEI. The receptor location is shown in Figure 1 of the health risk assessment.

The maximum cancer risk at the existing MEI was modeled at 5.33 in one million, which is below the air district threshold of greater than 10 excess cancer cases per million. Non-cancer hazards at this MEI for DPM would be well below the air district threshold of greater than 1.0, with the maximum chronic health index computed at less than 0.01. Therefore, health risks from truck travel to and from the facility would be less than significant for the existing MEI.

As shown in Figure 4, no new residential or school uses are planned along Gloria Road within the SOI in locations between the facility and U.S. Highway 101. Only commercial uses would locate along this segment of Gloria Road. Consequently, the proposed project would have less-than-significant health risks from off-site truck operations on future potential land uses.

Construction Health Risks. Construction activities, both for on- and off-site improvements, would generate TACs from equipment exhaust. The air district recommends using best management practices during construction to reduce construction-related fugitive dust emissions by up to 50 percent (Monterey Bay Air Resources District 2008), which would reduce fugitive dust emissions during construction. Additionally, emissions from engines used in construction, which are primarily diesel, are subject to control under regulations adopted by both California Air Resources Board (CARB) and U.S. EPA. U.S. EPA promulgated new emission standards for off-road engines in 1998, with CARB adopting parallel standards in 2000. In 2004, Tier 4 emission standards were adopted and were phased in for new engines between 2011 and 2014. In 2007 CARB adopted an off-road equipment regulation to accelerate reductions of NOx and diesel PM from existing off-road engines. Beginning in 2012 and through 2023, the off-road regulation requires operators of older equipment to either install abatement devices, upgrade to Tier 3 and eventually Tier 4 engines, or to retire older equipment. The air district's dust control measures and EPA certified engines would reduce exposures to temporary construction TAC emissions.

Implementation of the following mitigation measure would ensure that the increased health risks from potential exposures to construction TAC emissions are less than significant.

Mitigation Measure

AQ-1 To reduce dust emissions and TACs from grading and construction activities, the applicant shall prepare a Construction Management Plan for review and approval of the Community Development Director or his/her designate prior to issuance of a grading permit. The Construction Management Plan shall include the following language in all bid documents and grading and construction plans, with measures to be implemented by the project contractor:

1. All exposed surfaces (e.g., parking areas, staging area, soil piles, graded areas, and unpaved access roads) will be watered with non-potable water twice per day, at a minimum;

2. All haul trucks transporting soil, sand, or other loose material off-site will be covered;

3. All vehicle speeds on unpaved roads will be limited to 15 miles per hour;

4. All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used;

5. Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations. Clear signage shall be provided for construction workers at all access points;

6. All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation;

7. Stage construction equipment and materials as far away from residential land uses to the extent feasible;

8. Heavy-duty diesel vehicles will have 2010 or newer model year engines, in compliance with the California Air Resources Board's Truck and Bus Regulation, and will not be staged within 500 feet of occupied residences; and

9. All non-road diesel construction equipment will, at a minimum, meet Tier 3 emission standards listed in the Code of Federal Regulations Title 40, Part 89, Subpart B, Section 89.112. Further, where feasible, construction equipment will use alternative fuels such as compressed natural gas, propane, electricity or biodiesel.

Implementation of mitigation measure AQ-1 would reduce the potential increased health risks from exposures to temporary construction emissions to less than significant.

d. Odors are objectionable emissions of one or more pollutants that are a nuisance to healthy persons and may trigger asthma episodes in people with sensitive airways. Nuisance odors are commonly associated with refineries, landfills, sewage treatment, agriculture, etc. Proposed project operations would not be a source of odors that would affect a substantial number of people. Therefore, the impact is less than significant.

4. BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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, regulations, or by the California Department of Fish and Wildlife or US 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, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.), through direct removal, filing, 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?	☐	☐	☐	☒

Comments:

The following analysis is based on the results of background research relevant to the project area and on a reconnaissance-level biological field survey conducted by EMC Planning Group senior biologist Patrick Furtado, M.S., on December 12, 2022.

Information in this section is also derived from a variety of sources including:

- *Puente del Monte Technical Biological Report, Gonzales, Monterey County, California* ("biological report") (Live Oak Associates, Inc. 2020a);

- *Puente del Monte – Peer Review of Biological Report* (EMC Planning Group 2020);
- *Puente del Monte Annexation – Response to EMC's Letter Dated April 27, 2020* (Live Oak Associates 2020a); and
- *Historical and Current Genetic Composition of Mole (Ambystoma) Salamanders at Vista Lucia, City of Gonzales, Monterey County, California* (Live Oak Associates, Inc. 2019).

The reports associated with the Puente del Monte Specific Plan project and the Vista Lucia Specific Plan project are on file with the City of Gonzales. The proposed project site is within the boundary of the Puente del Monte Specific Plan.

Prior to conducting the field survey, Mr. Furtado reviewed construction site plans, aerial photographs, natural resource database accounts, and other relevant scientific literature. This included searching the U.S. Fish and Wildlife Service (USFWS) *Endangered Species Database* (USFWS 2023a), California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* ("CNDDB", CDFW 2023a), and California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2023) to identify special-status plants, wildlife, and habitats known to occur in the vicinity of the project site and off-site improvement locations. A review of the National Wetlands Inventory (NWI) database was also conducted to identify jurisdictional aquatic features (wetlands, drainages, and/or riparian areas) on or adjacent to the project site and off-site improvement locations (USFWS 2023b).

The reconnaissance-level biological field survey documented existing plant communities and wildlife habitats and evaluated the potential for special-status species to occur in the project area. Biological resources were documented in field notes, including species observed, dominant plant communities, significant wildlife habitat characteristics, and riparian and wetland habitat. Qualitative estimations of plant cover, structure, and spatial changes in species composition were used to determine plant communities and wildlife habitats. Habitat quality and disturbance levels were described. Plant species were identified in the field or collected for subsequent identification. Searches for reptiles and amphibians were performed by overturning and then replacing rocks and debris, as well as assessment of potentially suitable habitat areas found on the site. Birds were identified by visual and/or auditory recognition and mammals were identified by diagnostic signs (including scat and tracks).

Existing Conditions. The project site is located in the Salinas Valley just south of the City of Gonzales, along Gloria Road and approximately 1,750 feet east of U.S. Highway 101. With its year-round temperate climate, the Salinas Valley is one of the most intensely managed agricultural regions in the state of California. The project site and most of the areas proposed for off-site improvements are currently in agricultural row crop production and surrounded by fields in agricultural production. Some segments of off-site water and sewer mains would be constructed within the paved sections of existing roads. The process water storage pond portion of the project south of Gloria Road includes agricultural fields, access roads and agricultural ponds dry at the time of the survey. A farm residence and a dry agricultural pond are located to the east of the project site.

The project site is mapped on the Palo Escrito Peak U.S. Geological Survey (USGS) quadrangle map. The project site slopes down to the west and Highway 101 with elevations of approximately 200 feet above sea level in the eastern portion and 150 feet above sea level in the western portion.

Plant and Wildlife Habitat – Cooler Site. Wildlife habitat quality on the site is considered very low due to the high level of disturbance from agricultural activities. Most potential wildlife habitat is found in along field margins, roadsides, and agricultural ditches.

At the time of the biological survey, the agricultural fields on the project site were planted with row crops, and irrigated via above-ground irrigation piping. The soils were saturated and muddy from recent rain events. Vegetation consisted of scattered ruderal (weedy) plants, such as non-native cheeseweed (*Malva parviflora*) and spiny sowthistle (*Sonchus asper*). Plant cover required by many animal species is likely intensively managed (removed) through the regular application of herbicides. Several small mammal burrows were observed at the eastern edge of the site.

Plant and Wildlife Habitat – Off-site Improvement Locations. The project includes off-site improvements: new water and wastewater mains, a process water storage pond, and circulation improvements (Gloria Road widening).

- **Water Main** – Two off-site options for constructing a water main that would tie into the City's existing water supply system are shown in Figure 12, Off-Site Water Distribution Main Locations. Both options traverse agricultural and ruderal habitat as shown on Figure 14, Habitat Map. Option 1 crosses at least two agricultural drainage ditches that are maintained free of vegetation. Option 2 crosses a drainage ditch on the west side of Highway 101. This ditch is concrete-lined with ruderal vegetation such as Russian thistle (*Salsola tragus*) growing outside its bed and bank.
- **Wastewater Main** – The planned wastewater main largely follows the alignment of the Option 1 water main extension as described above.
- **Process Wastewater Storage Pond** – A lined wastewater storage pond will be constructed on the south side of Gloria Road and connected to the cooler facility by an existing pipeline under the road as shown in Figure 8, Process Water Recycling/Reuse Plan. This wastewater storage pond area consists of agricultural land, a dry agricultural pond, and ruderal habitat as shown on Figure 14, Habitat Map.
- **Circulation Improvements** – Gloria Road will be widened along the project site frontage, thereby impacting agricultural/ruderal habitat and potentially the agricultural drainage ditch on the south side of the road.

Common wildlife species that could utilize the sparse agricultural/ruderal habitat found at the project site and off-site improvement locations include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), and Virginia opossum (*Didelphis virginiana*). Species of small rodents including mice (*Mus musculus, Reithrodontomys megalotis*, and *Peromyscus maniculatus*) and California vole (*Microtus californicus*) are likely around field edges. Common reptiles that could occur on or adjacent to the project site and off-site improvement locations include western fence lizard (*Sceloporus occidentalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), and common garter snake (*Thamnophis sirtalis*). Bird species that could use the agricultural/ruderal habitat include great horned owl (*Bubo virginianus*), barn owl (*Tyto alba*), turkey vulture (*Cathartes aura*), and common raven (*Corvus corax*).

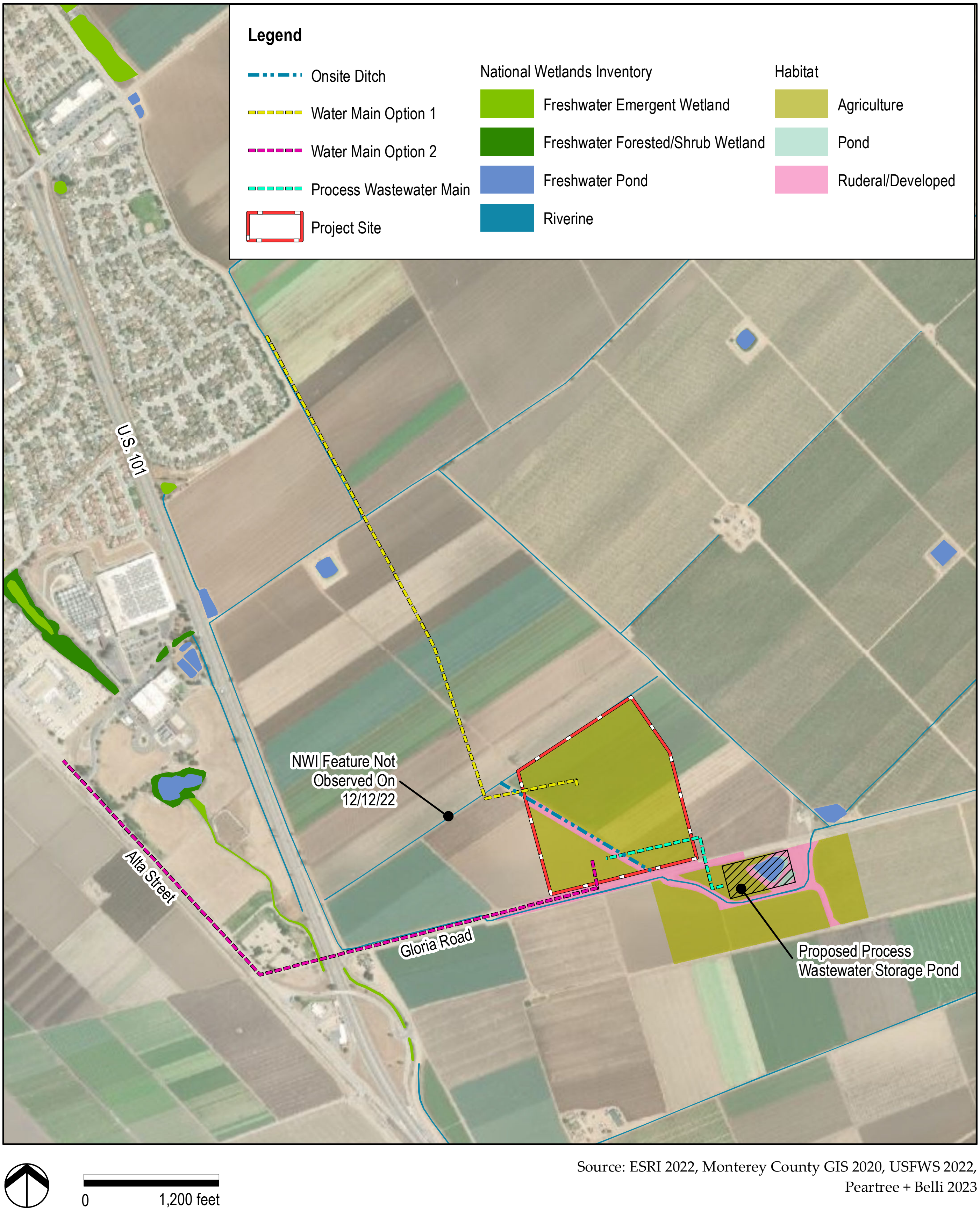
Aquatic Features. An agricultural drainage ditch bisects the project site before flowing along the southwest boundary of the site and under U.S. Highway 101. This ditch is regularly graded and kept free of vegetation. Another agricultural drainage ditch flows along the south side of Gloria Road and is also kept free of vegetation. The agricultural pond to the east and the agricultural pond on the south side of Gloria Road were dry at the time of the field survey and appeared to be out of use. Figure 14, Habitat Map, shows the locations of aquatic features.

a. **Special-Status Species**. Special-status species are those listed as Endangered, Threatened, or Rare, or as candidates for listing by the USFWS and/or CDFW; as Species of Special Concern or Fully Protected species by the CDFW; or as Rare Plant Rank 1B or 2B species by CNPS. Appendix C, Special-Status Species in the Project Vicinity, presents tables with database search results, and lists special-status species documented within the project vicinity, their listing status and suitable habitat description, and their potential to occur on the project site and off-site improvement locations. Figure 15, Special-Status Species with Potential to Occur in the Project Vicinity, presents a map of CNDDB database results.

Given the highly disturbed and agriculturally developed condition of the project site, the lack of native vegetation, and the site's isolation from high quality habitat areas, most special-status plant and animal species known to occur in the region are not expected to occur on the project site due to lack of suitable habitats. No special-status plant or animal species were observed during the biological survey.

Special-status Plant Species. Special-status plant species recorded as occurring in the vicinity of the project site and off-site improvement locations that are not likely to occur due to lack of suitable habitat include Indian Valley bush-mallow (*Malacothamnus aboriginum*), Lemmon's jewelflower (*Caulanthus lemmonii*), and umbrella larkspur (*Delphinium umbraculorum*). One special-status plant, Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), has a low potential to occur on the project site and is discussed further below.

Congdon's tarplant. Although suitable habitat for most special-status plant species is limited in the Salinas Valley due to long-established agricultural development, CNPS Rare Plant Rank 1B Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) has the potential to occur on the project site and at off-site improvement locations. This species is known to grow in disturbed agricultural areas and along roadways in the valley, such as Gloria Road. Congdon's tarplant is a low-growing annual herb that typically blooms from May to October, with peak blooming from late summer to early fall. The closest documented occurrence was recorded in 1998 approximately five miles northwest of the project site (Occurrence No. 31, CDFW 2023a).



Source: ESRI 2022, Monterey County GIS 2020, USFWS 2022, Peartree + Belli 2023

Figure 15
Habitat Map

E M C

Gloria Road Agricultural Cooler

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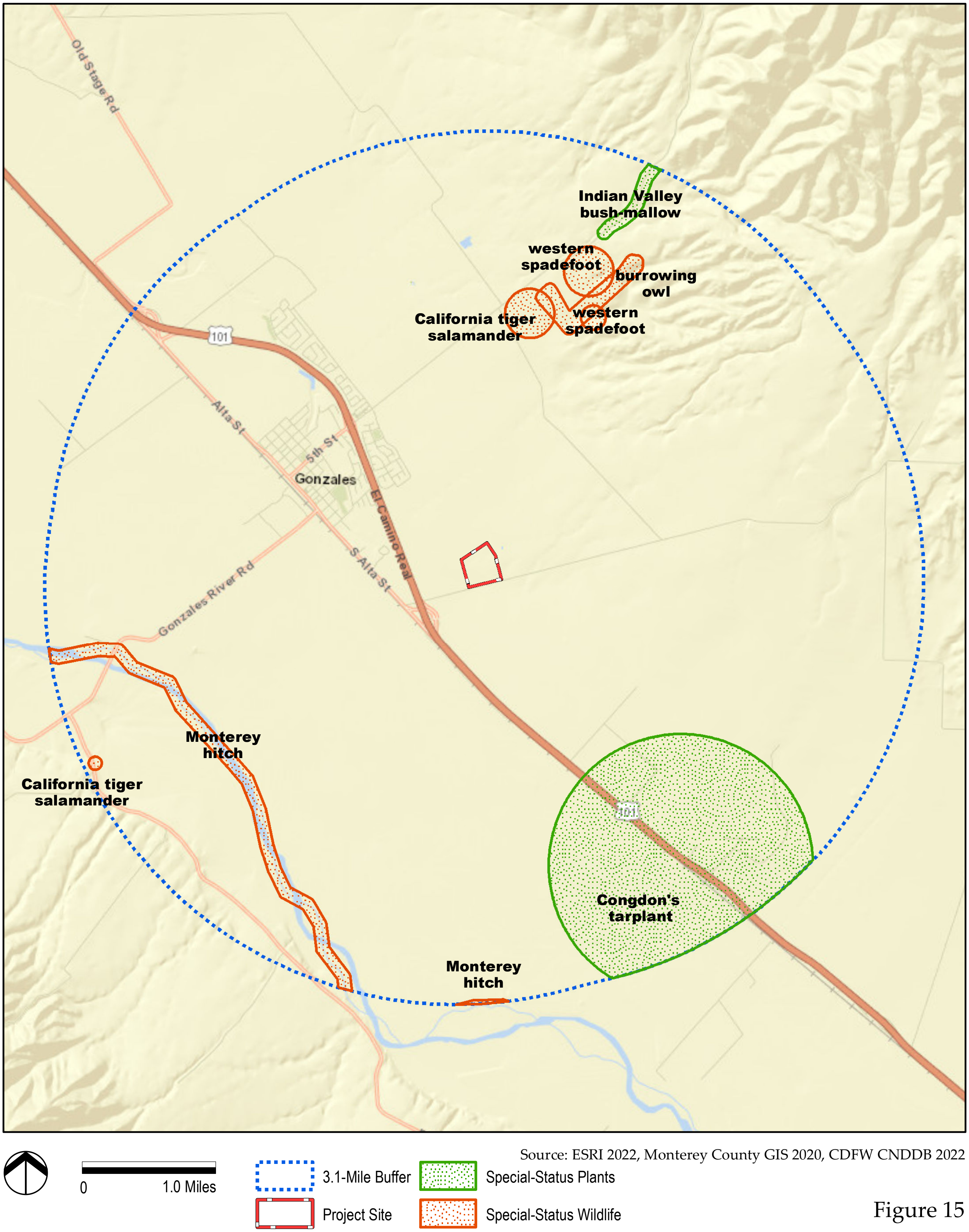

Source: ESRI 2022, Monterey County GIS 2020, CDFW CNDDB 2022

Figure 15

Special Status Species with Potential to Occur in the Project Vicinity

E M C

Gloria Road Agricultural Cooler

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Construction activities at the project site and at off-site improvement locations could impact this species during construction. Loss or harm to Congdon's tarplant is considered a significant adverse impact. Implementation of Mitigation Measure BIO-1 would reduce potentially significant impacts to Congdon's tarplant to a less-than-significant level.

Mitigation Measure

BIO-1 Prior to ground disturbance at the project site or off-site improvement locations, a biologist qualified in botany shall conduct a focused survey for Congdon's tarplant in accordance with current CDFW and CNPS rare plant survey protocols (CDFW 2018 and CNPS 2001). The survey shall occur during the peak blooming period for this species to determine its presence or absence (typically August through September). If possible, a known reference population of the target species in the project vicinity shall first be visited to verify that the species is observable, and the focused survey shall be conducted within two weeks of observing the reference population in full bloom.

The biologist shall then prepare a brief report documenting the results of the survey and, if appropriate, propose measures for avoiding or minimizing possible impacts to Congdon's tarplant before and during construction, as included below. If the focused survey concludes the species is not present within the project site boundary or at off-site improvement locations, or if it is present but impacts to it can be completely avoided, then no mitigation would be required.

If the focused surveys identify Congdon's tarplant within the project site boundary or at off-site improvement locations and it would be affected by the proposed project, then appropriate mitigation shall be developed by the biologist and implemented by the applicant prior to issuance of a grading permit. Measures may include, but are not limited to:

a. A qualified biologist shall identify an on-site or off-site mitigation area suitable for restoration of habitat and seed transplantation for this annual herb. The applicant shall be responsible for the placement of a conservation easement over the mitigation area and the provision of funds to ensure the restoration of the mitigation area and its preservation in perpetuity.

b. Prior to approval of a grading permit, a qualified biologist or native plant specialist shall perform seed collection from all special-status plants located within the impact areas and implement seed installation at the mitigation area at the optimal time. Additionally, topsoil from the special-status species occurrence area(s) shall be salvaged (where practical) for use in the mitigation area.

c. A maintenance and monitoring program shall be developed by a qualified biologist and established for a minimum of five years after mitigation area installation to verify that restoration activities have been successful. Maintenance activities may include, but not be limited to, watering during the plant establishment period, supplemental seed planting as needed, and removal of non-native plants. Monitoring shall include, at a minimum, quarterly monitoring reports for the first year and annual reports for the remaining four years. The performance standard for successful mitigation shall be a minimum 3:1 replacement ratio (i.e., three plants observed in mitigation area for each plant lost from the project site or off-site locations) achieved in at least one of the five years of monitoring.

The applicant will be responsible for implementation of this this mitigation measure. Compliance with this measure shall be documented and submitted to the City of Gonzales prior to ground disturbance.

Implementation of this mitigation measure would reduce potentially significant impacts to Congdon's tarplant to less than significant by ensuring that surveys are conducted to determine its presence, and if present, measures are implemented to conserve and propagate the species in an alternative location. Therefore, this impact is less-than-significant with mitigation incorporated.

Special-Status Wildlife. Special-status wildlife species recorded as occurring in the vicinity of the project site and off-site improvement locations that are not likely to occur due to lack of suitable habitat include California red-legged frog (*Rana draytonii*), tricolored blackbird (*Agelaius tricolor*), western spadefoot (*Spea hammondii*), and western pond turtle (*Emys marmorata*). Special-status wildlife species with a low potential to occur on the project site include California tiger salamander (*Ambystoma californiense*), and burrowing owl (*Athene cunicularia*), along with protected nesting birds. These species are discussed further below.

If special-status wildlife species are present on or adjacent to the project site or off-site improvement locations, construction activities could result in the loss or disturbance of individual animals. Loss or harm to special-status wildlife species would be a significant adverse environmental impact. Implementation of the following general mitigation measure, which requires a training session for all construction personnel, along with the species-specific measures identified below, would reduce this potentially significant impact to a less-than-significant level.

Mitigation Measure

BIO-2 Prior ground disturbance at the project site or off-site improvement locations, a qualified biologist shall conduct a training session for all construction personnel. At a minimum, the training shall include a description of special-status species potentially occurring in the project vicinity, including, but not limited to, California tiger salamander, burrowing owl, and nesting birds and raptors. Their habitats, general measures that are being implemented to conserve species as they relate to the project, and the boundaries within which construction activities will occur will be explained. Informational handouts with photographs clearly illustrating the species' appearances shall be used in the training session. All new construction personnel shall undergo this mandatory environmental awareness training.

The qualified biologist will train biological monitors selected from the construction crew by the construction contractor (typically the project foreman). Before the start of work each day, the monitor will check for animals under any equipment such as vehicles and stored pipes within active construction zones. The monitor will also check all excavated steep-walled holes or trenches greater than one foot deep for trapped animals. If a special-status species is observed within an active construction zone, the qualified biologist will be notified immediately and all work within 50 feet of the individual will be halted and all equipment turned off until the individual has left the construction area.

Evidence of completion of this training shall be submitted to City of Gonzales Community Development department prior to ground disturbance.

California Tiger Salamander. The federally and state-listed threatened California tiger salamander is a large terrestrial salamander. It occurs in central California from the Sacramento Valley to the south-central San Joaquin Valley, and in the surrounding foothills of both the Coast Ranges and the Sierra Nevada Mountains. California tiger salamanders are also recorded from the San Francisco Bay region, Sonoma County, the Monterey Bay region, and the valleys and foothills of San Luis Obispo and Santa Barbara counties. California tiger salamanders breed in temporary wetland pools, such as vernal pools, and other seasonal wetland bodies where ponded water is present for a minimum of three to four months, extending into the early spring. Such ponds and temporary wetlands provide necessary breeding and larval-stage habitat for the species. Adults spend most of the year in aestivation, underground in the burrows of small mammals, such as the California ground squirrel and/or Botta's pocket gopher, or within other suitable subterranean retreats.

The nearest recorded observation of California tiger salamander is approximately two miles northeast of the project site (CNDDB Occurrence #15), with the next closest being 2.9 miles southwest of the project site, on the west side of the Salinas River (CNDDB Occurrence #84).

Habitat. The project site and most off-site improvement locations would provide very limited upland or breeding habitat for California tiger salamander as they are intensively cultivated/disturbed and kept free of vegetation through regular grading, disking, and application of herbicides. Additionally, the agricultural ditch on the project site and most of the off-site agricultural ditches which may be impacted by project construction are continuously disturbed from maintenance regrading and herbicide application and only flow or hold water intermittently. The agricultural ponds described previously would also likely not provide California tiger salamander breeding habitat as both were dry at the time of the field survey (despite significant recent rain events) and appeared to be permanently out of use. (Figure 14, Habitat Map). However the entire project site and off-site improvement locations are within the dispersal distance (3.1 miles) of known occurrences of California tiger salamander.

Potential aquatic habitat was identified during the biological survey along Water Main Option 2. This potential habitat is a drainage ditch on the west side of U.S. Highway 101, which could potentially provide California tiger salamander breeding habitat. The ditch potentially holds water through the winter into spring. If Water Main Option 2 is selected, this ditch would potentially be affected during construction of the pipeline crossing. Therefore, there is potential that the proposed project could adversely affect California tiger salamander, if present.

Hybridization. The barred tiger salamander (*Ambystoma mavortium* or *Ambystoma tigrinum*) can hybridize with the native California tiger salamander and numerous populations of these "hybrids" can be found in the Salinas Valley and in close proximity to the project site (Riley et. al. 2003). A non-native species similar to the California tiger salamander, the barred tiger salamander was likely introduced to California in the early- to mid-1900's to be used as bait for the sport fishing industry. As previously described, the project site is within the boundary of the Puente del Monte Specific Plan project. A previous biological study of California tiger salamander for the Puente del Monte project noted, "These non-native tiger salamanders are known to be prevalent in the Gonzales region as it was ground zero for the fish bait ponds" (Live Oak Associates, Inc. 2020). The only reliable method of determining the level of hybridization in salamanders suspected to be hybrids is to capture individuals and conduct genetic testing.

Extensive salamander capturing and genetic testing was conducted as part of the biological resources analysis process for the proposed Vista Lucia Specific Plan project, approximately 1.75 miles to the north of the project site. The results of genetic testing indicated that salamanders found on the Vista Lucia project site are 95 percent non-native (Live Oak Associates, Inc. 2019). The USFWS responded to these results and concluded that, "…none of the individual tiger salamanders which compromise the salamander population at the subject property are the listed entity under the Act (i.e., California tiger salamanders). Therefore, tiger salamanders utilizing the ponds on the subject property are not afforded the protections of the Act" (USFWS 2007). Incidental take authorization is therefore not required from the USFWS for impacts to the hybrid salamanders found within the Vista Lucia Specific Plan boundary.

The California tiger salamander is also listed under the California Endangered Species Act. The CDFW Incidental Take Permit process is a voluntary process and only occurs if take of a listed species is anticipated to occur. CDFW has not made a formal determination on the level of hybridization that would deem an individual "non-native" or "native", thereby requiring protection under the California Endangered Species Act. According to Live Oak Associates, "…surveys and genetic testing should be conducted for tiger salamanders in all of the agricultural basins on [the Puente Del Monte] site in some future date (prior to the tentative map being recorded). If surveys of these agricultural basins confirm what has consistently been found regionally (i.e., that tiger salamanders have a high level of non-native genetic material and are considered non-native) then the EIR should conclude that project buildout will results in a less than significant impact on the California tiger salamander. The USFWS has already concluded that they have no authority over non-native salamanders and the state ESA does not afford CDFW the ability to require the applicant to submit a 2081 Application for impacts to non-native tiger salamanders." (Live Oak Associates, Inc. 2020)

The known dispersal distance of California tiger salamander is up to 3.1 miles. Due to the close proximity of the project site and off-site improvement locations to known hybrid salamander populations, it is EMC Planning Group's opinion that any salamanders found on the project site would likely be hybrids (*Ambystoma californiense* X *Ambystoma tigrinum*) and would not warrant protection under the federal Endangered Species Act or the California Endangered Species Act, as was determined for the Vista Lucia project. However, further consultation with both CDFW and USFWS would be required to confirm this opinion.

If construction at the project site or off-site improvement areas impact the native California tiger salamander, this would be a potentially significant impact. Implementation of mitigation measures BIO-2, presented earlier, which requires a training session on special-status species potentially present for all personnel, and BIO-3 (below) would reduce this potentially significant impact to California tiger salamander to a less-than-significant level.

Mitigation Measures

BIO-3 Prior to ground disturbance, the applicant shall initiate consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to determine the appropriate path forward for construction project within the immediate vicinity of known hybridized (*Ambystoma californiense* X *Ambystoma tigrinum*) salamander populations.

If determined necessary during consultation, the applicant shall hire a qualified biologist to collect genetic samples of salamanders occupying agricultural detention basins or ponds within or adjacent to the project site and off-site improvement locations at least once per month in March, April, and May. The DNA shall then be analyzed to determine the genetic composition of the samples. If no salamanders are found, no further mitigation other than construction personnel training (Mitigation Measure 2) is necessary.

If salamanders are found, the applicant shall submit the results of the genetic analysis to U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife and obtain Incidental Take Authorization from the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife, if necessary. Applications for Incidental Take Authorization require the identification of measures suitable to avoid, minimize, or mitigate impacts to the species and its habitat. In addition to protective measures implemented during construction specified in the permits, mitigation for the loss of breeding, aestivation, and/or dispersal habitat will also be a part of the permit requirements. The appropriate method of conservation and number of credits required will be determined during the consultation process.

Documentation of compliance with this measure shall be submitted to the City of Gonzales Community Development Department prior to ground disturbance.

Implementation of this mitigation measure will reduce the potential significant impact to California tiger salamander to a less-than-significant level through consultation with the resource agencies and conducting additional analysis if necessary. If native California tiger salamanders are found, Incidental Take Permits from the USFWS and CDFW would be obtained, and avoidance, minimization, and mitigation measures outlined in the permits would be implemented.

Burrowing Owl. Burrowing owl is a California Species of Special Concern. Burrowing owls live and breed in burrows in the ground, especially in abandoned California ground squirrel burrows. Optimal habitat conditions include large open, dry and nearly level grasslands or prairies with short to moderate vegetation height and cover, areas of bare ground, and populations of burrowing mammals. This species has been observed approximately two miles northeast of the project site (Occurrence No. 344, CNDDB 2023).

The ruderal and agricultural habitat found at the project site and off-site improvement locations provides marginally suitable foraging habitat for burrowing owl, and scattered ground squirrel burrows observed on the site could be utilized for nesting habitat. If burrowing owl is present on or adjacent to the project site or off-site improvement locations, construction activities could result in the loss or disturbance of individual animals. Loss or harm to any individual burrowing owl would be a significant adverse environmental impact. Implementation of mitigation measures BIO-2, presented earlier, which requires a training session on special-status species potentially present for all personnel, and BIO-4 (below) would reduce this potentially significant impact to a less-than-significant level.

Mitigation Measure

BIO-4 To avoid loss of or harm to burrowing owl, the following measures shall be implemented:

a. Prior to ground disturbance within the project site or at off-site improvement locations, the applicant shall retain a biologist qualified in ornithology to conduct surveys for burrowing owl. The qualified biologist shall conduct a two-visit (i.e., morning and evening) presence/absence survey at areas of suitable habitat on and adjacent to the project site boundary, and at off-site improvement locations, no less than 14 days prior to the start of construction or ground disturbance activities. Surveys shall be conducted according to the methods for take avoidance described in the *Burrowing Owl*

Survey Protocol and Mitigation Guidelines (California Burrowing Owl Consortium 1993) and the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). If no burrowing owls are found, a letter report confirming absence shall be prepared and submitted to the City of Gonzales Community Development Department and no further measures are required.

b. Because burrowing owls occupy habitat year-round, seasonal no-disturbance buffers, as outlined in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1993) and the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012), shall be in place around occupied habitat prior to and during any ground disturbance activities. The following table includes buffer areas based on the time of year and level of disturbance (CDFW 2012), unless a qualified biologist approved by the California Department of Fish and Wildlife verifies through non-invasive measures that either: 1) birds have not begun egg laying and incubation; or 2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

Location	Time of Year	Level of Disturbance Buffers (meters)		
		Low	Med	High
Nesting Sites	April 1 – Aug 15	200 m	500 m	500 m
Nesting Sites	Aug 16 – Oct 15	200 m	200 m	500 m
Nesting Sites	Oct 16 – Mar 31	50 m	100 m	500 m

c. If burrowing owl is found and avoidance is not possible, burrow exclusion may be conducted by qualified biologists only during the non-breeding season, before breeding behavior is exhibited and after the burrow is confirmed empty through non-invasive methods, such as surveillance. Occupied burrows shall be replaced with artificial burrows at a ratio of one collapsed burrow to one constructed artificial burrow (1:1). Evicted burrowing owls may attempt to colonize or re-colonize an area that would be impacted, thus ongoing surveillance during project activities shall be conducted at a rate sufficient to detect burrowing owls if they return.

d. If surveys locate occupied burrows in or near construction areas, consultation with the California Department of Fish and Wildlife shall occur to interpret survey results and develop a project-specific avoidance and minimization approach. Once the absence of burrowing owl has been confirmed, a letter report shall be prepared and submitted to the City of Gonzales Community Development Department.

Implementation of this mitigation measure would reduce the potentially significant impact to burrowing owl to a less-than-significant level by requiring pre-construction surveys for active nests/burrows and the implementation of avoidance, minimization, and mitigation measures should they be found on the project site or off-site improvement locations.

Nesting Birds. Protected nesting bird species and raptor species have the potential to nest in nearby buildings or structures, on open ground, or in any type of vegetation, including trees, during the nesting bird season (January 15 through September 15). The project site and surrounding properties contain a variety of trees, shrubs, and ruderal habitat suitable for nesting. Construction activities, including ground disturbance, can impact nesting birds protected under the federal Migratory Bird Treaty Act and California Fish and Game Code, should nesting birds be present during construction. If protected bird species are nesting adjacent to the project site and off-site improvement locations during the bird nesting season, then noise-generating construction activities could result in the loss of fertile eggs, nestlings, or otherwise lead to the abandonment of nests. Implementation of the following mitigation measure would reduce the potential impact to nesting birds to a less-than-significant level.

Mitigation Measure

BIO-5 It is possible that birds may nest in locations other than actively farmed agricultural fields. These locations could include the planned process water storage pond area and areas where planned off-site water main and sewer main alignments pass through non-actively farmed agricultural fields. To avoid impacts to nesting birds during the nesting season (January 15 through September 15), all construction activities in these areas should be conducted between September 16 and January 14, which is outside of the bird nesting season. If construction or project-related work is scheduled during the nesting season (February 15 to August 30 for small bird species such as passerines; January 15 to September 15 for owls; and February 15 to September 15 for other raptors), a qualified biologist shall conduct nesting bird surveys in these areas as follows.

a. Two surveys for active bird nests will occur within 14 days prior to start of construction, with the final survey conducted within 48 hours prior to construction. Appropriate minimum survey radii surrounding each work area are typically 250 feet for passerines, 500 feet for smaller raptors, and 1,000 feet for larger raptors. Surveys will be conducted at the appropriate times of day to observe nesting activities. Locations off the site to which access is not available, if any, may be surveyed from public areas. If no nesting birds are found, a letter report confirming absence shall be submitted to the City of Gonzales Community Development Department and no further mitigation is required.

b. If the qualified biologist documents active nests, an appropriate buffer between each nest and active construction shall be established. The buffer shall be clearly marked and maintained until the young have fledged and are foraging independently. Prior to construction, the qualified biologist shall conduct baseline monitoring of each nest to characterize "normal" bird behavior and establish a buffer distance, which allows the birds to exhibit normal behavior. The qualified biologist shall monitor the nesting birds daily during construction activities and increase the buffer if birds show signs of unusual or distressed behavior (e.g., defensive flights and vocalizations, standing up from a brooding position, and/or flying away from the nest). If buffer establishment is not possible, the qualified biologist or construction foreman shall have the authority to cease all construction work in the area until the young have fledged and the nest is no longer active. Once the absence of nesting birds has been confirmed, a letter report shall be submitted to the City of Gonzales Community Development Department.

Implementation of this mitigation measure would reduce the potential significant impact to nesting birds to a less-than-significant level by requiring pre-construction surveys for active bird nests and the implementation of avoidance, minimization, and mitigation measures should they be found.

b. **Riparian Habitat or Sensitive Natural Communities.** There were no riparian habitat or sensitive natural communities observed at the project site or at off-site improvement locations.

c. **Wetlands and Waters of the U.S.** A review of the NWI online database was conducted to identify potential jurisdictional aquatic features on or adjacent to the project site and off-site improvement locations (USFWS 2023a). Results showed an agricultural drainage ditch bordering the project site on the north and identified on the NWI as "riverine" habitat. This ditch flows off-site and under U.S. Highway 101. A drainage ditch, not on the NWI but observed during the field survey, bisects the project site before connecting to the prior noted ditch. The NWI also identifies an agricultural drainage ditch along the south side of Gloria Road as "riverine" habitat. Due to regular maintenance, all the noted drainage ditches were largely devoid of vegetation.

An off-site water main and sewer main connection to the project site is required. Two optional water main alignments have been identified as noted and illustrated in the project description. The option 1 alignment crosses at least two agricultural drainage ditches. The option 2 alignment crosses a drainage ditch on the west side of Highway 101 (Figure 14, Habitat Map). The wastewater main would also cross the same ditches as does the option 1 water main.

As the potentially affected drainage ditches may have connectivity to tributaries or natural streams, they may be subject to U.S. Army Corps of Engineers (USACE) jurisdiction under the Clean Water Act. All drainages would likely be considered jurisdictional by the Central Coast Regional Water Quality Control Board (CCRWQCB) and CDFW.

Other aquatic features near the project site include two agricultural ponds, one to the east of the project site and one south of Gloria Road. Both ponds were dry at the time of the field survey and appeared to be out of use. The pond on the south side of Gloria Road would be expanded and lined to serve as the process wastewater storage pond as identified in the project description. These ponds would likely not be considered jurisdictional by USACE, CCRWQCB, or CDFW.

Construction activities on the project site and at the noted off-site improvement locations could result in the loss of jurisdictional wetlands and other Waters of the U.S. Loss of wetlands is considered a significant adverse impact. Implementation of the following mitigation measure would reduce the potential impact to wetlands and other Waters of the U.S. to a less-than-significant level.

Mitigation Measure

BIO-6 Prior to initiation of ground disturbance or construction activities that affect the drainage ditch that traverses the project site, the drainage ditch along the south side of Gloria Road that could be affected by Gloria Road widening construction activities, and the drainage ditches that would be affected by constructing either off-site water main alignment and the off-site sewer main, the applicant will retain a qualified biologist to determine the extent of potential wetlands and waterways regulated by the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW).

If the USACE claims jurisdiction, the applicant shall obtain a Clean Water Act Section 404 Nationwide Permit. If the impacts to the drainage ditches do not qualify for a Nationwide Permit, the applicant will proceed in obtaining an Individual Permit from the USACE. The applicant will then coordinate with the RWQCB to obtain a Clean Water Act Section 401 Water Quality Certification. If necessary, the applicant will coordinate with the CDFW to obtain a Streambed Alteration Agreement.

To compensate for temporary and/or permanent impacts to wetlands and Waters of the U.S. that would be impacted as a result of the proposed project, mitigation shall be provided as required by the regulatory permits. Mitigation would be provided through one of the following mechanisms:

a. A Wetland Mitigation and Monitoring Plan shall be developed that outlines mitigation and monitoring obligations for temporary impacts to wetlands and other waters as a result of construction activities. The Wetland Mitigation and Monitoring Plan would include thresholds of success, monitoring and reporting requirements, and site-specific plans to compensate for wetland losses resulting from the project. The Wetland Mitigation and Monitoring Plan shall be submitted to the appropriate regulatory agencies for review and approval during the permit application process.

b. To compensate for permanent impacts, the purchase and/or dedication of land to provide suitable wetland restoration or creation shall ensure a no net loss of wetland values or functions. If restoration is available and feasible, a minimum 1:1 impact to mitigation ratio would apply to projects for which mitigation is provided in advance.

For improvements on the project site or off-site improvement locations, the applicant shall comply with terms and conditions of the permits, including measures to protect and maintain water quality, restore work sites, and mitigation to offset temporary and/or permanent wetland impacts. The applicant shall be responsible for implementation of this mitigation measure prior to issuance of a grading permit.

Implementation of this mitigation measure shall ensure that impacts to potentially jurisdictional wetlands and waterways are mitigated to a less-than-significant level by requiring a wetland assessment/jurisdictional determination and associated permitting.

d. **Wildlife Movement**. Wildlife movement corridors provide connectivity between habitat areas, enhancing processes like nutrient flow, gene flow, seasonal migration, pollination, and predator-prey relationships. Increasing connectivity is a critical strategy for addressing habitat loss and fragmentation, a top threat to biodiversity.

The project site is not located within any previously defined essential connectivity areas as mapped by the *California Essential Habitat Connectivity Project* and is also adjacent to existing developed areas (CDFW 2023b). The project site is not likely to facilitate major wildlife movement due to current active disturbance from agricultural activities. Off-site improvements would not be a potential impediment to wildlife movement as all are primarily placed underground. As such, the proposed project would have a less-than-significant impact on wildlife movement.

e. **Local Biological Resource Policies/Ordinances**. The general plan has goals, policies, and implementation actions in place for conserving local biological resources. The Conservation and Open Space Element contains policies to protect regulated habitats (e.g., freshwater marsh, riparian woodland, and aquatic habitat) and special-status plant and wildlife species within the planning area and to prevent the isolation of individual habitat areas by interconnecting them when practicable with open space corridors (City of Gonzales 2018).

Trees. The proposed project does not include the removal of any trees and, therefore, will not conflict with any tree preservation policies or ordinances.

Mitigation measures contained in this section will mitigate impacts to biological resources to a less-than-significant level. With these considerations, the proposed project would not conflict with local regulations related to biological resources.

f. **Conservation Plans**. There are no critical habitat boundaries, habitat conservation plans, natural community conservation plans, or other approved local, regional, or state habitat conservation plans applicable to the proposed project site (CDFW 2023c).

5. CULTURAL RESOURCES

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Cause a substantial adverse change in the significance of a historical resource pursuant to section 15064.5?	☐	☐	☐	☒
b.	Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?	☐	☒	☐	☐
c.	Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Comments:

a, b. The project site contains no existing structures or landmarks and has historically been in agricultural production. According to general plan Figure VIII-1, Historical and Archaeological Resources, the project site and the off-site improvement locations are within a low archaeological sensitivity area. A cultural resources survey, *Cultural Resources Survey and Impact Assessment for +/-660 Acres Located Southeast of the City of Gonzales, Monterey County, California* (C.A. Singer and Associates 2009) was prepared for Puente del Monte Specific project whose boundaries include the project site. That report was subsequently peer reviewed by an EMC Planning Group biologist in 2020. The survey also evaluated the area south of Gloria Road where the off-site process wastewater pond is currently proposed. The survey concluded that no known prehistoric or historic resources were identified during a surface reconnaissance and that no such resources are known to exist within the surveyed area, which included the current project site and off-site improvement locations. The peer review found the 2009 report to generally be adequate and prepared to professional standards.

Given the evidence presented above, the potential to uncover historic or archaeological resources during construction activities is considered to be low. However, unknown buried historic or unique archaeological resources could still be present at the project site, or in the location of the off-site improvements, and could be damaged or destroyed by ground disturbing construction activities associated with the project, which would be considered a potentially significant impact.

General plan implementing action CC-9.1.1 requires that a project applicant conduct an investigation of potential unique archaeological and paleontological resources on any development site where there is reason to believe that such resources are likely to be present. The 2009 cultural resources survey and the associated peer review are considered as sufficient to demonstrate consistency with the cultural resource component of the implementing action.

To reduce the potentially significant impact to less than significant, mitigation measure CUL-1 is proposed to identify actions to be taken in the event that unknown buried archaeological resources are uncovered during construction activities on the project site and/or off-site improvement locations.

Mitigation Measure

CUL-1 If archaeological resources are discovered during soil-disturbing activities, then work should be stopped within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. If the find is determined to be significant, then appropriate mitigation measures will be formulated and implemented. The following language shall also be included on all project plans:

> "If any archaeological resources are discovered during grading or construction, all work shall be immediately halted and appropriate personnel, including a qualified Native American representative, shall be contacted and consulted. Based on these consultations, appropriate measures shall be taken to protect the discovered resources, and only after such measures have been implemented shall grading or construction continue."

c. According to the general plan EIR, there are no known Native American cultural resources or ancestral burial grounds in the planning area (p. 4-325) and none were identified as part of the 2009 cultural resources survey described above. However, there remains the possibility that ground disturbing activities associated with the proposed project, inclusive of the off-site improvements, could damage or destroy previously undiscovered Native American human remains. Disturbance of Native American human remains is considered a significant impact. The following mitigation would reduce this impact to a less-than-significant level.

Mitigation Measure

CUL-2 If human remains are found during construction activities, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Monterey County is contacted to determine that no investigation of the cause of death is required.

If the coroner determines the remains to be Native American, the coroner will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The most likely descendent may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in California Public Resources Code Section 5097.98.

The landowner or their authorized representative will rebury the Native American human remains and associated grave goods, with appropriate dignity, on the property in a location not subject to further disturbance if: a) the Native American

Heritage Commission is unable to identify the most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being allowed access to the site; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

6. ENERGY

Would the project:

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

Comments:

a. The topic of energy effects was not explicitly part the environmental analysis conducted in the general plan EIR. The topic of energy was added to Appendix G of the CEQA Guidelines in 2018, years after the general plan EIR was certified in 2010.

This analysis of energy impacts is qualitative because there is no quantified threshold of energy demand exists at which energy demand could be considered wasteful, inefficient or unnecessary, either during construction or operations. Rather, the energy effects of the proposed project are examined in light of the project type, related development guidance provided in general plan, the robust suite of plans and regulations promulgated by the state that directly and indirectly result in reduced energy consumption, and applicant-proposed features of the project that would reduce energy demand. For informational purposes, estimates of energy demand from the most common form of energy used in land use projects – electricity, natural gas, and transportation fuel, are provided first.

As further described in Section 8, Greenhouse Gas Emissions in this initial study, the applicant has projected electricity demand at approximately 22,000 megawatt hours per year. For context, according to the California Energy Commission Energy Consumption Data Management System, in 2021, total electricity consumption in Monterey County was 1,789,000,000 kilowatt-hours per year, or 1,789,000 megawatt hours per year. Project demand represents .012 percent of that demand. The project demand is not new demand per se, as the project is replacing an existing cooler project in Salinas and would have a similar electricity demand as the existing project. As described below, actual project demand will be lower due to the applicant's plan to install a renewable energy generation system at the site.

The applicant has committed to using no natural gas in the proposed project. Consequently, no demand for such would occur.

The proposed project would generate vehicle trips from trucks and employee that will result in transportation fuel demand. Table 4.2, Trip Summary Information in the CalEEMod results included in Appendix A shows projected annual vehicle miles traveled based for the project. This is a general estimate based on the CalEEMod assumptions used as described in AQ/GHG memo in Appendix A. The Emissions Factor Model was used to calculate fuel demand based on the vehicle miles traveled. The results, included in Appendix D, show that annual fuel demand would be about 244,387 gallons per year (combined diesel and gasoline). Again, transportation fuel demand would not be new given that the proposed project is replacing an existing cooler project with a similar level of operations. The analysis in Section 17, Transportation, concludes that the proposed project would have a less-than-significant impact from vehicle miles traveled. This suggests that transportation fuel demand may be lower than would be expected for a project whose vehicle miles traveled impact is significant.

A project could be considered to result in significant wasteful, inefficient, or unnecessary energy consumption if its energy demand is extraordinary relative to common land use types. In Monterey County, land use types that support agricultural production and are compatible with agriculture are common given that agriculture is the County's primary economic driver. Agricultural cooler/processing facilities are fundamental components of the agricultural sector as are other uses that are critical to the agriculture value chain. Consequently, the proposed project is a common land use type and not considered to be extraordinarily energy consumptive relative to similar land use types in the County; its energy demand is not considered to be wasteful or unnecessary.

The general plan includes policies and implementing actions that address topics including, but not limited to: energy conservation, energy efficiency in housing, energy conservation through land use and planning, greenhouse gas reduction planning, reducing transportation related greenhouse gases, renewable energy use and production, and green building. The general plan EIR concluded that implementing the general plan would result in less-than-significant impacts due to wasteful, inefficient, and unnecessary consumption of energy and the need for new and improved energy transmission facilities. While the general plan did not contemplate an agricultural industrial project within the SOI, it did contemplate new agricultural industrial development in other locations.

The *Gonzales Climate Action Plan: 2018 Update* (CAP) was adopted in 2018. The CAP identifies a range of greenhouse gas reduction measures, several of which are intended to reduce energy demand. The CAP is further discussed in Section 8, Greenhouse Gas Emissions. One measure that is applicable to new industrial projects assumes that electricity will be purchased from Monterey Bay Community Power (now Central Coast Community Energy), which obtains electricity from renewable sources and delivers it through the PG&E grid, thereby promoting renewable electricity generation. As a condition of approval, the City would require the applicant to implement this measure to ensure project consistency with the CAP.

A multitude of state regulations and legislative acts are aimed at reducing electricity/natural gas demand and improving energy efficiency in new construction, promoting alternative energy production and use efficiency, and enhancing vehicle fuel efficiency. Required compliance with many of the regulations is not within the direct control of local agencies or individual project developers, but their implementation can reduce energy demand from land use projects both directly and indirectly. Representative examples include:

- California Energy Action Plan, which includes strategies for expanding use of zero-emission vehicles, and encouraging urban design to reduce VMT and increase pedestrian and bicycle access;
- California Renewables Portfolio Standard to increase the percentage of utility-provided electricity derived from renewable sources;
- Statutes and regulations to improve vehicle fuel efficiency such as Advanced Clean Cars;
- Statues to reduce VMT and related transportation fuel demand such as SB 375, the Sustainable Communities Strategy, and Senate Bill 743, designed to reduce VMT from passenger cars and light-duty vehicles;
- The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030;
- The California Energy Code, Building Energy Efficiency Standards (Title 24, Part 6) that create uniform building codes to reduce energy consumption and provide energy-efficiency standards for residential and non-residential buildings; and
- The California Green Building Standards (Title 24, Part 11), also known as CALGreen, is a reach code (i.e., optional standards that exceed the requirements of mandator codes) that provides green building standards for statewide residential and non-residential construction that are equivalent to or more stringent than those of the California Energy Code for energy efficiency, water efficiency, waste diversion, and indoor air quality.

Project energy demand will also be significantly reduced by the applicant's commitment to install renewable energy. As described and illustrated in the project description in this initial study, the applicant is proposing to produce renewable energy to partially off-set project electricity demand. A rooftop solar energy system is proposed that would produce approximately 3,758,000 kilowatt hours, or 3,758 megawatt hours of electricity per year. This represents approximately 17 percent of the total project electricity energy demand of 22,000 megawatt hours per year.

Given the considerations summarized above, the proposed project would have a less-than-significant energy impact.

b. At this time, there are no regulations at the state or local level that would mandate that the proposed project must include on-site renewable energy sources. The CAP is a relevant local plan for renewable energy or energy efficiency as it includes measures that would result in energy demand reduction. As discussed above and in Section 8, Greenhouse Gas Emissions, the proposed project would be required to comply with the one CAP measure regarding purchase of renewable energy that applies to new industrial uses in the city.

While on-site renewable energy generation may be required for non-residential project types such as the proposed project in subsequent updates to the 2022 California Building Standards Code, the project will likely be approved for construction before such requirements are applicable. The applicant's commitment to implementing a renewable solar energy generation plan is a proactive effort to reduce energy demand and to anticipate future requirements for doing so through producing renewable energy. The proposed project would have no impact from conflict with or obstructing a state or local plan for energy efficiency.

7. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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:				
(1) 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?	☐	☐	☐	☒
(2) Strong seismic ground shaking?	☐	☐	☐	☒
(3) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
(4) 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, creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

Comments:

This analysis is provided against the backdrop of CEQA case law addressing the scope of analysis required for potential impacts resulting from existing environmental hazards found at or in the vicinity of a proposed project site. In California Building Industry Association v. Bay Area Air Quality Management District (2015), the California Supreme Court held that “agencies subject to

CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents". The court reasoned that "ordinary CEQA analysis is concerned with a project's impact on the environment, rather than with the environment's impact on a project and its users or residents".

The court did not hold, however, that CEQA never requires consideration of the effects of existing environmental conditions on the future occupants or users of a proposed project. But the circumstances in which such conditions may be considered are narrow: "when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment, and not the environment's impact on the project, that compels an evaluation of how future residents or users could be affected by exacerbated conditions".

Based on the noted case, geology and soils effects are discussed for informational purposes only, as land development projects generally do not have the potential to exacerbate geologic hazard conditions. Rather, geologic and soils hazard risks are discussed in the context of policy/regulatory requirements with which the project must be consistent and which are designed to protect public health and safety from seismic hazards.

a. **Fault Rupture**. According to the *Geotechnical Engineering Report - Proposed Gonzales Cooler Development, Gonzales, California* (Earth Systems Pacific 2022) ("geotechnical report"), the City of Gonzales is in a region that is seismically active; however, the project site is not within an Alquist-Priolo Earthquake Fault Zone (Earth Systems Pacific 2022). The nearest such zone is the San Andreas Fault located approximately 14 miles northeast of the project site (California Department of Conservation 2022). Therefore, no impacts associated with fault rupture would occur on the project site.

Seismic Ground-Shaking. The general plan EIR identifies that ground-shaking is considered a major hazard within and around the city. The geotechnical report states that the site is not located within a seismic hazard zone on a map issued by Monterey County and that state has not yet published seismic hazard zone maps for this area. Ground-shaking could lead to structural failure in buildings causing risks to public health and safety.

General plan implementing action HS-1.1.5 requires a geotechnical investigation be prepared for development proposals on sites identified as having high seismic hazards. The geotechnical report implements this action and implements other policies and implementation actions designed to reduce risks. The project must be designed to conform to the uniform development regulations in the California Building Code that address seismic hazards and with Gonzales Municipal Code Chapter 11.08, California Building Codes, that implement the California Building Code to reduce geologic hazard risk potential in new development.

Liquefaction. Liquefaction is a type of ground failure that could cause substantial adverse impacts to structures and could result in the risk of loss, injury, or death. The

California Department of Conservation's interactive mapping tool shows that the project site and off-site improvements are not within a potential liquefaction hazard zone (California Department of Conservation 2022). The geotechnical report confirmed this determination by stating that site area is not located in a seismic hazard zone and the soil conditions mapped at the site are such that analysis of liquefaction hazard was not required.

Landslides. According to both the general plan EIR and the California Department of Conservation's interactive mapping tool, there are no landslide hazards within or directly adjacent to the City of Gonzales.

b. The general plan EIR identifies that the project site and off-site improvements are located in areas of low to moderate erosion potential hazard (Figure 4.16.3).

Site preparation and construction activities would expose soil surfaces to erosion. However, construction activities must be conducted consistent with regulations in municipal code chapter 10.28, Storm Water Quality Management and Discharge Control. These regulations require that the applicant prepare and implement a storm water pollution prevention plan. The plan will identify measures to be taken during construction to reduce erosion and associated impacts on water quality. The plan is subject to review and approval of the City.

Storm water control measures must also be integrated into the project design to manage storm water in a manner that reduces its potential to create erosion in downstream water bodies under post-project development conditions. Associated regulations and performance standards are also included in municipal code chapter 10.28, Storm Water Quality Management and Discharge Control. Its intent is, in part, to regulate discharging pollutants into the municipal separate storm sewer system, and reduce storm water runoff rates and non-point source pollutants through storm water management controls. The applicant has submitted a preliminary storm water control plan for this purpose to demonstrate compliance with the regulations. The storm water control plan is subject to review and approval of the City.

Required compliance with municipal code chapter 10.28 would minimize risks associated with soil erosion.

c. The geotechnical report identifies loose soils at shallow depths due to past agricultural uses of the site and possible dry sand settlement as that the primary geotechnical concerns at the site. The applicant will be required to design the project consistent with recommendations in the geotechnical report designed to minimize risk from unstable soils.

d. The geotechnical report concludes that the project site near surface soils have a low shrinkage/swell potential. Therefore, the associated risk to project improvements is low.

e. The proposed project would connect into the City's existing sanitary sewer system. No further analysis is required.

f. The general plan EIR states that paleontological resources include fossil remains of aquatic and terrestrial vertebrates, remains of plants and animals. Most of the fossils found in Monterey County are of aquatic vertebrates and are evidence of the region's geologic history, which has been heavily affected by the Pacific Ocean. Due to its proximity to the ocean, the project area lacks large, terrestrial fossils, such as the dinosaur, found in other regions of the United States. Most of Monterey County's fossils are micro-organisms such as foraminifera or diatoms, or assemblages of mollusks and barnacles most commonly found in sedimentary rocks ranging from Cretaceous age (138 to 96 million years old) to Pleistocene age (1.6 million to 11 thousand years old). The general plan EIR indicates that there are no known significant paleontological localities within the planning area (p. 4-324.

The general plan EIR conclusion is supported by geologic information shown on the *Preliminary Oblique Geologic Map of Part of Monterey County* (Rosenberg and Monterey County Planning Department 2001). It shows that soils within the Salinas Valley located east of the Salinas River are derived from alluvial floodplain deposits. This material was deposited during the Holocene epoch (Feeney and Rosenberg 2003). The Holocene epoch spans the geologic time period from the present day to about 11,700 years ago. To be considered a fossil, an object generally must be more than 10,000 years old. As noted above, most fossils recorded in the County to date have been found in geologic formations that are millions of years old. Consequently, it is unlikely that fossils would be found during excavations or other related construction activities associated with development within the project site, and the potential impact on such resources is considered to be less than significant.

Neither the project site, nor off-site improvement locations contain unique geologic features.

8. GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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?	☐	☐	☐	☒

Comments:

a. GHG emissions impacts are discussed first in the context of the *Gonzales Climate Action Plan: 2018 Update* (Zero City LLC 2018) (CAP). A methodology for evaluating the significance of GHG impacts is then described and an analysis of impacts provided based that methodology.

City of Gonzales Climate Action Plan

The City adopted its CAP in 2013 and updated it in 2018. The CAP includes an inventory of baseline GHG emissions for the city, projections of future emissions to be generated in the city, GHG reduction targets, and GHG reduction measures in the sectors of energy use and energy generation (via local microgrid using renewable energy), transportation, land use, water, and solid waste. The reduction targets are a 15 percent reduction in 2005 baseline emissions by 2020, a 49 percent reduction in 2005 baseline emissions by 2030, and an 83 percent reduction in 2005 baseline emissions by 2050.

The CAP includes GHG emissions projections based on forecasts of GHG emissions from individual land uses identified in the general plan. Community-wide GHG emissions were estimated to increase from 25,138 metric tons (MT) of carbon dioxide equivalent (CO_2e) in 2005 to 30,129 MT CO_2e by 2020. By 2030, these emissions are expected to reach 48,612 MT CO_2e, and 88,375 MT CO_2e by 2050 (Zero City 2018a, Table CAP-3).

Pursuant to CEQA Guidelines Sections 15064(h)(3) and 15130(d), if a project is consistent with the requirements of an adopted plan, such as a climate action plan that is prepared consistent with CEQA Guidelines Section 15183.5(b), the lead agency may determine that the GHG impacts are less than significant with no further analysis required. If it is determined that a proposed project is not consistent with an adopted climate action plan or other plan for reducing GHGs, further analysis would be required to determine whether the impact is significant.

The proposed project is not consistent with the CAP. It includes a general plan amendment to amend the general plan land use designations that apply to the site from residential, park and open space, and public/quasi-public (school) to industrial/manufacturing. The project would represent a source of GHG emissions that was not accounted for in the CAP emissions projections, targets, or reduction measures. Therefore, the CAP cannot be used to streamline the analysis of project GHG impacts.

Analysis Methodology

The significance of GHG emissions from the proposed project is evaluated based on a methodology which examines mobile source emissions separately from the balance of GHG emissions sources. This methodology looks first at mobile source emissions in the context of vehicle miles travelled (VMT) generated by the project and the analysis of VMT impacts conducted for the project. Second, GHG emissions from energy (electricity and natural gas), area sources, water, wastewater are identified and quantified and compared to a threshold of significance.

This "bifurcated" analysis approach (GHGs generated from mobile sources and associated VMT examined separately from other GHG emissions) is supported by several published sources. These include: 1) California Office of Planning and Research's *Discussion Draft CEQA and Climate Change Advisory* (December 2018), which discusses CEQA streamlining for GHG impacts by examining VMT effects (mobile source emissions) separately from energy and natural gas sources; 2) California Office of Planning and Research's *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018), which provides guidance on evaluating VMT impacts that affect the state's ability to meet it long-term climate goals; and 3) Association of Environmental Professionals' *Final Whitepaper - Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California* (October 2016), which identifies two hybrid analysis concepts using Senate Bill 375 and Senate Bill 743 that each evaluate transportation (mobile source) GHG emissions separately from non-mobile sources.

VMT and Mobile Source GHG Emissions. VMT impacts of the project are discussed in Section D.17, Transportation. The VMT analysis included in the *Transportation Analysis for the Proposed Gloria Agricultural Cooler Development (Hexagon Transportation Consultants 2023) ("transportation analysis")*, more fully described in that section, concludes that the project VMT impact is less than significant based on employee VMT and a threshold of significance based on employee VMT. As described in the transportation analysis, "Consistent with the intent of SB 743, VMT from truck traffic is not included in the VMT analysis. The objective of the SB 743 legislation is to reduce VMT for commuting to work, returning home or using retail services within the neighborhood by encouraging alternative modes of travel such as walking, bicycling, transit, or carpooling. VMT analysis is not intended to evaluate how goods and products are shipped and moved in the marketplace. Even though one particular project may generate a significant amount of truck trips, the number of truck trips and resulting in truck-generated VMT for an individual project is incidental when compared to the total VMT generated by residential, commercial, and office uses. Therefore, the VMT evaluation for the project excludes truck trips that will be generated by the project."

Given that the project VMT impact is less than significant, the mobile source GHG emissions the project generates from employee trips to and from the site can also be assumed to have a less than significant impact.

Non-Mobile Source GHG Emissions. GHG emissions from constructing and operating the proposed project were estimated using a combination of methods. As described in this initial study in Section 3, Air Quality, CalEEMod was used to model area, water, and waste sources of GHG emissions, as well as GHG emission from changes in carbon sequestration potential resulting changing the site land cover from agriculture use to a developed use. The CalEEMod results are included as Appendix A. GHG emissions from electricity demand were modeled using the annual projected project electricity demand and a rate of GHG emissions produced per megawatt hour (MWh) obtained from PG&E, the electricity purveyor.

Summary of GHG Emissions

Construction Emissions. Construction activity, including operation of off-road construction equipment, would generate approximately 214 MT CO_2e per year as amortized over a 30-year project operational period.

Energy Source Emissions. Energy source emissions are comprised of those generated from electricity and natural gas use.

Based on analysis of each of the major electricity powered components of the project, the applicant has determined that electricity demand would range from 18 to 22 million kilowatt hours (kWh) per year or 18,000 MWh to 22,000 MWh per year. GHG emissions from this source can be calculated by multiplying the demand by PG&E's published CO_2 intensity per MWh of electricity it produces across its electricity generation facility network. In 2020, this factor was 194 pounds of CO_2 per MWh of electricity produced, or approximately .088 MT CO_2 per MWh. At the most intense demand rate of 22,000 MWh per year and the emissions rate of .088 MT CO_2 per MWh, GHG emissions from electricity use would be approximately 1,936 MT CO_2 per year in the absence of any applicant-proposed measures that would reduce electricity demand.

The rate of CO_2 emissions per MWh of electricity generated by PG&E has declined over time and is expected to continue to decline over time as the percentage of utility scale electricity supply procured from non-renewable energy sources has and will continue to increase over time as mandated by the state's regulatory framework, most recently, Senate Bill 1020, which requires renewable energy and zero-carbon resources to supply 90 percent of all retail electricity sales by 2035 and 95 percent of all retail electricity sales by 2040. Consequently, the electricity-generated GHG emissions projection for the project is considered to be conservative.

As discussed below, the applicant is proposing that no natural gas be utilized in the facility. Therefore, no GHG emissions would be generated from this otherwise common source of energy use.

Other Emissions Sources. The CalEEMod results for area, water and waste sources of GHG emissions for the project shown in the CalEEMod results in Appendix A. These equal .01, 37.11 and 96.98 MT CO_2e per year, respectively.

The CalEEMod model results show that developing the site would result in a net loss of 221 MT CO_2e of sequestration potential when the existing agricultural land is replaced by urban development and 80 new trees are planted on the site per the applicant's landscape plan. When amortized over 30 years the annual loss is equivalent to about 7.3 MT CO_2e per year of GHG emissions.

Applicant Proposed GHG Reduction Measures. The applicant is incorporating two measures into the project that will substantially reduce GHG emissions. The first is the applicant's commitment that no natural gas will be used in facility operations. This is a substantial benefit as it helps facilitate the state's goal of net zero GHG emissions produced in the state by 2045 as stated in Executive Order B-55-18 signed by Governor Brown in 2018 and AB 1279.

The second is installing a rooftop solar energy system that is projected to produce approximately 3,758,000 kWh (3,758 MWh) of electricity per year. Refer back to Figure 11, Solar Energy Plan, for an illustration of the rooftop solar panel installation plan. Using the CO_2 intensity factor of 0.88 MT CO_2 per MWh of electricity presented above, this measure would reduce GHG emissions from electricity use by approximately 330.7 MT CO_2 per year.

Total Annual Project GHG Emissions. Table 4, Annual Non-Mobile Source GHG Emissions, summarizes the data presented above. As can be seen, total non-mobile source GHG emissions are projected at 1,960.40 MT CO_2 per year.

Threshold of Significance

A quantified threshold of significance which defines a rate of GHG emissions generation for the project below which the project GHG impact would be less than significant has been crafted in part based on GHG emissions projection information contained in the City's CAP. The threshold is a measure of the efficiency of GHG emissions generated in the city in a given year. The efficiency is represented by the volume of GHG emissions generated in the city in that year to the City's "service population" in that year. Service population is the sum of the number of residents and jobs in the city in that year. A high volume of GHG emissions relative to service population indicates less GHG efficiency than a lower volume of GHG emissions when the service population is held constant. A lower rate of emissions indicates higher GHG efficiency.

Table 4 Annual Non-Mobile Source GHG Emissions

Emissions Source	Emissions Volume (MT CO_2e)
Construction and Operational Emissions	
Construction (Amortized)	214.00
Energy (Electricity)	1,936.00
Area	0.01
Water	37.11
Waste	96.98
Sequestration	7.00
Annual Subtotal	2,291.10
Applicant-Proposed Measure Reductions	
Project Solar Electricity Production	<330.70>
Total Annual GHG Emissions	
Total Annual GHG Emissions	1,960.40

SOURCE: EMC Plannig Group 2023, Peartree+Belli Architects 2023

A service population-based threshold of significance for the year 2030 has been derived from the CAP. This is the nearest "forward" year to the projected 2025 operational date of the proposed project for which the CAP provides an emissions projection and a citywide emissions reduction target. The CAP sets forth a target to reduce the City's 1990 baseline emissions volume by 40 percent by 2030. Table CAP-6 in the CAP identifies that for the City to meets its emissions reduction target of 40 percent below 1990 levels by 2030, communitywide emissions must not exceed 12,820 MT CO_2 per year (the "GHG Emissions Reduction Target" identified in Table CAP-6). Data from the Final 2022 Regional Growth Forecast (Monterey Bay Area Association of Governments 2020) was used to identify projected population and job numbers in the city in 2030. These are 13,492 and 6,533, respectively, for a total service population of 20,025. The service population threshold is 12,820 MT CO_2/20,025 service population = 0.64 MT CO_2/service population. This is the rate of emissions in the city at which the City would achieve its 2030 GHG reduction goal.

Project Rate of GHG Emissions and Impact Determination

For the proposed project to be consistent with the City's 2030 GHG reduction goal, its GHG emissions rate must not exceed the citywide rate of GHG emissions identified above. The project would generate approximately 1,960.40 MT CO_2 per year as summarized in Table 4 above. The project service population is solely the number of new jobs it would generate, as the project would generate no new population. A total of 436 new jobs would be created. This is the total number of jobs in the peak season of operation. In the off season, the project would employ about 80 people, but those jobs are a subset of the peak season employment such that total new employment remains at 436.

Table 5, Project GHG Emissions Per Service Population, shows the information needed to identify the project rate of GHG emissions per service population and to determine the significance of the project GHG emissions impact.

Table 5 Project GHG Emissions Per Service Population

Project GHG Emissions per Service Population	
Total Project GHG Emissions (MT CO_2e/year)	1,960.40
Project Service Population	436
Project GHG Emissions per Service Population (MT CO_2e/year)	4.49
Service Population Threshold of Significance (MT CO_2e/year)	0.64
Rate of Proposed Project Emissions Exceeds Threshold?	YES
Emissions Volume by Which Threshold is Exceeded (MT CO_2e/year)	1,678.60[1]

SOURCE: EMC Planning Group 2023
NOTE:
1. Service population of 436 x 3.85 MT CO_2e (4.49 MT CO_2e - .64 MT CO_2e)

As can be seen, the project would have a significant impact from generating GHG emissions, as its rate of emissions would exceed the threshold of significance. GHG emissions must be reduced by 1,678.6 MT CO_2e/year for the impact to be reduced to less than significant. Implementation of the following mitigation measure would reduce the impacts to less than significant.

Mitigation Measure

GHG-1 Prior to issuance of a building permits for the proposed project, the applicant shall prepare a Greenhouse Gas (GHG) Reduction Plan. The GHG Reduction Plan shall demonstrate, with substantial evidence, that GHG emissions will be reduced to the year 2030 service population threshold of significance of 0.64 MT CO_2e per year per service population. This would require that the project emissions of 1,960.4 CO_2e per year be reduced by 1,678.60 MT CO_2e per year to 281.80 MT CO_2e per year.

The GHG Reduction Plan shall prioritize on-site GHG reduction design features and/or other project specific measures. One such on-site measure that shall be included is to meet the voluntary Tier 2 electric vehicle performance standards for non-residential development in effect at the time a building permit is issued (currently the 2022 California Green Building Code). For projects with 201 or more parking spaces, 20 percent of the total must be electric vehicle capable spaces, and 25 percent of the electric vehicle capable spaces must include electric vehicle supply equipment.

In addition to one or more of the on-site project design/project specific measures, the applicant may include in the Reduction Plan and take credit for GHG reductions resulting from making direct investments in off-site GHG reduction activities and/or programs in the vicinity. Examples of direct investments include building retrofit programs that pay for cool roofs, solar panels, solar water heaters, smart meters, energy efficient lighting energy efficient windows, and insulation. Other examples include financing programs for installing electric vehicle charging stations, electrifying school buses, and/or planting local urban forests.

The applicant shall retain a qualified air quality/GHG professional to quantify the GHG reductions that would result from implementing the Reduction Plan based on substantial evidence to be included in the Reduction Plan. The GHG reduction measures should be implemented even if their implementation would result in a GHG reduction, but the reduction cannot be reliably quantified. The GHG emissions reduction volume resulting from implementing the Reduction Plan measures may then be subtracted from the required 1,678.60 MT CO_2e per year reduction volume in order to reduce or avoid the significant GHG impact.

If the GHG emissions reductions from implementing the GHG Reduction Plan are insufficient to reduce project emissions by a minimum of 1,678.60 MT CO_2e per year or more, the applicant may secure the balance of the required GHG emissions reduction volume by purchasing and retiring voluntary carbon offset credits (not credits created for transactions in California's regulatory Cap and Trade Program). The carbon offset credits shall meet the following performance standards:

- Carbon offset credits shall be issued by a recognized, reputable and accredited registry that mandates the use of established protocols for quantifying and issuing the offset credits. Credits issued based on protocols approved by CARB should be prioritized. Examples of such registries include the Climate Action Reserve, American Carbon Registry, and Vierra.
- In order of priority, the carbon offset credits should be obtained from projects developed in local vicinity/region, the state, national, or international projects. Priority is on offset credits available through registries approved by CARB. Credits from projects developed internationally should not be used unless the applicant demonstrates with substantial evidence that sufficient carbon offsets from projects in vicinity/region, state, or U.S. are unavailable. International offsets must be quantified and issued using established protocols that are recognized in the United States and that are issued by recognized, reputable and accredited registries.
- All carbon offset credits purchased to reduce GHG emissions, must meet the criteria of being real, quantifiable, permanent, verifiable, enforceable, and additional, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2).

Prior to the City issuing a building permit for the proposed project, the applicant shall submit the GHG Reduction Plan for review and approval of the Community Development Director. The Reduction Plan shall demonstrate that GHG emissions from the project will be substantially reduced. If on-site design and off-site program investments do not result in reducing the GHG impact to less than significant, the applicant shall, prior to approval of an occupancy permit, provide documentation in the form of an executed contract or other certification that the balance of emissions reduction required has been obtained through purchase of carbon offset credits, subject to the performance standards listed above.

b. The CAP is a qualified climate action plan pursuant to CEQA Guidelines Section 15183.5(b) that functions as the applicable plan for reducing GHGs. One CAP measure that is applicable to new industrial projects assumes that electricity will be purchased from Monterey Bay Community Power (now Central Coast Community Energy), which obtains electricity from renewable sources and delivers it through the PG&E grid, thereby promoting renewable electricity generation. As a condition of approval, the City would require the applicant to implement this measure to ensure project consistency with the CAP.

As discussed in 6, Energy, there are no other GHG reduction plans that apply directly to new development in the city. However, the state guidance for local government actions to reduce GHG emissions is instructive regarding actions that local agencies can and should take to reduce GHG emissions from activities within their communities, including new land use development projects. The *2022 Scoping Plan* (California Air Resources Board 2022), is the state strategy for achieving GHG reduction goals established in adopted legislation, most particularly AB 1279, which establishes a state goal of net zero GHG emissions by 2045. Appendix D of the scoping plan identifies local government actions that the state feels are fundamental for local governments to implement to support the state's climate goals.

Independent of adopting a local plan for reducing GHG emissions (which the City has already done), priority local government reduction strategies include: 1) transportation electrification (which would be achieved for the proposed project with implementation of mitigation measure GHG-1; 2) VMT reduction (the VMT impact of the project is less than significant and VMT reduction is promoted by the project by providing priority parking for employees who carpool); and 3) building decarbonization (the applicant has committed to using no natural gas and the project includes a renewable energy plan that would offset approximately 17 percent of total electricity demand). The proposed project does not conflict with local government actions that are within the control of local land use development applicants and that can be designed into individual development projects.

9. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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, create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or a public-use airport, result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Comments:

a. The proposed project involves the transport, storage, use, and disposal of hazardous materials such as ammonia, propane, lithium-ion batteries and diesel fuel, among others. The types and volumes, purpose and storage method for all materials are reported in the *Hazardous Materials Report* prepared by Cypress Engineering Group included in the project application. To provide further information about ammonia, the applicant also submitted the *Project Gonzales Cooler Ammonia System Safety Provisions* (Cypress Engineering Group 2022). Both reports are referenced in the following analyses.

Ammonia Refrigeration Systems

Anhydrous ammonia is the most fundamental hazardous material that will be used on the project site. Given its potential to create risks to public health and safety, its potential effects are reviewed in greater detail than other materials to be stored and used that pose less risk.

The proposed refrigeration system will use anhydrous ammonia as the coolant, which is typical for agricultural cooler projects in California. The system would be used for cold rooms, processing rooms, pressure cooler tunnels, chilled water generation and glycol cooling. The refrigeration system must adhere to a range of local and state regulatory requirements to reduce the potential for accidental release during project operations. These regulatory programs include:

- Occupational Safety and Health Administration (OHSA)'s Process Safety Management (29 CFR 1910.119 – PSM): This program is designed to protect employees against accidental release of ammonia; it requires employers to implement safety programs that identify, evaluate, and control these hazards. The elements of this program would be in place before ammonia is brought onsite.
- Environmental Protection Agency (EPA) Risk Management Program (40 CFR Part 68 – RMP): This program is designed to protect employees, public and environment from accidental release of ammonia; it has all of the elements of the Occupational Safety and Health Administration's Process Safety Management and additionally requires the owner/operator to develop an Offsite Consequence Analysis of Ammonia Release. This program would be in place, along with the Offsite Consequence Analysis and submitted to EPA and the Monterey County Environmental Health Department before ammonia is brought onsite.
- California Accidental Release Prevention Program: This program is designed to protect employees, public, and environment against accidental release of ammonia; it has all of the elements of Occupational Safety and Health Administration's Process Safety Management and requires seismic assessments of the ammonia system in coordination with the Monterey County Environmental Health Department to implement the program. This program would be in place and submitted to the Monterey County Environmental Health Department before ammonia is brought onsite.

All three programs require the applicant to conduct a Process Hazard Analysis to identify, assess the adequacy of engineering and administrative controls, quantify the risks associated with ammonia release, and develop recommendations to reduce the risk levels that are above acceptable levels. The Process Hazard Analysis process would involve the Gonzales Fire Department, Monterey County Health Department, contractors, refrigeration operators, the applicant, the project safety coordinator, and other stakeholders and would be conducted before ammonia is brought onsite.

The design features that would be incorporated into the proposed ammonia system to minimize the risk of ammonia release and provide faster response should a release occur include:

- Ammonia detection system;
- Refrigeration machinery room ventilation system;
- Emergency shut-down system;
- Diffusion tank and emergency control box (fire department box); and
- Industrial wastewater drain system.

Other Hazardous Materials. Other hazardous materials and waste that would be stored at the site include waste oil, battery acid, and cleaning solvents. Incidental cleaning and sanitation chemicals, including chlorine and citric acid, would be stored and used onsite to help meet food safety standards. The applicant must prepare, submit, and operate under City, Monterey County, and state-approved Hazardous Materials and Emergency Response Plans. The project must also operate in compliance with other federal, state, and local regulations, which address transport, use, and disposal of hazardous materials and serve as uniformly applied development regulations that reduce potential hazardous materials related risks. Representative regulations include, but are not limited to:

- Occupational Safety and Health Administration standards are listed in Title 29 of the Code of Federal Regulations 1910;
- California Code of Regulations, Title 22 Division 4.5;
- Unified Hazardous Waste and Hazardous Materials Management Regulatory Program;
- Hazardous Materials Transportation Regulations (California Code of Regulations, Title 26);
- California Vehicle Code Section 32000;
- California Accidental Release Prevention Program; and
- Monterey County Multi-Jurisdictional Hazard Mitigation Plan.

As a Certified Unified Program Agency, the Monterey County Environmental Health Department administers state and federal accidental release prevention laws and regulations through its Hazardous Materials Business Response Plan and Inventory Program. The Monterey County Environmental Health Department will be responsible for ensuring that the proposed project complies with these regulations such that risks to public safety and the environment would be minimized.

Compliance with the aforementioned regulations would ensure that the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials as a result of the project would be less than significant.

b. Agricultural production has been a long-term use of the project site and, therefore, site soils may contain agricultural chemicals and pesticides at concentration that would result in a public hazard if accidentally released during ground disturbing construction activities. The proposed project is required to comply with general plan implementing action HS-5.1.6, which requires that site-specific investigations and reports occur on sites with potential soil contamination.

Preparing a phase I environmental site assessment is the common investigation approach for identifying whether hazardous material conditions may exist on a site proposed for development. The assessment would include a review of potential historical soil contamination. If the phase I environmental assessment identifies hazardous materials conditions that pose a risk to public health and safety, a phase II investigation would be required to more precisely define the extent of the condition(s) and to identify mitigation/remediation programs. Remediation activities must be completed before grading or other site disturbance is permitted.

Implementation of the following mitigation measure would reduce potentially significant impacts to the public or the environment from the release of hazardous materials by requiring that the applicant prepare and submit to the City a phase I environmental site assessment and if necessary, a phase II environmental site assessment and associated hazardous materials remediation plan.

Mitigation Measure

HAZ-1 Prior to the issuance of a grading permit, the applicant shall prepare a Phase I Environmental Site Assessment to determine the potential for or actual presence of hazardous material conditions, including agricultural chemical residues, in all locations that would be disturbed to construct the project, including off-site improvement locations. The applicant shall report the results of the Phase I Environmental Assessment to the Community Development Director prior to issuance of a grading permit. If potential or actual hazardous materials conditions are identified that require preparation of a Phase II Environmental Site Assessment, the applicant shall be responsible for conducting the assessment and shall submit the assessment to the Community Development Director for review. The applicant shall be responsible for implementing all recommendations and requirements for remediation of hazardous materials conditions identified therein, should such conditions be identified. Hazardous materials removed from the site shall be managed consistent with regulations contained in the California Code of Regulations, Title 22 Division 4.5. Certification that remediation actions have been completed shall be provided to the City of Gonzales Community Development Director prior to issuance of a grading permit.

Refer to the discussion under checklist question “a” regarding potential for accidental release of hazardous materials and regulatory requirements that reduce this potential to less than significant.

c. The project site is not located within one-quarter of a mile of an existing school. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of a school.

d. The project site is not located on the California Department of Toxic Substances Control’s Cortese List (California Department of Toxic Substances Control 2022a); the State Water Control Board list of leaking underground storage tank sites (State Water

Resources Control Board 2022a); the State Water Control Board list of solid waste disposal sites with waste constituents above hazardous waste levels outside the waste management unit (State Water Resources Control Board 2022b); the list of "active" Cease and Desist Orders and Cleanup and Abatement Orders from the State Water Resources Control Board (State Water Resources Control Board 2022c); or the California Department of Toxic Substances Control's list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code (California Department of Toxic Substances Control 2022b). Therefore, the project would not create a significant hazard to the public or the environment from associated risks.

e. The project site is not located within an airport land use plan or within two miles of a public airport or a public use airport and, therefore, would not result in a safety hazard or excessive noise for people residing or working in the project area.

f. Emergency evacuation routes are present throughout Monterey County. Routes within or near the city include: U.S. Highway 101, Gonzales River Road, Gloria Road, Johnson Canyon Road, and Old Stage Road. These routes are considered "Pre-designated Emergency Evacuation Routes" and may be used when necessary (City of Gonzales 2010, p. 4-350 - 4-351); including, but not limited to, wildfires that could occur in the open space areas to the east. The project site fronts on Gloria Road. The proposed project would add traffic to this emergency access route, but additional traffic would not inherently physically interfere with its emergency evacuation function. The transportation analysis prepared for the proposed project, discussed in Section 17.0, Transportation, identifies that the road would operate at an acceptable level of service under existing plus project conditions. The City will require that the applicant make improvements to Gloria Road to ensure its capacity and operations are sufficient to accommodate the project.

General plan policy HS-3.1 requires that the City take all reasonable actions to prepare for emergencies, using the "Multi-Jurisdictional Hazard Mitigation Plan, Monterey County" as the basis for planning and preparation; the proposed project must be consistent with the guidance provided within the Monterey County Multi-Jurisdictional Hazard Mitigation Plan.

Given the information above, the proposed project would have a less-than-significant impact from impairing or interfering with an adopted emergency response plan or emergency evacuation plan.

g. According to the California Department of Forestry and Fire Protection, the entire City of Gonzales and surrounding area (inclusive of the project site and off-site improvement areas) are not located within a fire hazard severity zone (CalFire 2022). Therefore, the proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

10. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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:				
(1) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(2) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☒	☐
(3) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(4) 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?	☐	☐	☐	☒

Comments:

a. **Construction Water Quality Impacts**. Construction activities would involve soil disturbance associated with site preparation, grading, and excavation activities. Delivery, handling and storage of construction materials and wastes; equipment refueling; and construction equipment use and maintenance could result in spills of oil, grease, or related pollutants. Improper handling, storage, disposal of fuels and materials or improper cleaning of machinery also are potential sources of water pollution associated with construction activities. These activities have the potential to cause water quality degradation if eroded soil or other pollutants are carried by storm water into storm water drainage systems and ultimately into downstream water bodies. Construction phase water quality degradation can damage aquatic ecosystem health, and deposition of sediment within surface water and creek channels can adversely modify their function while causing additional erosion that exacerbates water quality degradation.

New development is required to meet National Pollutant Discharge Elimination System (NPDES) requirements. The NPDES permit program for storm water and construction site runoff is designed to reduce discharge of pollutants in storm water to the maximum extent practicable to protect water quality and beneficial uses of surface waters. The project would disturb more than one acre of soil and, therefore, coverage under the Construction General Permit for Discharges of Storm Water Associated with Construction Activity per NPDES requirements must be obtained.

The Construction General Permit requires that individual developers prepare and implement a Storm Water Pollution Prevention Plan. A Storm Water Pollution Prevention Plan identifies best management practices (filters, traps, bio-filtration swales, etc.) consistent with the requirements of the NPDES and Gonzales City Code Section 10.28.110, Requirements for Reducing Pollutants in Stormwater, that must be implemented during construction. The practices are intended to reduce potential impacts on surface water by reducing the potential for sediment or other water quality contaminants to be discharged directly or indirectly into a surface water body and to ensure that urban runoff contaminants and sediment are minimized during site preparation and construction periods.

Required compliance with the NPDES requirements would ensure that applicable water quality standards are met and that water quality impacts from construction activities will be less than significant.

Post-Construction (Operational) Water Quality Impacts. The proposed project would alter existing storm water drainage conditions by replacing undeveloped land with impervious surfaces such as parking lots, building rooftops and roadway pavement. The change in surface conditions would result in a substantial increase in storm water runoff relative to existing conditions where a significant portion of storm water percolates though exposed soil back to groundwater. Increases in the rate or volume of storm water delivered into receiving waters can cause erosion of downstream drainage courses. Urban development can also introduce pollutants such as oil and grease, as well as natural and non-natural debris that can be carried in storm water runoff, directly or indirectly to receiving waters. Where contaminated storm water is delivered into a regulated storm drainage system and then discharged directly or indirectly into a surface water body, water quality degradation can occur.

In 2013, the Central Coast Regional Water Quality Control Board adopted post-construction storm water management requirements. The primary objective of the requirements is to ensure that land development projects reduce pollutant discharges to the maximum extent practicable and to prevent storm water discharges from causing or contributing to a violation of receiving water quality standards. Regulated projects, such as the proposed project, include all new development or redevelopment projects that create and/or replace more than 2,500 square feet of impervious surface. Such projects are required to implement measures to reduce pollutant discharges and prevent storm water discharges from causing or contributing to a violation of receiving water quality standards.

The applicant's Preliminary Stormwater Control Plan is designed to meet the post-construction water quality requirements through incorporation of best management practices such as low impact development, site design, and storm water treatment. The plan must also include measures that ensure the volume and rate of storm water discharge from developed areas would not exceed pre-project conditions (the proposed detention facility is a fundamental feature for meeting this standard). This performance standard is designed in significant part to reduce erosion of downstream water features into which site storm water is discharged.

The Preliminary Stormwater Control Plan is subject to review by the City to ensure that development is being designed to incorporate appropriate water quality control features. A Final Stormwater Control Plan would be required to finalize the best management practices to be incorporated into the final site plan and to prove the evidence required to demonstrate that the measures will meet performance standards. Required compliance with post-construction water quality performance standards would ensure that applicable water quality standards would be met. The project impact on water qualify would be less than significant.

Process Wastewater Disposal Water Quality Impacts. The applicant proposes to collect, treat, store and reuse all process wastewater as a source of irrigation supply for crops grown on the parcel to the south of the project site. Refer back to the project description and Figure 8, Process Water Recycling Reuse Plan, for the physical components and function of the system. Onsite, the process water would be pre-treated and then delivered via pipeline to a lined storage pond from where it would be pumped to irrigate agricultural crops. The pond would be aerated to provide additional treatment. The planned pond storage capacity is 42.7 acre-feet, which is the volume needed to store process water given crop demand, crop application rates/efficiency, crop type, evaporation, direct precipitation, and other variables.

Discharge of process wastewater has the potential to cause water quality impacts if not properly treated and disposed. The process wastewater contains organic materials that unless properly treated before discharge, can adversely affect downstream water bodies and aquatic organisms.

Central Coast Regional Water Quality Control Board regulates discharges of food waste to land surfaces through required enrollment of activities that do so. The applicant would be required to comply with waste discharge requirements pursuant to the General

Discharge Order for Discharges of Fruit and Vegetable Processing Waste – Order No. R3-2004-0066. Compliance standards in this order are designed to ensure that chemical and physical characteristics of discharges do not exceed levels that could otherwise result in risks to public and environmental safety.

Pursuant to CEQA Guidelines section 15126(a)(1)(B), compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected to reduce the impact to meet or exceed the specified performance standards. The City is responsible for ensuring that the applicant has obtained approval of waste discharge requirements through the Central Coast Regional Water Quality Control Board prior to issuing a grading permit. Required compliance of the proposed project with this General Discharge Order would ensure that discharge process water requirements are met and consequently, that associated potential water quality impacts would be less than significant.

b, e. Information in this analysis is largely taken from the *SB 610 Water Supply Assessment for the Vista Lucia Specific Plan Project* (Zanjero 2023) (WSA). The WSA is included in Appendix E to this initial study. The WSA includes detailed analysis of existing and future projected water demands in the city, including water demand from the proposed project, and identifies the net consumptive water demand from planned development within the City's SOI to the year 2050. The WSA then compares projected demand to the available sustainable groundwater yield to conclude whether sufficient water is available to serve existing and planned development, and whether future water demand would exceed the sustainable yield. The WSA also identifies whether sufficient water would be available during normal, dry, and multiple dry years.

The proposed project is one of the foreseeable planned projects considered in the WSA. A WSA is not required solely for the proposed project, as the proposed project does not meet the definition of a "project" for which a WSA must be prepared. California Water Code section 10912 requires that a WSA must be prepared for "any proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area." Nevertheless, because the WSA prepared for the Vista Lucia project incorporates the proposed project as a future source of water demand, the data and conclusions in the WSA can be used to demonstrate the proposed project's contribution to effects on groundwater supply and groundwater sustainability, including during normal, dry, and multiple dry years.

Projected Project Water Demand. The proposed project contribution to groundwater demand as reported in the WSA is highly conservative. The WSA assumed that the proposed project would have an indoor water demand of 200,000 gallons per day, or 225 acre-feet per year. The WSA also estimated outdoor water demand at 9.1 acre-feet per year, for a total project demand of 234 acre-feet per year, not including an additional 23 acre-feet per year due to water system losses (WSA, Table 5-1).

The projection of indoor water use included in the WSA was made prior to the availability of more detailed water demand projections submitted by the applicant. The applicant projects potable water demand at 8,609 gallons per day, process water demand at 85,000 gallons per day during the peak season (assumed to be seven months or 210 days), for a total of 93,609 gallons per day or about 60 acre-feet during the peak season. No processing would occur during the five-month off-peak season (155 days) – only potable demand is assumed. Off-peak season demand would be about 4.09 acre feet. Total annual indoor demand would be about 64 acre-feet per year. The WSA also overestimates the actual project site size by a factor of about two. Consequently, it overestimates landscape water demand because it assumes more acreage in landscaping than is proposed. Actual landscape demand would be about 4.5 acre-feet per year. Total water demand would, therefore, be approximately 68 acre-feet per year vs. 234 acre-feet per year as assumed in the WSA, or approximately 29 percent of the total volume assumed in the WSA.

Estimated Project Consumptive Water Use. When groundwater is extracted from a groundwater basin and used for municipal (urban) purposes, some portion of the water used will ultimately transpire through plants or otherwise evaporate and be lost to the groundwater basin. However, much of the groundwater used may ultimately return to the basin. A portion of the water applied to landscaping may percolate deeply and return to the aquifer. If the water is used indoors, then collected and treated at a wastewater treatment plant, the water may be recycled to offset existing groundwater demands or directly recharged to the basin. A project's consumptive water use equals the project's total water use minus the quantity of water from the proposed project that returns to recharge the basin (or to meet demands that would otherwise be met by groundwater). This is an important consideration. The distinction between the quantity of water used and quantify of water consumed (not returned back to the groundwater basin) is important when considering a project's net effect on groundwater sustainability as will be discussed below.

The WSA includes an estimate of the consumptive water demand for all projects considered in the WSA, including the proposed project. The consumptive demand calculation assumes a significant volume of the project indoor water use of 225 acre-feet per year would be discharged to the City's wastewater treatment plant, treated, then percolated back to groundwater in percolation ponds at the treatment plant. The net volume that would be recharged to groundwater would be less than 225 acre feet because some loss (approximately 12 percent as stated on page 5-6 of the WSA) would occur due evaporation of treated wastewater from the percolation ponds. Using the WSA's overly conservative assumptions, the cooler project would have a net consumptive water demand of 20 acre-feet per year when all associated variables are considered (WSA, p. 5-8). Again, this is based on a project water demand that is more than three times the demand projections subsequently provided by the applicant.

The WSA could not have been informed by the applicant's plan to treat, and store the 85,000 gallons per day of process wastewater that would be produced by the project, as this information was not available at the time the WSA was prepared. This water would be reused as irrigation water for agricultural crops currently grown on the parcel on the south side of Gloria Road that is owned by the project applicant. For purposes of this discussion, it is assumed that like treated wastewater in the City's treatment plant percolation ponds, a similar percentage of the process wastewater would be lost to evaporation from the planned process water storage pond and that an incremental additional volume would be lost to evapotranspiration from soils and crops to which the treated water would be applied as irrigation water. Nevertheless, the vast majority of the treated process water volume would be available to replace irrigation water demand that is now met by extracting groundwater. This groundwater savings far more than offsets the balance of the project's consumptive water demand generated solely from its indoor water demand and landscape water demand requirements.

Impact on Groundwater Sustainability. In 2014 the State of California passed the Sustainable Groundwater Management Act (SGMA), which consists of three bills (AB 1739, SB 1168, and SB 1319). SGMA outlines necessary steps for local groundwater agencies to reach sustainable groundwater use. The framework allows local agencies to establish a Groundwater Sustainability Agency (GSA) in order to develop and implement groundwater sustainability plans (GSPs) for their respective jurisdiction. Where multiple GSAs cover a defined basin, the GSAs may submit one GSP or individual GSPs. The GSPs for high-priority basins were due to the State by January 31, 2020, and by January 31, 2022 for medium priority basins.

The Salinas Valley Basin Groundwater Sustainability Agency is the GSA for six subbasins within the Salinas Valley: the 180/400-Foot Aquifer, Eastside, Forebay, Langley Area, Monterey, and Upper Valley Aquifer subbasins. The City of Gonzales overlies the 180/400-Foot Aquifer, Eastside, and Forebay subbasins. To meet SGMA requirements, each subbasin GSP has been completed as has an overarching Valley-Wide Integrated Groundwater Sustainability Plan.

Each GSP includes an estimate of sustainable groundwater yield on a subbasin-wide basis. Sustainable yield is the amount of water that can be safely extracted and consumed each year from a subbasin while balancing the water budget, resulting in no net decrease in storage of useable groundwater or any other undesirable result as defined by SGMA.

The WSA references GSP data for sustainable groundwater yield for agriculture. The estimates are only for agriculture because the GSPs assume that urban water demand will not increase within the boundaries of each subbasin over the GSP planning horizon. The lowest of the three sustainable yield estimates for the three basins which underlie Gonzales and from which its water supply could be drawn is 1.61 acre-feet per acre/year; the others were 2.09 and 1.93 acre-feet per year/acre, respectively, for an average of 1.88 acre-feet per year/acre. For purposes of the groundwater sustainability analysis, the WSA conservatively used the lowest of these numbers. The estimates represent the amount of water available per acre for use within each subbasin at which each the sustainable yield of each subbasin would be maintained. Stated in a different way, the proposed project could convert a sustainable supply of 1.61 acre-feet per year/acre of consumptive water use from irrigated agricultural use to urban use without negatively impacting sustainable groundwater yield.

The project would have a significant impact on groundwater sustainability if its net consumptive demand were to exceed its available sustainable supply. With a sustainable supply of 1.61 acre-feet per year/acre and a cooler facility footprint of 32.1 acres as identified in the project description in this initial study, the available sustainable supply for the project is 1.61 acre-feet per year/acre x 32.1 acres, or 51.68 acre-feet per year. The highly conservative WSA consumptive demand estimate for the project of 20 acre-feet per year is far below the sustainable water supply volume available for the project. The actual consumptive demand would be substantially lower if not negative due the applicant's plan to replace agricultural irrigation water supply derived from groundwater with treated process wastewater. Therefore, the project would have a less-than-significant impact from impeding sustainable groundwater management of the three affected groundwater subbasins. Because of this, the project would have no impact from conflict with the applicable groundwater sustainability plans.

Water Supply Sufficiency. Section 5 of the WSA also addresses sufficiency of water supply for existing and future planned development, including the proposed project. It evaluates water sufficiency in normal, single-dry, and multi-dry year conditions. WSA Table 5-3, Assessment of Sufficiency for Water Demands, shows the analysis results. Based on that data, the WSA states, "As summarized in Table 5-3, the total combined demand of the existing Proposed Project, existing City, and other planned developments at buildout in 2050 is estimated to be 6,363 acre-feet annually under normal conditions – varying slightly during single and multiple dry years, ranging from 5,727 acre-feet to 6,681 acre-feet. Table 5-3 demonstrates that sufficient groundwater physically exists in the Salinas Valley Groundwater Basin to meet the needs of the Proposed Project, City, and other planned developments. Therefore, the proposed project would have a less-than-significant impact regarding sufficiency of its water supply.

Conflict with the Applicable Water Quality Control Plan. The *Water Quality Control Plan for the Central Coastal Basin June 2019 Edition* (Basin Plan) is the Central Coast Regional Water Quality Control Board's (regional board) master water quality control planning document. Gonzales is within the boundary of the basin plan management area. The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. The regional board implements the Basin Plan by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either State Waste Discharge Requirements for discharges to land, or federally delegated NPDES permits for discharges to surface water. When such discharges are managed so that: 1) they meet these requirements; 2) water quality objectives are met; and, 3) beneficial uses are protected, water quality is controlled (Central Coast Regional Water Quality Control Board 2019).

As has been described above, the applicant would be required to obtain approval of a Waste Discharge permit for disposing treated process water as agricultural irrigation water. Further, as also described previously, the project would be regulated to protect water quality through required conformance with NPDES regulations designed to protect water quality. Consequently, the project would have no impact from conflict with the applicable water quality control plan.

c. The project site does not contain any streams or rivers; however, there is an agricultural ditch bisecting the project site in a northwest-southeast direction.

Erosion. Refer to the response under checklist question "b" in Section 7.0, Geology and Soils.

Flooding and Runoff. The proposed project would substantially increase the amount of impermeable surface on the site. Consequently, the volume of storm water runoff would substantially increase under post-development conditions. The increased runoff could contribute to localized flooding if stormwater infrastructure is not designed or sized to accommodate the increased flows.

As previously discussed, regulated projects (such as the proposed project) must implement post-construction best management practices pursuant to NPDES requirements as enforced through regulations in the municipal code. The applicant's Preliminary Stormwater Control Plan identifies the proposed best management practices for stormwater quality management. One of the stormwater management performance standards is that the rate of storm water discharge from a site under post-development conditions may not exceed the volume and rate of runoff under pre-development conditions. The proposed project would have a less-than-significant impact from potential to cause localized flooding because it would not result in an increase in the rate of stormwater discharge relative to existing conditions – the capacity of existing stormwater conveyance facilities into which project stormwater would be discharged would not be exceeded due to discharge from the site.

Flood Flows. The Monterey County Parcel Report Web App includes the Federal Emergency Management Agency's "Draft Flood Update (2020)," which shows that the southern portion of the project site, including a portion of the cooler building, is within a 100-year flood zone (Zone AE) (Monterey County 2022). The geotechnical report identifies the need to place fill on the site prior to constructing site improvements (Earth Systems Pacific 2022, p. 11). When grading occurs and/or fill is placed within a flood hazard zone, there is a potential for flood flows to be impeded and/or for the elevation of the base flood to increase, thereby exacerbating flood hazard conditions. Fill must also be placed to raise the finished floor elevation of the cooler to a minimum of one foot above the base flood elevation as described below. The base flood elevation is identified by the Federal Emergency Management Agency on flood insurance rate maps that it prepares. Local agencies use this information to support their implementation of flood management programs, which in turn are designed to enable development within the local agency to qualify for flood hazard insurance through the federal government.

To avoid flood hazard impacts, all improvements must be designed consistent with applicable policies and implementing actions in the general plan and with the City's floodplain development standards found in municipal code chapter 14.04, Floodplain Management. These latter standards are in part designed to avoid or minimize impeding or redirecting flood flow created by placing fill or other flood barriers within a flood hazard area. Construction standards listed in Section 14.04.160 state, among other things, that for development within the 100-year flood zone, the lowest finished floor must be elevated to or above the base flood elevation. New development is also required to be constructed pursuant to Section 14.04.160.B, Construction Materials and Methods, which in part, address floodproofing of new structures.

Chapter 14.04 includes a standard that development within a floodplain cannot result in raising the water surface elevation of the base flood by more than one foot. For projects that place fill within a flood zone (or otherwise have potential to reduce flood carrying capacity of the floodplain), developers must demonstrate that this standard would be not exceeded by submitting evidence from a registered engineer. If such were to occur, measures would be required (e.g., actions to increase flood storage to compensate for the loss in storage resulting from a project), such that flood hazards would not be exacerbated by raising the flood elevation more than one foot.

None of the off-site improvements are anticipated to require fill that could impede flood flows or raise the based flood elevation by more than one foot.

Compliance with the floodplain management regulations ensure that the project potential to impede flood flows and increase flood hazards would be less than significant.

d. According to the general plan EIR, due to the absence of large bodies of water close to the planning area, the potential for tsunamis or seiches is considered non-existent (City of Gonzales 2010, p. 4-335). Therefore, no impacts from releasing pollutants during a tsunami or seiche would occur.

As discussed previously, portions of the project site are within flood hazard Zone AE. Development placed within this flood hazard zone could be subject to inundation during a 100-year flood event if not property designed. As described in item "c" above, the finished floor elevation of the cooler and associated buildings that would be the locations for using and storing hazardous materials would be raised above the flood elevation. Any portion of the project that is built below the base flood elevation must be floodproofed and designed to resist structural damage from flood flows.

Compliance with the above-mentioned flood regulations would reduce the potential that the project would be inundated during a flood event and release hazardous or other materials off the project site. Therefore, impacts related to releasing hazardous materials during a flood would be less than significant.

11. LAND USE AND PLANNING

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Cause any 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?	☐	☐	☐	☒

Comments:

a. The general plan EIR concluded that buildout of the general plan would have no potential to physically divide an established community. The project site and adjacent lands are undeveloped. Consequently, the project would have no impact from dividing an established community.

b. References to general plan policies and regulations that serve to reduce environmental impacts are made throughout this initial study. It is assumed that the applicant will be required to comply with these uniformly applied policies and regulations and that such compliance would be assured through the City's development review and building permit processes, and through the discretionary review and regulatory permit processes of responsible agencies identified in this initial study. Consequently, the proposed project would have no known conflict with such plans or policies.

12. MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Result in 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 in a local general plan, specific plan, or other land-use plan?	☐	☐	☐	☒

Comments:

a, b. The general plan EIR concluded that buildout of the general plan has no potential to result in adverse effects to mineral resources. The California Department of Conservation's Mineral Resources Online Spatial Data Interactive Map does not identify any mineral resources within and adjacent to the City of Gonzales (California Department of Conservation 2022). Therefore, the project would not result in the loss of availability of a known or locally important mineral resource delineated in any land use map or that would be of value to the region and the residents of the state.

13. Noise

Would the project result in:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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 in applicable standards of other agencies?	☐	☒	☐	☐
b.	Generation of excessive ground-borne vibration or ground borne noise levels?	☐	☐	☒	☐
c.	For a project located within the vicinity of a private airstrip or an airport land-use plan or, where such a plan has not been adopted, within two miles of a public airport or public-use airport, expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Comments:

a. Relative to the residential and associated land uses anticipated for the project site as identified in the general plan, the proposed project would introduce new types of noise sources (e.g., stationary noise from a variety of on-site operations, and mobile source noise from heavy duty truck trips) with differing noise characteristics and intensities. Noise produced by the project also has potential to create conflicts with potential future noise sensitive uses that could be placed to the north and east of the cooler facility. To assess noise effects, the applicant submitted the *Environmental Noise Assessment for the Gonzales Cooler Development* (WJV Acoustics 2023) ("noise assessment"). The noise assessment, which is included in Appendix F, was reviewed by the City and found to be adequate for reference in this initial study. Existing noise conditions, project noise sources and forecast noise intensities from those sources, a summary of applicable noise standards from the general plan and municipal code, and summary of the extent to which noise sources could exceed the noise standards at existing and future potential adjacent noise sensitive uses are addressed in the assessment. The information in this section of the initial study is taken from the noise assessment.

The forecasts of noise intensity from on-site, operational noise sources in the noise assessment are based on noise measurements conducted at an agricultural processing facility in Yuma, Arizona that is operated by the project applicant. That facility operates at peak levels during what would be the off-peak season at the proposed facility in Gonzales. The Yuma facility operations and equipment are the same as those at the applicant's existing facility in Salinas and would the same as those that would occur at the proposed facility in Gonzales, as that equipment and the overall operations would be moved between the Yuma and Gonzales locations for the respective peak seasons of operation.

Noise regulations applicable to the project, found in both the general plan and municipal code, generally address changes in stationary and transportation-source noise levels at noise-sensitive uses. Noise-sensitive uses include residential development, schools, hospitals, churches and libraries. The nearest existing noise sensitive uses to the project site are a single-family home located approximately 1,200 feet east of the site on Gloria Road and a single-family home located along the east side of Gloria Road about 1,700 feet west of the site at U.S. Highway 101.

Operational Noise from On-Site, Processing Related Noise Sources. Noise from a variety of equipment and activities associated with processing activities will be produced at the site. Associated equipment types and activities include four refrigeration trailers, two in-house refrigeration compressors, five vacuum tubes and two ice generators. Additional sources of noise associated with project operations include forklift movements (including backup alarms) and truck movements. These various noise-producing components will generally operate simultaneously and in close proximity to each other, primarily in the eastern portion of the site. Noise from these activities would be projected to the north, east, and south; the cooler facility buildings will largely shield this noise from being transmitted to the west.

Table VII in the noise assessment, included below as Table 6, Project Processing Activity Related Noise Levels, shows anticipated noise intensities at varying distances from the center of the area on the eastern side of the cooler building where exterior processing activities would be concentrated. The City's noise exposure standards are shown in the table in parentheses. For an explanation of noise terms, please refer to Appendix F.

Table 6 Project Processing Activity Related Noise Levels

Setback Distance (feet)[1]	A-Weighted Decibels, dBA			
	Leq		Lmax	
	Daytime (55 dB)	Nighttime (50 dB)	Daytime (70 dB)	Nighttime (65 dB)
500	57	53	73	67
750	54	50	70	64
1,000	51	47	67	61
1,250	49	45	65	59
1,500	48	44	64	58
1,750	46	42	62	56
2,000	45	41	61	55

SOURCE: WJV Acoustics 2023

NOTE:

1. Distance is from the center of the area on the eastern side of the cooler facility building where exterior processing activities would be concentrated.

The nearest existing noise sensitive use is a single-family home located approximately 1,100 feet from the eastern project fence line. Table 6 shows that at this distance, noise from processing activity related stationary sources would be well below the allowable standard. The impact on existing noise sensitive receptors would be less than significant.

In the future, the land bordering the eastern facility fence line and northern facility fence line (parcel boundary) could be developed with uses that are allowed within the Neighborhood Residential land use designation as identified in Figure 4. Noise sensitive residential and school uses are allowed. The organization of uses in these areas will be subject to land use direction to be provided in specific plans, which are required for large-scale development projects planned within the City's SOI. At present, it is uncertain whether or how near the eastern or northern facility fence lines noise sensitive uses (residential, schools, etc.) might be located in the future.

The distances at which project generated noise levels shown in Table 6 occur are to be measured from the center of the outdoor activity area on the east side of the cooler facility. The eastern facility fence line is approximately 400 feet from the center of this activity area. It is much closer than the northern fence line, so is considered worst case. Noise levels would exceed City standards at a distance of about 750 feet from the activity area center as shown in Table 6, or approximately 350 feet beyond the eastern facility fence line. Consequently, there is potential that if noise sensitive uses are planned within 350 feet of the eastern facility fence line, they could be exposed to noise levels that exceed City standards. This would be a significant impact. Implementation of the following mitigation measure would reduce this potential impact to less than significant.

Mitigation Measure

N-1. The applicant shall implement one or a combination of measures to reduce noise levels along at the eastern fence line of the facility to City standards. The measure options include, but may not be limited to:

a. Construct a soundwall along the entire eastern facility fence line to a minimum height of 8.5-feet above the receiver site elevation to reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation at potential ground level outdoor activity at potential future, adjacent noise sensitive uses. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall; and/or

b. Incorporate industrial types of sound attenuating enclosures, sound absorbing materials, or other appropriate localized sound attenuation measures to reduce noise levels at/near the individual processing equipment noise sources. The attenuation measures and their effectiveness shall be selected in consultation with a qualified acoustical consultant to be retained by the applicant; and/or

c. Redesign the project site plan to locate noise-producing equipment further from the eastern property line (e.g., along the south side of the facility).

If the applicant chooses to construct a soundwall, plans for the soundwall shall be included on the construction drawings and soundwall height and specifications confirmed by the City of Gonzales Building Department prior to issuance of a building permit. If "at source" noise reduction measures and/or site redesign options are pursued by the applicant, the applicant shall retain a qualified acoustical consultant to evaluate and demonstrate that measures have been selected which are sufficient to meet the City's noise standards at the eastern facility fence line. The measures shall be included in the project plans for review and approval by the Community Development Director prior to issuance of a building permit. If a soundwall is constructed, it shall be completed prior to issuance of a building permit for any future project which places noise sensitive receptors within 350 feet of the eastern facility fence line.

Operational Noise from On-Site, Product Loading/Truck Movement/Forklift Noise Sources. Truck dock loading activities, slow moving trucks, and associated forklift use/backup alarms would also generate noise. These activities would be concentrated on the west side of the cooler building. Noise from these activities would be projected to the north, west, and south; the cooler facility building will largely shield this noise from being transmitted to the east.

The nearest existing noise sensitive to the western portion of the site is a single-family home located on Gloria Road, approximately 1,500 feet to the west at Tavernetti Road. Table VIII in the noise assessment, included below as Table 7, shows that at this distance, noise from project operations would be well below the allowable standards referenced previously. Therefore, impacts on existing noise sensitive uses would be less than significant.

Table 7 On-site Loading/Truck Movement/Forklift Activity Noise Levels

Setback Distance (feet)[1]	A-Weighted Decibels, dBA			
	Loading Dock		Truck Movements	Forklift Alarm
	Leq	Lmax	Lmax	Lmax
500	53	62	57	52
750	50	59	54	49
1,000	47	56	51	46
1,250	45	54	49	44
1,500	44	53	48	43
1,750	42	51	46	41
2,000	41	50	45	40

SOURCE: WJV Acoustics 2023
NOTE:
1. Distance is from the center of the area on the western side of the cooler facility building where exterior processing activities would be concentrated.

In the future, noise sensitive uses could be located adjacent to the northern fence line. The type and organization of land uses in this area will be subject to land use direction to be provided in a specific plan. At present, it is uncertain whether or how near the northern facility fence line noise sensitive uses (residential, schools, etc.) might be located.

The distances at which project generated noise levels shown in Table 7 occur are measured from the center of the outdoor activity area on the west side of the cooler facility. The northern facility fence line is approximately 450 feet from the center of this activity area. Noise levels would not exceed City standards at this distance with one possible exception. Loading dock activities could occur from 10:00 PM to 7:00 AM during the peak season. Loading dock associated noise would exceed City standards at a distance of up to about 300 feet north of the northern fence line. This would be a significant impact on noise sensitive uses that could be planned within this area. Implementation of the following mitigation measure would reduce this potential impact to less than significant.

Mitigation Measure

N-2 The applicant shall either construct a soundwall along the entire northern facility fence line (parcel boundary) or eliminate loading dock activities between 10:00 p.m. and 7:00 a.m. If the soundwall option is selected, it shall be constructed to a minimum height of 8.5-feet above the receiver site elevation to reduce noise levels north of the northern facility fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would reduce nighttime loading dock noise levels at the northern fence line to below City threshold by providing adequate noise attenuation at ground level outdoor activity areas of potential future, adjacent noise sensitive uses. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall

If the applicant chooses to construct a soundwall, plans for the soundwall shall be included on the construction drawings and soundwall height and specifications confirmed by the City of Gonzales Building Department prior to issuance of a building permit. If a soundwall is constructed, it shall be completed prior to issuance of a building permit for any future project which places noise sensitive receptors within 300 feet of the northern facility fence line. If the applicant choses to prohibit loading dock activities from 10:00 p.m. and 7:00 a.m., this shall be attached a condition of project approval by the Community Development Director prior to approval of a general plan amendment or a project-specific entitlement if one is required by the City.

The land to the immediate west of the western facility fence line is within the overall project site, but is not planned future development. No noise sensitive receptors would be located west of the facility.

Traffic Noise. As previously described, the project would generate new truck trips and new employee trips. The vehicles would generate noise on the routes to and from the project site along which they travel. The traffic noise increase would be most substantial along the segment of Gloria Road between the site and U.S. Highway 101, as all truck and employee traffic would travel this route to access the site.

Changes in traffic noise levels were modeled as part of the noise assessment and summarized Table IX of the noise analysis. Under the worst-case condition along Gloria Road, additional traffic noise under existing plus project conditions would not cause noise levels to exceed the City's 60 decibel noise exposure standard at outdoor activity areas of sensitive land uses at a reference distance of 150 feet of the centerline of all modeled roadways, including Gloria Road. Further, the maximum change would be no greater than three decibels, which is normally not perceptible by humans. Under cumulative conditions, the project contribution to cumulative traffic noise levels along Gloria Road would be one decibel, which is also below the three-decibel threshold at which the project contribution would be perceptible.

In regards to the sensitive receptor (single-family residence) located at the corner of Gloria Road and Tavernetti Road (in the vicinity of ambient noise measurement site LT-1), ambient noise levels (as measured at site LT-1) indicate that existing noise levels in the vicinity of this residence are approximately 70 dB Ldn. These elevated existing noise levels are the result of traffic on U.S. Highway 101. Such levels not only exceed those calculated along Gloria Road for existing conditions, but also exceed those calculated for cumulative plus project traffic conditions. The noise levels provided above in Table IX only account for vehicle traffic on Gloria Road and do not consider any contribution from traffic on U.S. Highway 101. Any project related increases in traffic noise would not be realized at this sensitive receptor location, as they would largely be masked by traffic noise from the highway, and noise levels along Gloria Road (with and without project contribution) would not result in a significant increase in traffic noise at this receptor location.

Construction Noise Impacts. Construction noise would occur at various locations within and near the project site as the project is developed. Table X in the noise assessment shows typical construction equipment noise levels at varying distances from the location at which the equipment is used. Construction noise is not considered to be a significant impact if construction is limited to the allowed hours and construction equipment is adequately maintained and muffled. The City of Gonzales limits hours of construction to 7:00 a.m. to 7:00 p.m.

There are no sensitive receptors within 1,250 feet of the project site. Construction noise within the site would be noticeable at this distance, but would be temporary and limited to the hours noted above. Construction noise could occur adjacent to the residence at the Tavernetti Road/Gloria Road intersection if the option to construct an off-site water main along Gloria Road is selected and implemented. Construction noise at existing single-family homes located along on small segments of existing Herold Parkway would also occur if the other water main alignment option is selected and to construct the wastewater main extension. Construction noise would also occur along a short segment of Similarly, the home located east of the site on Gloria Road would be affected by noise from constructing the off-site process wastewater storage pond, which at its closest, would be about 325 feet from the home. For all off-site improvements, construction noise would be short term and limited to the noted hours.

Given the noted circumstances, noise impacts from constructing on- and off-site improvements would be less than significant.

b. The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. Project construction will not involve activities which are excessive sources of vibration. The further, the closest sensitive receptor is about 1,250 feet from the project site – a distance at which vibration from construction activities within the site would not be expected to be detected. Off-site improvement construction activities will be limited and will not require using equipment or processes that are significant vibration sources. Similarly, there will be no notable sources of vibration generated during long-term project operations. Vibration impacts will be less than significant.

c. There are no public or private airports within two miles of the project site. No noise impacts associated with airport operations would occur.

14. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Comments:

a. The proposed project would not directly result in new population and, therefore, would not induce substantial unplanned population growth. New jobs at the facility are expected to be filled by local residents or residents of nearby Salinas Valley communities such that the Gonzales population would not measurably increase.

b. There is no housing within the project site. The project would have no related impact.

15. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of or 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 following public services:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	☐	☐	☐	☒
b. Police protection?	☐	☐	☐	☒
c. Schools?	☐	☐	☐	☒
d. Parks?	☐	☐	☐	☒
e. Other public facilities?	☐	☐	☐	☒

Comments:

a, b. The project site is currently within the service area of the Gonzales Rural Fire Protection District. The Gonzales Rural Fire Protection District contracts with the City of Gonzales Fire Department, which provides service to rural areas outside the city limits that are within the Gonzales Rural Fire Protection District boundary. Once the project site is annexed into the City of Gonzales, it will be detached from the Gonzales Rural Fire Protection District boundary, but continue to be served by the Gonzales Fire Department. The Monterey County Sheriff's Department is responsible for providing law enforcement services in unincorporated Monterey County. Once the project site is annexed into the City of Gonzales, it will be served by the Gonzales Police Department. The proposed project would increase demand on these services.

The City is currently evaluating needs for new fire and police facilities to meet the demand from buildout of the SOI, including development of the project site. It is not expected that the proposed project on its own would trigger the need to construct new facilities, the construction and operation of which could result in environmental impacts.

Should new or expanded fire or police facilities be necessary in the future, the impacts of constructing the facility(s) would be evaluated in detail once facility locations and designs are available. Because the proposed project itself is not expected to directly result in the need to construct new or expanded police or fire facilities, no project-specific impacts would occur.

c. The Gonzales Unified School District serves the City of Gonzales and would serve areas annexed into the city. The proposed project does not involve residential uses and would not result in the addition of student-age children to Gonzales. Therefore, the proposed project would not result in adverse environmental impacts associated with constructing new or altering existing school facilities.

d, e. New park facilities are not proposed as part of the project, nor is the project expected to significantly increase demand for existing parks given that the project is anticipated to create minimal or no new population growth.

16. RECREATION

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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?	☐	☐	☐	☒

Comments:

a, b. The proposed project is not expected to generate new population growth that increases demand for new or existing park facilities, nor does it include new recreational facilities. The project would have no related impact.

17. TRANSPORTATION

Would the project:

		Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a.	Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b.	Conflict or be inconsistent with CEQA guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c.	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d.	Result in inadequate emergency access?	☐	☐	☒	☐

Comments:

a. The proposed project could result in environmental impacts if it conflicts with a plan, ordinance or policy related to circulation, and the mitigation to rectify the conflict would result in physical environmental changes with potential to create adverse impacts. The potential for the proposed project to create conflicts and adverse environmental impacts is summarized below. Much of the information provided is taken from the *Transportation Analysis for the Proposed Gloria Agricultural Cooler Development* (Hexagon Transportation Consultants 2022) ("transportation analysis"). The transportation analysis includes evaluations of project effects on vehicle miles traveled (VMT) and on operations of the affected roadway network, and addresses pedestrian, bicycle, and transit issues. The transportation analysis is included in Appendix G. Refer to that document for detailed information.

Roadway Circulation Planning. General Plan Implementing Action CIR-1.1.1 identifies that the operations at intersections, roundabouts, controlled and uncontrolled stop sign intersections, etc., should be maintained at Level of Service (LOS) C. Level of service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays.

Table 4 in the transportation analysis shows the change in operating conditions at the seven intersections evaluated in the analysis. Under existing plus project conditions, operations at all six existing intersections would be LOS C or better. Therefore, the project would not conflict with general plan policy direction regarding roadway operations as measured by LOS. Improvements at the study intersections would not be needed to ensure that LOS C is maintained.

Table 4 in the transportation analysis shows that under cumulative conditions without the project, five of the seven study intersections would operate at LOS F, while two would remain at LOS C or better. A Herold Parkway/Gloria Road intersection is included in the cumulative condition scenario, as it assumed to exist under cumulative conditions with the planned extension of Herold Parkway through to Gloria Road. Under cumulative plus project conditions, five of the seven study intersections would operate at LOS F, while two would operate at LOS C or better.

Traffic signals or roundabouts, and intersection improvements would be needed at the five intersections to improve operations to an acceptable level. The need for such facilities and improvements is already identified in the *City of Gonzales Sphere of Influence (SOI) Circulation Study* (Kimley-Horn 2019) ("SOI circulation study"), which evaluated circulation improvements that would be needed to accommodate buildout of the City's SOI with urban uses, including the project site. The project applicant would be required to construct improvements to Gloria Road that represent the project contribution to needed cumulative improvements. The applicant would also be required to pay traffic impact fees to fund a fair share of the cumulative improvements.

Constructing transportation improvements would result in a range of environmental effects related to air quality, agricultural land, biological resources, cultural resources, hydrology and water quality, and noise that are similar to those identified for constructing the proposed project. Impacts of constructing the noted Gloria Road improvements are evaluated in this initial study. Impacts of constructing other future cumulative improvements would be evaluated in detail at the time specific improvements are identified. No further analysis is necessary.

Pedestrian and Bicycle Planning. The project site is located in unincorporated Monterey County adjacent to the city limits. The adjacent land within the city limits is undeveloped, as is all unincorporated land that borders the project site. Therefore, there are no pedestrian or bicycle facilities in the immediate vicinity, including on Gloria Road, that could connect the site to existing developed areas within the city limits.

Significant urban growth is planned within the SOI, including adjacent to the project site, within which extensive pedestrian and bicycle improvement will be required. Related specifically to the proposed project, per the SOI circulation study, Gloria Road is planned as a four-lane arterial that would include sidewalks, bike lanes, and a multi-use path. These planned improvements are based in significant part on the general plan urban land uses (primarily residential) identified for the project site and adjacent properties within the SOI to the north and east. The City will require that the applicant improve Gloria Road along the project site frontage consistent with the SOI circulation study. Therefore, the project will be consistent with City general plan policies that promote non-vehicular modes of transportation. Constructing these improvements would result in a range of environmental effects related to air quality, agricultural land, biological resources, cultural resources, hydrology and water quality, and noise that are similar to those identified for constructing the proposed project as a whole, which are described in other sections of this initial study. No further analysis is necessary.

Transit Planning. The City of Gonzales is currently served by Monterey-Salinas Transit bus route 23. Bus route 23 operates between Salinas and King City. There are no bus routes that provide service within the city. The nearest route 23 bus stop is located near the 5th Street/U.S. Highway 101 interchange, approximately 1.5 miles north of the project site. This is considered beyond an acceptable walking distance from the project site via existing roadways (typically up to one-half mile).

It is unlikely that the proposed project has a sufficient number of employees to support Monterey-Salinas Transit's consideration of modifying route 23 to serve the site or warrant creating a new bus route that serves the site. Consequently, there are no transit stop improvements planned as part of the project. As the SOI is built out over time, largely with residential uses, sufficient ridership volume would likely be generated to economically support Monterey-Salinas Transit considering expanding bus service within the city that could also serve employees of the proposed project. As such, the proposed project is not inconsistent with City policies promoting transit use and would have no impact from constructing related facilities.

b. VMT impacts of the proposed project are evaluated in the transportation analysis. VMT from employee travel to and from the site was calculated using the City's Travel Demand Forecasting Model and compared to a threshold of significance derived as the rate of VMT/employee. Data about project employment was supplied by the applicant and is reported in the Project Description section of this initial study. Refer to the transportation analysis for more information on the VMT analysis methodology.

The City of Gonzales has not adopted analysis procedures, standards, or guidelines for evaluating VMT impacts. In the absence of an adopted policy with impact thresholds, this assessment relies on guidelines published by the California Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA, December 2018 in analyzing the project effects on VMT.

As stated in the technical advisory, the California Office of Planning and Research recommends an impact threshold of 15 percent below the existing regional VMT per employee for office uses. The California Office of Planning and Research does not provide recommended impact thresholds for industrial uses. Office space and jobs are more commonly available in urban areas in close proximity to supporting residential uses than industrial land uses which are typically more isolated. While office employees may have the option to choose a convenient job location, industrial employees may have limited options, resulting in longer trips and consequently greater VMT. This is true for the proposed facility, which is intended to replace the applicant's existing operations in Salinas at a new site that is more centrally located to the agricultural fields from which raw product inputs are obtained. For this reason, jurisdictions that have adopted their own VMT guidelines and impact thresholds have tended to define impact thresholds for industrial land uses that are less stringent than the typical 15 percent below existing VMT per job applied to office uses. In most jurisdictions the existing VMT per industrial job is used as the impact threshold. Therefore, the existing countywide VMT per industrial job is used as the impact threshold for the proposed project. The Association of Monterey Bay Area Government Regional Travel Demand Model was used to determine that the countywide average VMT per industrial job is currently 19.8.

The technical advisory states that VMT refers to the amount and distance of automobile (cars and light trucks) travel attributable to a project. The objective of the SB 743 legislation is to reduce VMT for commuting to work, returning home or using retail services within the neighborhood by encouraging alternative modes of travel such as walking, bicycling, transit, or carpool. VMT analysis is not intended to evaluate how goods and products are shipped and moved in the marketplace. Even though a particular project may generate a significant number of truck trips for this purpose, the resulting truck-generated VMT is incidental when compared to the total VMT generated by residential, commercial, and office uses. Therefore, the VMT evaluation for the project excludes truck trips that will be generated by the project. Nevertheless, the transportation analysis concludes that due to the project site location closer to agricultural fields in which raw material inputs are obtained, truck-related VMT for the proposed project is likely to be lower than for the applicant's current operations in Salinas.

Based on the City's Travel Demand Forecast Model, the proposed project would generate an average of 24.8 VMT per industrial employee, a rate that is 20 percent greater than the countywide VMT per industrial job of 19.8. Therefore, without actions or operational measures that reduce VMT by 20 percent or more, the project would have a significant VMT impact.

The projected project VMT/employee was based on an assumption that all employees would drive individually to work. However, based on employee carpooling behavior at the applicant's existing facility in Salinas, VMT would be substantially reduced. The applicant provided data to the City that was generated by surveying employee transportation behavior at the existing Salinas facility in 2022. The number of employees at the proposed facility will be similar to the number at the existing facility, as will production volume (nine processing lines). The types and classifications of job descriptions and pay ranges will also be similar. The survey data shows that 64 percent of all employees at the existing facility carpool to and from work during the peak season and 48 percent do the same during the off season. Similar employee behavior is expected for the proposed project given the similarities between existing and planned operations and between job types and associated pay ranges. Even if carpooling to and from the new facility were to decline to no less than 40 percent during the peak and off seasons, the resulting VMT reduction would still be sufficient to ensure that VMT impacts of the proposed project are less than significant.

As an incentive to promote carpooling, the applicant is designating a total of 61 parking spaces closest to the proposed facility for employee carpool parking only.

c, d. The proposed project does not include circulation improvements that could result in related public safety hazards or inadequate emergency access. Access will be via Gloria

Road, which will be improved along the project site frontage. All transportation improvements must be consistent with the City's specifications, which are based on standard engineering practice for safe and efficient facility design. This includes specifications for emergency vehicle access (both onsite and offsite), sight distance, vehicle speed, turning radii, etc. The proposed site plan and Gloria Road improvement plan will be reviewed by the City of Gonzales Public Works and Fire and Police departments to ensure that circulation improvements are designed consistent with their respective standards for safe movement of vehicles, pedestrians, bicyclists and emergency vehicles. The project will have a less-than-significant impact on circulation safety and emergency access.

18. Tribal Cultural Resources

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, or 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:				
(1) 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	☐	☐	☒	☐
(2) 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.	☐	☐	☒	☐

Comments:

a. There are no known tribal cultural resources within the project site or in locations of planned off-site improvements. On December 16, 2022, the City submitted a formal offer of consultation to the Ohlone/Costanoan-Esselen Nation to solicit input on whether the project site or off-site improvement locations may contain or represent a tribal cultural resource(s). No response requesting consultation was received as of the date of this initial study. Given the absence of evidence that construction activities within the project site or off-site improvement locations would adversely impact tribal cultural resources, this impact is considered to be less than significant.

Mitigation measures CUL-1 and CUL-2 in Section 5, Cultural Resources, are intended to reduce potential impacts on unknown buried cultural resources, including physical tribal cultural resources, within the site and off-site improvement locations should such be uncovered during construction activities.

19. UTILITIES AND SERVICES SYSTEMS

Would the project:

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, 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 inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Comments:

a. **Water Main**. The City owns, operates, and maintains a potable water distribution system to provide water service to the residents and businesses within the city. Upon annexation of the site to the City of Gonzales, the City would provide water to the proposed project through its municipal system. To deliver water to the site, a water main must be extended to the site. Two possible water main extension options are being considered; refer back to Figure 12, Off-Site Water and Wastewater Main Locations.

The first alignment option is along the assumed plan line for extending existing Herold Parkway from its existing terminus north and east of the project site through to Gloria Road. The roadway extension has been identified by the City as a necessary component of the cumulative circulation improvements needed to accommodate cumulative development within the SOI. The proposed project would not trigger the need to construct the extension. Consequently, if this alignment is selected, easements may be required from the owners of the intervening properties through which the main would be constructed. The second alignment option shows the main extending west down Gloria Road, where it would be constructed under U.S. Highway 101, continue along the segment of existing Gloria Road west of the highway, and north on Alta Road to the point of interconnect with the existing water system.

The environmental effects of constructing either water main facility option are addressed in other sections of this initial study as part of the assessment of overall project environmental effects.

Wastewater Conveyance Facilities. Two forms of wastewater will be generated by the proposed project. The first is process water. Refer to Section 10, Hydrology and Water Quality, item "b, e" for discussion regarding the applicant's plan for treating, conveying and reusing (disposing) process water in lieu of groundwater for agricultural crop irrigation. Also refer to Figure 8, Process Water Recycling Reuse Plan, and the associated discussion in the project description section of this initial study.

The applicant has estimated domestic wastewater generation at an average of 5,750 gallons per day (gpd) based on the City's 2019 Wastewater Master Plan generation rate of 1,000 gpd/per acre for light industrial uses. This equates to approximately 0.00575 million gallons per day (MGD). A wastewater main that connects to the City's existing wastewater conveyance infrastructure system is planned within the planned right-of-way for the extension of Herold Parkway through to Gloria Road as described and illustrated in the Project Description and shown in Figure 12. The environmental effects of constructing the main are addressed in other sections of this initial study as part of the assessment of overall project environmental effects.

Wastewater Treatment Facilities. Wastewater would be conveyed to the City's municipal wastewater treatment plant (MWWTP), which is permitted to accept up to 1.3 MGD of wastewater, averaged over a month. The plant is currently operating at 1.1 MGD, leaving approximately 0.2 MGD per day of existing treatment capacity. The City expects an increase in wastewater treatment demand over time, particularly as land within the SOI, including the project site, is developed. With available capacity at 0.2 MGD and a project demand of 0.00575 MGD, there is sufficient existing capacity at the MWWTP to serve the proposed project. Consequently, at this time, the proposed project would not result in the need to construct new wastewater treatment capacity improvements, the construction of which could result in environmental impacts.

To meet anticipated foreseeable cumulative treatment demand, including demand from the proposed project, City staff has been working to upgrade and expand capacity, and has conducted a number of studies and analysis for this purpose. Based on analysis and review of a number options, the City has determined that continuing to convey wastewater generated by new development to the existing MWWTP and improving the MWWTP to accommodate that flow is the best approach for meeting cumulative demand for treating domestic wastewater.

The MWWTP capacity would initially be increased in a two-phased approach. The first is to construct a separate approximately 1.0 MGD industrial wastewater treatment/reclamation facility and associated collection system to serve select tenants of the Gonzales Agricultural Industrial Business Park. The industrial wastewater reclamation facility would operate under a separate, non-municipal waste discharge permit. Once completed, the industrial wastewater reclamation facility would treat industrial flows that are now treated at the MWWTP, thereby substantially capacity at the MWWTP for accepting domestic wastewater from new development, including the proposed project. The industrial wastewater treatment plant has been approved for construction. With the diversion of industrial wastewater from the MWWTP, the City would then implement the second phase; major rehabilitation and upgrades of the MWWTP. The improvements, to be complete in late 2025, would increase MWWTP capacity from 1.3 MGD to 2.3 MGD.

With additional future cumulative development within the SOI, the expanded MWWTP is projected to reach its expanded 2.3 MGD capacity in about 2032. In anticipation of needing yet additional capacity, the City is already planning capacity expansion by approximately 0.5 MGD such that its total capacity would increase to 2.8 MGD. The City plans to complete the additional MWWTP improvements in about 2030.

The City plans to fund the MWWTP expansion work using a combination of existing sewer fund revenues and impact/new connection fees collected from new development within the existing city limits and the SOI. The City is currently in the process of evaluating changes to its wastewater connection impact fees to ensure that they are sufficient to fund the City's contribution to the costs of improvements.

The improvements to the MWWTP would be a separate project that is subject to CEQA. The City would undertake that separate CEQA process prior to approving and implementing an improvement plan.

Storm Drainage Facilities. There are existing drainage/irrigation ditches along parts of Gloria Road and along an interior farm access road. These ditches would be used as the discharge location(s) for the proposed detention basin as there are no other storm drainage systems available in the area. The project would not create the need to construct off-site storm drainage facilities.

According to the project plans, there is potential storm drain run-on from areas north of the proposed project, but within the subject parcel. Consequently, the project proposes to install drainage ditches around the perimeter of the site to direct existing storm water flows around the project site so that the storm water control measures required for the project itself will not be compromised.

As discussed in Section 10.0, Hydrology and Water Quality, the applicant has submitted a Preliminary Stormwater Control Plan that illustrates how best management practices and low impact design measures would be implemented to collect stormwater runoff, pretreat it for water quality purposes and detain it to ensure that the volume and rate of discharge from the site does not exceed that for existing conditions. Therefore, the proposed project would not create or contribute runoff that would exceed the capacity of the existing stormwater drainage facilities into which stormwater would be discharged.

The environmental effects of constructing the on-site storm drain collection system are addressed in other sections of this initial study as part of the assessment of overall project environmental effects.

Electricity/Natural Gas/Telecommunications Facilities. The applicant has committed to using no natural gas during project operations. For PG&E to serve the project site, trenching is expected to occur within the footprint of planned Gloria Road improvements described in the project description. No adverse environmental effects from this activity are expected relative to that described in other sections of this initial study for the Gloria Road improvements and project as a whole.

An existing connection to AT&T/Spectrum is located on Gloria Road adjacent to the project site. The proposed project would provide and install an overhead connection to AT&T/Spectrum, but this would not involve construction activities that could cause significant environmental effects.

b. Refer to the analysis and conclusions provided in Section 10, Hydrology and Water Quality, item "b,e" regarding sufficiency of water supply for the project. A WSA prepared for a different project evaluated the sufficiency of water supply for that project, as well as for other foreseeable planned projects in the city to the year 2050, including the proposed project. The WSA concluded that sufficient groundwater is available to serve the project for which the WSA was prepared, as well as the foreseeable projects, including the proposed project, during normal, dry and multiple dry years.

c. Refer to item "a" above. There is currently sufficient capacity at the MWWTP to accommodate the project wastewater treatment demand. Further, the City has approved construction of an industrial wastewater treatment plant that once online, will create additional capacity in the MWWTP by diverting industrial flows to it to the industrial facility. The City current has sufficient wastewater treatment capacity to serve the proposed project, and is in the process of expanding capacity to ensure that capacity is available for additional future cumulative development in the SOI.

d, e. The proposed project would generate approximately 436 jobs during the peak season and 80 during the offseason. For the purpose of this document, solid waste generation is calculated based on a worst-case scenario, which is the total of 436 employees.

Solid waste in Gonzales is collected by Tri-Cities Disposal and disposed of at the Johnson Canyon Landfill, located approximately three miles northeast of the project site. The landfill is operated by the Salinas Valley Solid Waste Authority. Solid waste generated by the proposed project would be disposed at this landfill. According to CalRecycle, the landfill had a remaining capacity of approximately 1.3 million cubic yards as of May 2021 and a cease operations date of December 2066. The landfill also has a maximum permitted throughput of 1,694 tons of solid waste per day (CalRecycle 2022a).

Using CalRecycle's general metric that an average employee generates 11.8 pounds per of solid waste per day (CalRecycle 2022b), the proposed project would generate about 5,145 pounds of solid waste per day (11.8 pounds per employee per day x 436 employees), or 2.6 tons of solid waste per day. This constitutes less than one percent of the landfill's maximum daily disposal volume. There is no evidence to suggest that the solid waste capacity demand of the proposed project would trigger the need to develop additional landfill capacity.

The Salinas Valley Solid Waste Authority is responsible for ensuring that its solid waste management activities are consistent with related state regulatory requirements and for providing sufficient solid waste capacity for its member agencies, including Gonzales. As needed, the Salinas Valley Solid Waste Authority would, through its member agencies, including the City, implement programs (e.g., recycling, diversion, etc.) necessary to meet state solid waste management mandates. The applicant would be required to participate in and implement such programs at the site level. The proposed project would have a less-than-significant solid waste impact.

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 Impact with Mitigation Measures Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Comments:

a-d. According to the California Department of Forestry and Fire Protection, the entire City of Gonzales and surrounding area (inclusive of the project site) are not located within a state responsibility area or lands classified as very high fire hazard severity zones (CalFire 2022). The project would not wildfire related impacts.

21. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less-than-Significant Impact with Mitigation Measures 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 an endangered, rare, or threatened species; 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?	☐	☒	☐	☐

Comments:

a. Biological resources effects of the project are described in Section 4, Biological Resources. Special-status plant and wildlife species are recorded as occurring in the vicinity of the project site, but are not likely to occur on the project site or in areas planned for off-site improvements due to lack of suitable habitat. However, mitigation measures are included in this initial study that are designed to evaluate the potential presence of such species prior to construction activities, and if found to be present, would require actions to reduce impacts to less than significant.

Cultural and tribal cultural resource effects of the project are described in sections 5 and 18. No cultural or tribal cultural resources that could represent important evidence of California history are known to exist within the project site or locations of off-site improvements. Impacts on unknown resources, should they be uncovered during project construction activities, would be reduced through implementing associated mitigation measures.

b. The proposed project would convert prime farmland and farmland of statewide significance to non-agricultural use. The general plan EIR found such conversion from buildout under the general plan to be significant and unavoidable, with conversion of farmland from developing the project site contributing to that impact. As described in this initial study, this contribution of the project is identified in the checklist above as a significant impact that per CEQA Guidelines Section 15063(b)(1) does not trigger the need to prepare an EIR.

Like its contribution to farmland conversion, the general plan EIR concludes that buildout of the general plan, including urban development planned for the project site and all areas of the SOI, would substantially degrade the intrinsic open space character of the area and defines the associated impact as significant and unavoidable. The CEQA Guidelines section noted above also applies here; an EIR is not required due the project contribution to this cumulative impact.

The proposed project would generate criteria air emissions and GHG emissions that contribute to associated cumulative effects. Impacts from criteria air emissions were determined to be less than cumulatively considerable and cumulative GHG emissions would be less than cumulatively considerable with mitigation.

The proposed project would generate a significant volume of truck trips that would add to ambient noise levels on local roadways onto that traffic would be distributed. Under cumulative development conditions, the project contribution to cumulative traffic noise impacts was found to be less than significant.

c. Several characteristics of the project and its location give rise to potential effects on/risks to human beings. The project would be a source of criteria air emissions, toxic air contaminants, and GHG emissions that can have adverse effects on humans. However, associated air quality effects were found to be less than significant, and GHG impacts are reduced to less than significant with mitigation. The planned use of an anhydrous ammonia cooling system gives rise to risks from accidental release of this hazardous material. However, this type of system is widely used in the agricultural industry and must be constructed, operated and maintained consistent with regulations designed to minimize risks. Public safety risks could arise from the project site location within a flood hazard zone. Improvements must be designed consistent with the City's flood management regulations designed to minimize such risk. Similarly, risks from seismic hazards exist, but these are minimized through required conformance with regulations designed to minimize such risk, including the California Building Code. No risk from wildfires exists at the site.

Given this information, the project would not have substantial adverse effects on human beings.

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CalEEMod Memo and Modeling Results

A

APPENDIX

EMC PLANNING GROUP INC.
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To: Ron Sissem, Senior Principal and Project Manager

From: Sally Rideout, Principal

Cc: File

Date: January 22, 2023

Re: Gloria Road Agricultural Cooler Project– Criteria Air Emissions and Greenhouse Gas Emissions Modeling Methodology and Assumptions

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This memorandum describes the methodology and assumptions used in the emissions modeling prepared for the proposed project.

Project Description and Setting

The proposed project consists of a 243,800 square-foot refrigerated warehouse, including a future 70,000 square feet expansion. For the purposes of this assessment, emissions generated by the entire 313, 800 square foot facility are modeled. The facility would include a raw product cold storage warehouse and processing lines, office administration space, and miscellaneous mechanical and storage rooms and shop areas. The project site is located in Monterey County in the North Central Coast Air Basin (basin) and the Monterey Bay Air Resources District (air district) is the local air district with jurisdictional authority within the basin.

Scope of Assessment

This assessment provides methodology, assumptions and an estimate of the proposed project's construction and operational criteria air pollutant emissions and greenhouse gas (GHG) emissions using the California Emissions Estimator Model (CalEEMod) version 2020.4.0 software, a modeling platform recommended by the California Air Resources Board (CARB) and accepted by the air district. The model results will inform the environmental analysis of air quality and GHG emissions. Model results are attached to this assessment.

The CalEEMod software utilizes emissions models USEPA AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies. The CalEEMod platform allows calculations of both construction and operational criteria pollutant and GHG emissions from land use projects. The model also calculates indirect emissions from processes “downstream” of the proposed project such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

CalEEMod is capable of estimating changes in the carbon sequestration potential of a site based on changes in natural vegetation communities and the net number of new trees that would be planted as part of the project. To do so, the model calculates a one-time only loss in the carbon sequestration potential of the site that would result from changes in land use such as converting vegetation to built or paved surfaces, and can calculate the estimated change in the carbon sequestration potential that would result from planting new trees in an amount that is greater than the number of trees to be removed (net number of new trees).

METHODOLOGY

Emissions Model

The CalEEMod software utilizes emissions models USEPA AP-42 emission factors, CARB vehicle emission models studies and studies commissioned by other California agencies such as the California Energy Commission and CalRecycle. The CalEEMod platform allows calculations of criteria air pollutant and GHG emissions from land use projects.

Modeled Project Characteristics

The proposed project was modeled using the CalEEMod land use default “Refrigerated Warehouse” and other model defaults for pavement etc., using CalEEMod default land use categories. The modeled land use categories and CalEEMod default land uses are presented in Table 1, Project Characteristics.

Table 1 Project Characteristics

Land Use Type	CalEEMod Default Land Use	Existing	Proposed
Cooler Facility	Refrigerated Warehouse- Industrial	0	313,800
Site Paving	Other Asphalt Surfaces	0	1.3
Employee Parking	Parking Lot	0	3.2
Line Truck Parking	Parking Lot	0	7.1
Raw Product Yard	Other Asphalt Surfaces	0	11.1
Landscaping	Other Non-Asphalt Surfaces	0	1.9
Retention Basin	Other Non-Asphalt Surfaces	0	1.2
Additional Pervious Area	Other Non-Asphalt Surfaces	0	11.9
Cropland	Cropland	44.8 Acres	0
Trees	Trees	0	80

SOURCE: Peartree and Belli 2022
NOTE: Expressed in square feet (sf), unless otherwise noted.

Model Scenarios

Three model scenarios are used in this assessment.

Off-site Construction Emissions (Unmitigated and Mitigated) Scenario

This scenario estimates emissions generated by construction of proposed off-site improvements to extend water and sewer mains to the project site and for widening of Gloria Road along the project frontage. The proposed project includes two potential alignments each for off-site water and sewer main extensions and the lengthiest extension options for water and sewer main extensions are modeled in this scenario. Construction activities associated with the proposed water and sewer main extensions would include trenching and excavation over a combined linear distance of up to approximately 7,500 feet with an assumed 30-foot wide access and staging area over the entire 7,500-foot distance (about 5.2 acres) (30 x 7,500 / 43,560). The CalEEMod default land use of unenclosed parking structure excluding construction phases of building and architectural coatings was used as a proxy for the grading and trenching similar to the proposed water and sewer mains. The overall site area was increased to 5.6 acres to accommodate site disturbance associated with construction of 18,000 square foot off-site storage pond for facility wastewater collection, treatment and storage.

Improvements to Gloria Road are assumed to include removal of existing pavement, repaving, and road widening along the project frontage. The CalEEMod default land use "Other Asphalt surfaces" was used based on a size metric of 2.1 acres, with an assumed 5-day phase for restriping (architectural coatings).

Mitigation applied in this scenario includes of Tier 4 engines on heavy equipment, watering exposed surfaces twice per day, and limiting vehicle speeds to 15 miles per hour on unpaved roads consistent with CARB requirements for construction fleets and air district dust control measures.

Unmitigated On-Site AQ/GHG Emissions Scenario

This model scenario utilizes model construction defaults to determine on-site construction emissions and accounts for compliance with uniformly applied existing regulatory measures that would reduce project operational emissions. Regulatory compliance consistent with California Pollution Control Officers Association (CAPCOA) emissions reduction measures found in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, and other regulatory measures listed below. Compliance with the following regulations is assumed:

1. State Model Water Efficient Landscape Ordinance (MWELO) (CAPCOA WUW-4);
2. Landscaping equipment is set to electric only to reflect phasing out of gas-powered landscaping tools potentially by 2024 (AB 1346). It is assumed that these or similar requirements will be in effect at buildout (CAPCOA A-1); and
3. Solid waste diversion of 75 percent is applied consistent with waste diversion targets identified in AB 341. It is assumed that these or similar requirements will be in effect at buildout (CAPCOA SW-1).

Mitigated On-site GHG Emissions Scenario

This scenario includes the unmitigated scenario data inputs and the project applicant's plan to meet approximately 3,758,000 kWh of the project's on-site energy demand by using rooftop solar panels. Additionally, as stated by the applicant, the facility will not use natural gas to meet the facility's operational energy demands.

Operational Emissions Data Inputs

Each air district (or county) assigns trip lengths for urban and rural settings, which are incorporated into the CalEEMod defaults. The model's defaults were set to "rural" and the location parameters are based on the model defaults for the air district. Emissions were modeled based on an operational date of 2028. Data inputs are based on the information in Table 1, trip generation information provided by the traffic consultant (Hexagon 2022), and reflect compliance with the regulatory requirements identified previously.

Based on information provided by the applicant, the following modifications were made to the model to generate an estimate of mitigated emissions:

1. The model's energy screen Title 24 and non-Title 24 emissions factors were zeroed out to reflect no natural gas use in the facility; and
2. The energy mitigation screen was adjusted to reflect rooftop solar production of 3,758,000 kWh to meet the facility energy demand.

Construction Emissions Data Inputs

CalEEMod estimates construction emissions associated with land use development projects and allows for the input of project-specific construction information including phasing and equipment information, if known. CalEEMod default construction parameters allow estimates of short-term construction Criteria air pollutant and GHG emissions based upon empirical data collected and analyzed by the CARB. Use of the default construction emissions data for a proposed project is recommended by the air district if construction information is not yet available. Construction information is not available in detail sufficient to modify the model's construction defaults in the off-site or on-site construction modeling; therefore, construction emissions were modeled using model equipment defaults. The estimated start of on-site construction activity was modeled at 2023; the estimated start of construction for off-site improvements were modeled in 2024. Off-site construction data inputs are presented in the Off-site Construction Emissions (Unmitigated and Mitigated) Scenario described previously.

Changes in Carbon Sequestration Potential Data Inputs

An estimate of the one-time loss in carbon sequestration potential attributable to the loss of the existing agricultural cropland was calculated using the model default for a "Cropland" natural community over the 44.8-acre site. Additionally, according to the proposed landscape plan (Belli 2022) approximately 80 trees including oak, olive, western redbud, and Victorian box are proposed to be planted on site. The change in carbon sequestration from planting 80 new trees was also calculated.

RESULTS

The modeled results for criteria air pollutant emissions are reported in pounds per day. The modeled GHG emissions are presented in metric tons per year of carbon dioxide equivalents (MT CO_2e).

Construction Emissions

According to the model defaults, construction of the facility could occur over a four-year period. The largest volumes of emissions per day generated by construction of the facility would occur during excavation activities in the first and second full years of construction (2024 and 2025). It is assumed that construction of the offsite improvements would occur concurrently with project construction in the year 2024. The largest volumes of on- and off-site construction emissions that would occur per day during winter or summer months are presented individually and combined in Table 1, Unmitigated Construction Criteria Air Pollutant Emissions.

Table 2 Unmitigated Construction Criteria Air Pollutant Emissions

Construction Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_x)	Suspended Particulate Matter (PM_{10})	Carbon Monoxide (CO)
On-site Construction[1,2,]	92[3]	32[3]	21[3]	53[4]
Off-site Construction[1,2,5]	7	27	21	20
Concurrent Construction[1,2,6]	99	59	42	73

SOURCE: EMC Planning Group 2022
NOTES:
1. Results may vary due to rounding.
2. Expressed in pounds per day.
3. Worst year construction emissions occur during winter months and are reported.
4. Worst year construction emissions occur during summer months and are reported.
5. Year 2024.
6. Worst-case emissions volumes per day.

Operational Emissions

Operational criteria air pollutant emissions were modeled for summer and winter conditions. The modeled unmitigated operational criteria air pollutant emissions are summarized in Table 2, Unmitigated Daily Operational Criteria Air Pollutant Emissions.

Table 2 Daily Operational Criteria Air Pollutant Emissions

Operational Emissions	Reactive Organic Gases (ROG)	Nitrogen Oxides (NO_X)	Suspended Particulate Matter (PM_{10})	Carbon Monoxide (CO)
Unmitigated[1,2]	14[3]	7[3]	13[3]	51[3]

SOURCE: EMC Planning Group 2022
NOTES:
1. Results may vary due to rounding.
2. Expressed in pounds per day.
3. Winter emissions are greater than summer and are reported.
4. Summer emissions are greater than winter and are reported.

GHG Emissions

Construction GHG Emissions

Unmitigated on-and off-site construction GHG emissions volume estimates are summarized in Table 3, Unmitigated Construction GHG Emissions.

Table 3 Unmitigated Construction GHG Emissions

Emission Sources	GHG Emissions (MT CO_2e)[1,2]
2023	37
2024	1,697
2024 (Off-site Construction)	105
2025	2,104
2026	2,056
2027	415
Total Construction	**6,414**

SOURCE: EMC Planning Group 2022
NOTES:
1. Results may vary due to rounding.
2. GHG emissions are reported in metric tons carbon dioxide equivalent (MT CO_2e) per year.

Construction of on- and off-site improvements would Construction emissions would generate approximately 6,414 MT CO_2e. When amortized over 30 years the equivalent annual Construction GHG emissions would be approximately 214 MT CO_2e per year. This amortized amount is added to the project's annual operational emissions.

Operational GHG Emissions

Unmitigated and Mitigated annual GHG emissions volume estimates are summarized in Table 3, Operational GHG Emissions.

Table 3 Operational GHG Emissions

Emission Sources	GHG Emissions (MT CO_2e)[1,2]	
	Unmitigated	**Mitigated**
Area	<1	<1
Energy[3]	364	-51
Mobile	1,841	1,841
Waste	37	37
Water	97	97
Total	**2,340**	**1,924**

SOURCE: EMC Planning Group 2022
NOTES:
1. Results may vary due to rounding.
2. GHG emissions are reported in metric tons carbon dioxide equivalent (MT CO_2e) per year.
3. Mitigation results in surplus energy emissions.

Carbon Sequestration

The model results show that development of the site would result in a net loss of 221 MT CO_2e sequestration potential when the existing 44.8 acres of cropland is replaced by development and 80 new trees are planted on the site. When amortized over 30 years the annual loss is equivalent to about 7 MT CO_2e per year. This amount is added to the project's annual operational GHG emissions.

Net GHG Emissions with Mitigation

The GHG emissions that would be attributable to the proposed project at buildout consist of amortized construction emissions added to the mitigated operational emissions and the amortized annual loss in carbon sequestration potential on the site. The sum of mitigated GHG emissions attributable to the proposed project at buildout are presented in Table 4, Net Mitigated Annual GHG Emissions Attributable to the Project.

Table 4 Net Mitigated Annual GHG Emissions Attributable to the Project

Operational Emissions	Construction	Carbon Sequestration Potential	Net Project Emissions
1,924	214	7	2,145

SOURCE: EMC Planning Group 2022
NOTE: Results may vary due to rounding.

Sources

1. Breeze Software, a Division of Trinity Consultants. California Emissions Estimator (CalEEMod) Version 2020.4. Accessed September 20, 2022 at: http://www.aqmd.gov/caleemod/home
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3. California Air Pollution Control Officers Association. 2010. *Quantifying Greenhouse Gas Mitigation Measures.* Accessed September 23, 2022 at: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
4. Hexagon Transportation Consultants. August 9, 2022. *Gloria Road Agricultural Cooler Transportation Analysis.*

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Road Cooler Project Off-site Construction

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.10	Acre	2.10	91,476.00	0
Unenclosed Parking Structure	5.60	Acre	5.60	243,936.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.8

Precipitation Freq (Days) 53

Climate Zone 3

Operational Year 2028

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98

CH4 Intensity (lb/MWhr) 0.033

N2O Intensity (lb/MWhr) 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - This will overestimate construction emissions

Construction Phase - Assumes one week to restripe. No building construction

Off-road Equipment - No building construction

Off-road Equipment -

Construction Off-road Equipment Mitigation - MBARD

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1393	0.6242	0.6219	1.1900e-003	0.1756	0.0283	0.2040	0.0865	0.0262	0.1127	0.0000	104.6174	104.6174	0.0302	1.6000e-004	105.4185
Maximum	**0.1393**	**0.6242**	**0.6219**	**1.1900e-003**	**0.1756**	**0.0283**	**0.2040**	**0.0865**	**0.0262**	**0.1127**	**0.0000**	**104.6174**	**104.6174**	**0.0302**	**1.6000e-004**	**105.4185**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0929	0.0935	0.7248	1.1900e-003	0.0826	3.4600e-003	0.0861	0.0399	3.4500e-003	0.0433	0.0000	104.6173	104.6173	0.0302	1.6000e-004	105.4183

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Maximum	0.0929	0.0935	0.7248	1.1900e-003	0.0826	3.4600e-003	0.0861	0.0399	3.4500e-003	0.0433	0.0000	104.6173	104.6173	0.0302	1.6000e-004	105.4183
Percent Reduction	33.29	85.03	-16.55	0.00	52.96	87.79	57.80	53.89	86.83	61.55	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	0.6423	0.0943
2	4-1-2024	6-30-2024	0.1048	0.0887
		Highest	0.6423	0.0943

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project Off-site Construction

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.10	Acre	2.10	91,476.00	0
Unenclosed Parking Structure	5.60	Acre	5.60	243,936.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.8 **Precipitation Freq (Days)** 53

Climate Zone 3 **Operational Year** 2028

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98 **CH4 Intensity (lb/MWhr)** 0.033 **N2O Intensity (lb/MWhr)** 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - This will overestimate construction emissions

Construction Phase - Assumes one week to restripe. No building construction

Off-road Equipment - No building construction

Off-road Equipment -

Construction Off-road Equipment Mitigation - MBARD

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	7.2631	27.2110	20.1129	0.0399	19.8049	1.2302	21.0351	10.1417	1.1318	11.2735	0.0000	3,858.8286	3,858.8286	1.1968	5.4800e-003	3,885.9979
Maximum	**7.2631**	**27.2110**	**20.1129**	**0.0399**	**19.8049**	**1.2302**	**21.0351**	**10.1417**	**1.1318**	**11.2735**	**0.0000**	**3,858.8286**	**3,858.8286**	**1.1968**	**5.4800e-003**	**3,885.9979**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	7.2631	4.1755	23.4769	0.0399	8.9935	0.1646	9.0565	4.5853	0.1645	4.6482	0.0000	3,858.8286	3,858.8286	1.1968	5.4800e-003	3,885.9979

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Maximum	7.2631	4.1755	23.4769	0.0399	8.9935	0.1646	9.0565	4.5853	0.1645	4.6482	0.0000	3,858.8286	3,858.8286	1.1968	5.4800e-003	3,885.9979

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	84.66	-16.73	0.00	54.59	86.62	56.95	54.79	85.46	58.77	0.00	0.00	0.00	0.00	0.00	0.00

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project Off-site Construction

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	2.10	Acre	2.10	91,476.00	0
Unenclosed Parking Structure	5.60	Acre	5.60	243,936.00	0

1.2 Other Project Characteristics

Urbanization Urban

Wind Speed (m/s) 2.8

Precipitation Freq (Days) 53

Climate Zone 3

Operational Year 2028

Utility Company Pacific Gas and Electric Company

CO2 Intensity (lb/MWhr) 203.98

CH4 Intensity (lb/MWhr) 0.033

N2O Intensity (lb/MWhr) 0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - This will overestimate construction emissions

Construction Phase - Assumes one week to restripe. No building construction

Off-road Equipment - No building construction

Off-road Equipment -

Construction Off-road Equipment Mitigation - MBARD

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	7.2688	27.2198	20.1104	0.0399	19.8049	1.2302	21.0351	10.1417	1.1318	11.2735	0.0000	3,852.8714	3,852.8714	1.1973	6.3700e-003	3,880.1936
Maximum	**7.2688**	**27.2198**	**20.1104**	**0.0399**	**19.8049**	**1.2302**	**21.0351**	**10.1417**	**1.1318**	**11.2735**	**0.0000**	**3,852.8714**	**3,852.8714**	**1.1973**	**6.3700e-003**	**3,880.1936**

Mitigated Construction

Gloria Road Cooler Project Off-site Construction - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	7.2688	4.1828	23.4744	0.0399	8.9935	0.1646	9.0565	4.5853	0.1645	4.6482	0.0000	3,852.8714	3,852.8714	1.1973	6.3700e-003	3,880.1936
Maximum	**7.2688**	**4.1828**	**23.4744**	**0.0399**	**8.9935**	**0.1646**	**9.0565**	**4.5853**	**0.1645**	**4.6482**	**0.0000**	**3,852.8714**	**3,852.8714**	**1.1973**	**6.3700e-003**	**3,880.1936**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**84.63**	**-16.73**	**0.00**	**54.59**	**86.62**	**56.95**	**54.79**	**85.46**	**58.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Gloria Road Cooler Project AQ Unmitigated - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project AQ Unmitigated

Monterey Bay Unified APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	313.80	1000sqft	7.10	313,800.00	0
Other Asphalt Surfaces	12.40	Acre	12.40	540,144.00	0
Other Non-Asphalt Surfaces	11.90	Acre	11.90	518,364.00	0
Parking Lot	10.30	Acre	10.30	448,668.00	0
City Park	3.10	Acre	3.10	135,036.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses provided by applicant

Construction Phase -

Trips and VMT -

Vehicle Trips - trip rate based on Hexagon Transportation Analysis (2022)

Energy Use -

Water And Wastewater - proposed project would connect to the municipal sanitary system

Land Use Change - carbon sequestration based on existing cropland in site area

Sequestration - approximately 80 trees planted according to site plan

Gloria Road Cooler Project AQ Unmitigated - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Energy Mitigation -

Waste Mitigation - 75 percent diversion from AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	7.20	7.10
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	80.00
tblVehicleTrips	ST_TR	2.12	4.87
tblVehicleTrips	SU_TR	2.12	4.87
tblVehicleTrips	WD_TR	2.12	4.87
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	2.7450	27.5946	18.9891	0.0401	19.8869	1.2674	21.1543	10.1634	1.1660	11.3295	0.0000	3,888.4839	3,888.4839	1.1986	6.1900e-003	3,920.2916
2024	5.5364	32.4460	52.3416	0.1746	19.8869	1.3369	21.1176	10.1634	1.2299	11.2956	0.0000	17,781.4172	17,781.4172	1.9497	1.1907	18,158.8683

Gloria Road Cooler Project AQ Unmitigated - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2025	5.1978	30.0746	49.7874	0.1708	12.4663	0.6765	13.1428	3.3507	0.6367	3.9874	0.0000	17,384.6949	17,384.6949	0.8761	1.1552	17,750.8591
2026	4.9952	29.5473	47.6171	0.1669	12.4663	0.6714	13.1377	3.3507	0.6320	3.9827	0.0000	16,987.9322	16,987.9322	0.8537	1.1196	17,342.9033
2027	91.5511	29.0676	45.8557	0.1633	12.4663	0.6664	13.1327	3.3507	0.6272	3.9779	0.0000	16,616.4398	16,616.4398	0.8349	1.0857	16,960.8521
Maximum	**91.5511**	**32.4460**	**52.3416**	**0.1746**	**19.8869**	**1.3369**	**21.1543**	**10.1634**	**1.2299**	**11.3295**	**0.0000**	**17,781.4172**	**17,781.4172**	**1.9497**	**1.1907**	**18,158.8683**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.6271	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819
Energy	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972
Mobile	4.8213	6.9594	51.4254	0.1078	12.4815	0.0886	12.5701	3.3270	0.0828	3.4098		10,979.1006	10,979.1006	0.7106	0.5300	11,154.8108
Total	**13.4835**	**7.2783**	**51.7288**	**0.1097**	**12.4815**	**0.1129**	**12.5944**	**3.3270**	**0.1071**	**3.4341**		**11,361.5028**	**11,361.5028**	**0.7181**	**0.5370**	**11,539.4899**

4.0 Operational Detail - Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Unmitigated	4.8213	6.9594	51.4254	0.1078	12.4815	0.0886	12.5701	3.3270	0.0828	3.4098		10,979.1006	10,979.1006	0.7106	0.5300	11,154.8108

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2.42	6.08	6.79	8,792	8,792
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	1,528.21	1,528.21	1528.21	5,904,172	5,904,172

Gloria Road Cooler Project AQ Unmitigated - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Total	1,530.62	1,534.28	1,535.00	5,912,964	5,912,964

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Non-Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Parking Lot	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Refrigerated Warehouse-No Rail	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048

5.0 Energy Detail

Historical Energy Use: N

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Unmitigated	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Gloria Road Cooler Project AQ Unmitigated - Monterey Bay Unified APCD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	3.24976	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972
Total		**0.0351**	**0.3186**	**0.2676**	**1.9100e-003**		**0.0242**	**0.0242**		**0.0242**	**0.0242**		**382.3252**	**382.3252**	**7.3300e-003**	**7.0100e-003**	**384.5972**

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Unmitigated	8.6271	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-003	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819
Total	**8.6271**	**3.2000e-004**	**0.0358**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0769**	**0.0769**	**2.0000e-004**		**0.0819**

Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project Unmitigated AQ

Monterey Bay Unified APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	313.80	1000sqft	7.10	313,800.00	0
Other Asphalt Surfaces	12.40	Acre	12.40	540,144.00	0
Other Non-Asphalt Surfaces	11.90	Acre	11.90	518,364.00	0
Parking Lot	10.30	Acre	10.30	448,668.00	0
City Park	3.10	Acre	3.10	135,036.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses provided by applicant

Construction Phase -

Trips and VMT -

Vehicle Trips - trip rate based on Hexagon Transportation Analysis (2022)

Energy Use -

Water And Wastewater - proposed project would connect to the municipal sanitary system

Land Use Change - carbon sequestration based on existing cropland in site area

Sequestration - approximately 80 trees planted acoording to site plan

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Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Energy Mitigation -

Waste Mitigation - 75 percent diversion from AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	7.20	7.10
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	80.00
tblVehicleTrips	ST_TR	2.12	4.87
tblVehicleTrips	SU_TR	2.12	4.87
tblVehicleTrips	WD_TR	2.12	4.87
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					

Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2023	2.7372	27.5804	19.0204	0.0402	19.8869	1.2674	21.1543	10.1634	1.1660	11.3295	0.0000	3,900.0007	3,900.0007	1.1981	5.3200e-003	3,931.5386
2024	5.2040	32.4321	53.4175	0.1796	19.8869	1.3369	21.1176	10.1634	1.2299	11.2956	0.0000	18,276.6934	18,276.6934	1.9492	1.1510	18,641.9027
2025	4.8755	28.7280	50.7069	0.1755	12.4663	0.6762	13.1425	3.3507	0.6364	3.9871	0.0000	17,862.3405	17,862.3405	0.8604	1.1185	18,217.1613
2026	4.6801	28.2676	48.4013	0.1715	12.4663	0.6711	13.1374	3.3507	0.6316	3.9823	0.0000	17,449.0537	17,449.0537	0.8389	1.0853	17,793.4321

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.6271	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819
Energy	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972
Mobile	5.0080	6.0968	47.9765	0.1125	12.4815	0.0885	12.5701	3.3270	0.0827	3.4098		11,449.0529	11,449.0529	0.6476	0.4859	11,610.0273
Total	**13.6701**	**6.4157**	**48.2799**	**0.1144**	**12.4815**	**0.1129**	**12.5944**	**3.3270**	**0.1071**	**3.4341**		**11,831.4551**	**11,831.4551**	**0.6551**	**0.4929**	**11,994.7064**

4.0 Operational Detail - Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Unmitigated	5.0080	6.0968	47.9765	0.1125	12.4815	0.0885	12.5701	3.3270	0.0827	3.4098		11,449.0529	11,449.0529	0.6476	0.4859	11,610.0273

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2.42	6.08	6.79	8,792	8,792
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	1,528.21	1,528.21	1528.21	5,904,172	5,904,172
Total	1,530.62	1,534.28	1,535.00	5,912,964	5,912,964

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Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Non-Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Parking Lot	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Refrigerated Warehouse-No Rail	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048

5.0 Energy Detail

Historical Energy Use: N

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Unmitigated	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					

Date: 12/29/2022 5:09 PM

Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	3.24976	0.0351	0.3186	0.2676	1.9100e-003		0.0242	0.0242		0.0242	0.0242		382.3252	382.3252	7.3300e-003	7.0100e-003	384.5972
Total		**0.0351**	**0.3186**	**0.2676**	**1.9100e-003**		**0.0242**	**0.0242**		**0.0242**	**0.0242**		**382.3252**	**382.3252**	**7.3300e-003**	**7.0100e-003**	**384.5972**

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Unmitigated	8.6271	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819

6.2 Area by SubCategory

Unmitigated

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3677					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.2561					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3000e-003	3.2000e-004	0.0358	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0769	0.0769	2.0000e-004		0.0819
Total	**8.6271**	**3.2000e-004**	**0.0358**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0769**	**0.0769**	**2.0000e-004**		**0.0819**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Gloria Road Cooler Project Unmitigated AQ - Monterey Bay Unified APCD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Institute Recycling and Composting Services

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project Unmitigated GHG Emissions

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	313.80	1000sqft	7.10	313,800.00	0
Other Asphalt Surfaces	12.40	Acre	12.40	540,144.00	0
Other Non-Asphalt Surfaces	11.90	Acre	11.90	518,364.00	0
Parking Lot	10.30	Acre	10.30	448,668.00	0
City Park	3.10	Acre	3.10	135,036.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses provided by applicant

Construction Phase -

Trips and VMT -

Vehicle Trips - trip rate based on Hexagon Transportation Analysis (2022)

Energy Use -

Water And Wastewater - proposed project would connect to the municipal sanitary system

Land Use Change - carbon sequestration based on existing cropland in site area

Sequestration - approximately 80 trees planted acoording to site plan

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Energy Mitigation -

Waste Mitigation - 75 percent diversion from AB 341

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	7.20	7.10
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	80.00
tblVehicleTrips	ST_TR	2.12	4.87
tblVehicleTrips	SU_TR	2.12	4.87
tblVehicleTrips	WD_TR	2.12	4.87
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2023	0.0287	0.2897	0.1992	4.2000e-004	0.2159	0.0133	0.2292	0.1075	0.0122	0.1197	0.0000	37.0470	37.0470	0.0114	6.0000e-005	37.3488
2024	0.5996	4.0994	5.7233	0.0182	1.5361	0.1239	1.6600	0.4769	0.1155	0.5923	0.0000	1,665.5489	1,665.5489	0.1435	0.0949	1,697.4257
2025	0.6373	3.8555	6.3742	0.0223	1.5770	0.0883	1.6652	0.4250	0.0831	0.5081	0.0000	2,061.2114	2,061.2114	0.1026	0.1348	2,103.9551
2026	0.6124	3.7902	6.0963	0.0218	1.5770	0.0876	1.6646	0.4250	0.0824	0.5075	0.0000	2,014.1165	2,014.1165	0.1000	0.1307	2,055.5746
2027	2.6627	0.8504	1.4968	4.4600e-003	0.3026	0.0266	0.3291	0.0813	0.0248	0.1062	0.0000	408.1631	408.1631	0.0341	0.0205	415.1299
Maximum	**2.6627**	**4.0994**	**6.3742**	**0.0223**	**1.5770**	**0.1239**	**1.6652**	**0.4769**	**0.1155**	**0.5923**	**0.0000**	**2,061.2114**	**2,061.2114**	**0.1435**	**0.1348**	**2,103.9551**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5743	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003
Energy	6.4000e-003	0.0582	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	360.3280	360.3280	0.0493	6.9900e-003	363.6413
Mobile	0.8685	1.2012	8.7719	0.0196	2.1976	0.0161	2.2137	0.5873	0.0150	0.6023	0.0000	1,812.7691	1,812.7691	0.1117	0.0842	1,840.6542
Waste						0.0000	0.0000		0.0000	0.0000	14.9828	0.0000	14.9828	0.8855	0.0000	37.1192
Water						0.0000	0.0000		0.0000	0.0000	25.6741	37.5261	63.2002	0.6772	0.0566	96.9883
Total	**2.4491**	**1.2594**	**8.8252**	**0.0200**	**2.1976**	**0.0205**	**2.2182**	**0.5873**	**0.0195**	**0.6068**	**40.6568**	**2,210.6320**	**2,251.2888**	**1.7236**	**0.1478**	**2,338.4122**

2.3 Vegetation

Vegetation

	CO2e

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Category	MT
New Trees	56.6400
Vegetation Land Change	-277.7600
Total	**-221.1200**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.8685	1.2012	8.7719	0.0196	2.1976	0.0161	2.2137	0.5873	0.0150	0.6023	0.0000	1,812.7691	1,812.7691	0.1117	0.0842	1,840.6542

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2.42	6.08	6.79	8,792	8,792
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	1,528.21	1,528.21	1528.21	5,904,172	5,904,172
Total	1,530.62	1,534.28	1,535.00	5,912,964	5,912,964

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Non-Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Parking Lot	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Refrigerated Warehouse-No Rail	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048

5.0 Energy Detail

Historical Energy Use: N

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	297.0298	297.0298	0.0481	5.8200e-003	299.9669
NaturalGas Unmitigated	6.4000e-003	0.0582	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	63.2982	63.2982	1.2100e-003	1.1600e-003	63.6744

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.18616e+006	6.4000e-003	0.0582	0.0488	3.5000e-004		4.4200e-003	4.4200e-003		4.4200e-003	4.4200e-003	0.0000	63.2982	63.2982	1.2100e-003	1.1600e-003	63.6744
Total		**6.4000e-003**	**0.0582**	**0.0488**	**3.5000e-004**		**4.4200e-003**	**4.4200e-003**		**4.4200e-003**	**4.4200e-003**	**0.0000**	**63.2982**	**63.2982**	**1.2100e-003**	**1.1600e-003**	**63.6744**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	157034	14.5294	2.3500e-003	2.8000e-004	14.6730
Refrigerated Warehouse-No Rail	3.05327e+006	282.5004	0.0457	5.5400e-003	285.2939
Total		**297.0298**	**0.0481**	**5.8200e-003**	**299.9669**

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	1.5743	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003

6.2 Area by SubCategory

Unmitigated

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2496					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003
Total	**1.5743**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7200e-003**	**8.7200e-003**	**2.0000e-005**	**0.0000**	**9.2900e-003**

7.0 Water Detail

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	63.2002	0.6772	0.0566	96.9883

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 3.69359	1.1961	1.9000e-004	2.0000e-005	1.2079
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	72.5662 / 0	62.0041	0.6770	0.0566	95.7803
Total		**63.2002**	**0.6772**	**0.0566**	**96.9883**

8.0 Waste Detail

Institute Recycling and Composting Services

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	14.9828	0.8855	0.0000	37.1192

8.2 Waste by Land Use

Unmitigated

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-221.1200	0.0000	0.0000	-221.1200

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	44.8 / 0	-277.7600	0.0000	0.0000	-277.7600
Total		**-277.7600**	**0.0000**	**0.0000**	**-277.7600**

Gloria Road Cooler Project Unmitigated GHG Emissions - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	80	56.6400	0.0000	0.0000	56.6400
Total		**56.6400**	**0.0000**	**0.0000**	**56.6400**

Gloria Road Cooler Project GHG Emissions - Mitigated - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Gloria Road Cooler Project Emissions - Mitigated

Monterey Bay Unified APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	313.80	1000sqft	7.10	313,800.00	0
Other Asphalt Surfaces	12.40	Acre	12.40	540,144.00	0
Other Non-Asphalt Surfaces	11.90	Acre	11.90	518,364.00	0
Parking Lot	10.30	Acre	10.30	448,668.00	0
City Park	3.10	Acre	3.10	135,036.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	53
Climate Zone	4			**Operational Year**	2028
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses provided by applicant

Construction Phase -

Trips and VMT -

Vehicle Trips - trip rate based on Hexagon Transportation Analysis (2022)

Energy Use - zero out natural gas per applicant

Water And Wastewater - proposed project would connect to the municipal sanitary system

Land Use Change - carbon sequestration based on existing cropland in site area

Sequestration - approximately 80 trees planted acoording to site plan

Gloria Road Cooler Project GHG Emissions - Mitigated - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Energy Mitigation - solar kWH provided by client

Waste Mitigation - 75 percent diversion from AB 341

Table Name	Column Name	Default Value	New Value
tblEnergyUse	NT24NG	3.06	0.00
tblEnergyUse	T24NG	0.72	0.00
tblLandUse	LotAcreage	7.20	7.10
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSequestration	NumberOfNewTrees	0.00	80.00
tblVehicleTrips	ST_TR	2.12	4.87
tblVehicleTrips	SU_TR	2.12	4.87
tblVehicleTrips	WD_TR	2.12	4.87
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	AerobicPercent	87.46	97.79
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2023	0.0287	0.2897	0.1992	4.2000e-004	0.2159	0.0133	0.2292	0.1075	0.0122	0.1197	0.0000	37.0470	37.0470	0.0114	6.0000e-005	37.3488
2024	0.5996	4.0994	5.7233	0.0182	1.5361	0.1239	1.6600	0.4769	0.1155	0.5923	0.0000	1,665.5489	1,665.5489	0.1435	0.0949	1,697.4257
2025	0.6373	3.8555	6.3742	0.0223	1.5770	0.0883	1.6652	0.4250	0.0831	0.5081	0.0000	2,061.2114	2,061.2114	0.1026	0.1348	2,103.9551
2026	0.6124	3.7902	6.0963	0.0218	1.5770	0.0876	1.6646	0.4250	0.0824	0.5075	0.0000	2,014.1165	2,014.1165	0.1000	0.1307	2,055.5746
2027	2.6627	0.8504	1.4968	4.4600e-003	0.3026	0.0266	0.3291	0.0813	0.0248	0.1062	0.0000	408.1631	408.1631	0.0341	0.0205	415.1299
Maximum	**2.6627**	**4.0994**	**6.3742**	**0.0223**	**1.5770**	**0.1239**	**1.6652**	**0.4769**	**0.1155**	**0.5923**	**0.0000**	**2,061.2114**	**2,061.2114**	**0.1435**	**0.1348**	**2,103.9551**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5743	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-50.6746	-50.6746	-0.0082	-0.0010	-51.1756
Mobile	0.8685	1.2012	8.7719	0.0196	2.1976	0.0161	2.2137	0.5873	0.0150	0.6023	0.0000	1,812.7691	1,812.7691	0.1117	0.0842	1,840.6542
Waste						0.0000	0.0000		0.0000	0.0000	14.9828	0.0000	14.9828	0.8855	0.0000	37.1192
Water						0.0000	0.0000		0.0000	0.0000	25.6741	37.5261	63.2002	0.6772	0.0566	96.9883
Total	**2.4427**	**1.2013**	**8.7764**	**0.0196**	**2.1976**	**0.0161**	**2.2137**	**0.5873**	**0.0150**	**0.6023**	**40.6568**	**1,799.6294**	**1,840.2862**	**1.6662**	**0.1398**	**1,923.5953**

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	56.6400

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vegetation Land Change	-277.7600
Total	**-221.1200**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8685	1.2012	8.7719	0.0196	2.1976	0.0161	2.2137	0.5873	0.0150	0.6023	0.0000	1,812.7691	1,812.7691	0.1117	0.0842	1,840.6542

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	2.42	6.08	6.79	8,792	8,792
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Refrigerated Warehouse-No Rail	1,528.21	1,528.21	1528.21	5,904,172	5,904,172
Total	1,530.62	1,534.28	1,535.00	5,912,964	5,912,964

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Refrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

Gloria Road Cooler Project GHG Emissions - Mitigated - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Other Non-Asphalt Surfaces	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Parking Lot	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048
Refrigerated Warehouse-No Rail	0.533039	0.053900	0.191769	0.138335	0.024899	0.006270	0.010605	0.009380	0.001135	0.000556	0.025872	0.001193	0.003048

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated, no Natural Gas

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	-50.6746	-50.6746	-0.0082	-0.0010	-51.1756
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

<u>**Mitigated**</u>

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Gloria Road Cooler Project GHG Emissions - Mitigated - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	-751600	-69.5409	-0.0113	-0.0014	-70.2285
Other Asphalt Surfaces	-751600	-69.5409	-0.0113	-0.0014	-70.2285
Other Non-Asphalt Surfaces	-751600	-69.5409	-0.0113	-0.0014	-70.2285
Parking Lot	-594566	-55.0115	-0.0089	-0.0011	-55.5555
Refrigerated Warehouse-No Rail	2.30167e+006	212.9596	0.0345	4.1800e-003	215.0654
Total		**-50.6746**	**-0.0082**	**-0.0010**	**-51.1756**

6.0 Area Detail

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5743	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Gloria Road Cooler Project GHG Emissions - Mitigated - Monterey Bay Unified APCD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2496					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.3242					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.1000e-004	4.0000e-005	4.4700e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.7200e-003	8.7200e-003	2.0000e-005	0.0000	9.2900e-003
Total	**1.5743**	**4.0000e-005**	**4.4700e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.7200e-003**	**8.7200e-003**	**2.0000e-005**	**0.0000**	**9.2900e-003**

7.0 Water Detail

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	63.2002	0.6772	0.0566	96.9883

7.2 Water by Land Use

<u>Mitigated</u>

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 3.69359	1.1961	1.9000e-004	2.0000e-005	1.2079
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	72.5662 / 0	62.0041	0.6770	0.0566	95.7803
Total		**63.2002**	**0.6772**	**0.0566**	**96.9883**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.9828	0.8855	0.0000	37.1192

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.0675	0.0137	8.1000e-004	0.0000	0.0340
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	73.7425	14.9691	0.8847	0.0000	37.0852
Total		**14.9828**	**0.8855**	**0.0000**	**37.1192**

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-221.1200	0.0000	0.0000	-221.1200

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			

Cropland	44.8 / 0	-277.7600	0.0000	0.0000	-277.7600
Total		**-277.7600**	**0.0000**	**0.0000**	**-277.7600**

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	80	56.6400	0.0000	0.0000	56.6400
Total		**56.6400**	**0.0000**	**0.0000**	**56.6400**

Health Risk Assessment

B

APPENDIX

GLORIA ROAD AGRICULTURAL COOLER PROJECT AIR QUALITY HEALTH RISK ASSESSMENT

Gonzales, California

January 25, 2023
Updated March 6, 2023

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I&R Project: 23-005

Introduction

This report assesses the air quality health risks associated with operation of an agricultural processing facility proposed in and near Gonzales in Monterey County, California. The facility is not near sensitive receptors; however, new truck traffic accessing the facility would travel past a residence located along Gloria Road. Truck travel toxic air contaminant (TAC) emissions from this activity were computed and dispersion modeling was conducted to predict the health impacts to sensitive receptors. Note that the proposed Project replaces the Applicant's existing Salinas-based facility to be more centrally located within the area that produces the crops.

Project Description

The Rianda Family Partnership proposes to develop a 313,800 square foot (sf) facility (243,800 sf in base configuration with a 70,000 sf future expansion) on 44.8 acres of a 107.15-acre parcel. A portion of the site (26.7 acres) are within the city limits of Gonzales, while the remaining portion is within the City's sphere of influence. The Project is located along the north side of Gloria Road, east of U.S. Highway 101. The facility will consist of approximately 210,000 square feet of raw product cold storage and processing lines where the produce will be cleaned, sized, packaged and shipped, as well as approximately 33,800 square feet of office administration space and miscellaneous mechanical and storage rooms and shop areas.

Toxic Air Contaminants

Besides the "criteria" air pollutants, there is another group of substances found in ambient air referred to as Hazardous Air Pollutants (HAPs) under the CAA and Toxic Air Contaminants (TACs) under the CCAA. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects if exposure to low concentrations occurs for long periods. They are regulated at the local, state, and federal level.

HAPs are the air contaminants identified by U.S. EPA as known or suspected to cause cancer, serious illness, birth defects, or death. Many of these contaminants originate from human activities, such as fuel combustion and solvent use. Mobile source air toxics (MSATs) are a subset of the 188 HAPS. Of the 21 HAPs identified by U.S. EPA as MSATs, a priority list of six priority HAPs were identified that include: diesel exhaust, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. The Federal Highway Administration[1] reports that while vehicle miles traveled (VMT) in the United States is expected to increase by 64 percent over the period 2000 to 2020, emissions of MSATs are anticipated to decrease substantially as a result of efforts to control mobile source emissions (by 57 percent to 67 percent depending on the contaminant).

California developed a program under the Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Tanner 1983), also known as the Tanner Toxics Act, to identify, characterize and control TACs. Subsequently, AB 2728 (Tanner, 1992) incorporated all 188 HAPs into the AB 1807 process. TACs include all HAPs plus other containments identified by CARB. These are a broad class of compounds known to cause morbidity or mortality (cancer risk). TACs

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[1] Federal Highway Administration, 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. https://www.fhwa.dot.gov/environMent/air_quality/air_toxics/policy_and_guidance/msat/

are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter (DPM) near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), described by CARB[2], was enacted in 1987, and requires stationary sources to report the types and quantities of certain substances routinely released into the air. The goals of the Air Toxics "Hot Spots" Act are to collect emission data, to identify facilities having localized impacts, to ascertain health risks, to notify nearby residents of significant risks, and to reduce those significant risks to acceptable levels.

Particulate matter from diesel exhaust is the predominant TAC in urban air and is estimated to represent about 70 percent of the cancer risk from TACs, based on the statewide average reported by CARB[3]. According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by CARB, and are listed as carcinogens either under State Proposition 65 or under the Federal Hazardous Air Pollutants programs.

CARB reports that recent air pollution studies have shown an association that diesel exhaust and other cancer-causing TACs emitted from vehicles are responsible for much of the overall cancer risk from TACs in California. Particulate matter emitted from diesel-fueled engines (DPM) was found to comprise much of that risk. In 1998, CARB formally identified DPM as a TAC. DPM is of particular concern since it can be distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines are coated with chemicals, many of which have been identified by U.S. EPA as HAPs, and by CARB as TACs. The vast majority of diesel exhaust particles (over 90 percent) consist of $PM_{2.5}$, which are the particles that can be inhaled deep into the lung. Like other particles of this size, a portion will eventually become trapped within the lung possibly leading to adverse health effects. While the gaseous portion of diesel exhaust also contains TACs, CARB’s 1998 action was specific to DPM, which accounts for much of the cancer-causing potential from diesel exhaust. California has adopted a comprehensive diesel risk reduction program to reduce DPM emissions 85 percent by 2020[4]. The EPA and CARB adopted low sulfur diesel fuel standards in 2006 that reduce DPM substantially.

Project Impacts

The primary concern for nearby sensitive receptors would be exposure to DPM emissions from diesel-powered trucks operating on the project site and from truck travel to and from the project site.. DPM is designated as a toxic air contaminant by CARB for the cancer risk associated with long-term exposure. This evaluation models DPM emissions from truck operations to obtain

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[2] California Air Resources Board (CARB). 2016. AB 2588 Air Toxics "Hot Spots" Program. https://www.arb.ca.gov/ab2588/ab2588.htm

[3] California Air Resources Board (CARB) 2012. Overview: Diesel Exhaust and Health. https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health Accessed May 20, 2018.

[4] California Air Resources Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October. https://www.arb.ca.gov/diesel/documents/rrpFinal.pdf

DPM concentrations at nearby sensitive receptors. These DPM concentrations are then used to predict cancer risk and non-cancer health hazards. Figure 1 shows the project site and sensitive receptor locations where potential health impacts were evaluated based on the air quality dispersion modeling analysis.

Health Risk Methodology

Monterey Bay Air Resources District (MBARD) applies current rules and regulations for evaluating impacts from TACs. Thresholds used to evaluate human health impacts in accordance with Air District Rules 1000 and 1003 are applied by the District in making significance determinations under CEQA[5]. A project would have a significant impact if:

- The hazard index is greater than 1 for acute or chronic impacts.
- The cancer risk is greater than 10 in one million.

A health risk assessment for exposure to TACs requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and CARB develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[6] These guidelines incorporate methods designed to provide for enhanced protection of children, as required by State law. CARB has provided additional guidance on implementing OEHHA's recommended methods.[7] This health risk assessment used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. Current MBARD regulations/guidelines (Rule 1000 – Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants) specify use of the most recent OEHHA guidelines when conducting health risk assessments. The new OEHHA guidelines and CARB recommended exposure parameters were used in this evaluation. Details of the methodology for computing cancer risk and non-cancer hazards are contained in *Attachment 1*.

Sensitive Receptors

This analysis addressed sensitive receptors located within about ¼ mile of the site or the primary access road. The closest existing sensitive receptors to the project site are rural residences located both to the east and west of the site along Gloria Road. In the future, lands to the north and east of the project site could be developed with uses that are allowed under the existing General Plan including Neighborhood Residential and Elementary School.

Truck Traffic

The project would generate truck traffic that could expose sensitive receptors to emissions of TACs during operation of the Project. Traffic is seasonal, with 436 total truck trips per day during the growing season from April through November. Most trucks are equipped with

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[5] Monterey Bay Air Resources District (MBARD). 2016. *Air District Guidelines for Implementing CEQA. February 8. See https://www.mbard.org/files/b4d8179d3/CEQA+Implementation.pdf*

[6] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual Preparation of Health Risk Assessments*. Office Environmental Health Hazard Assessment. Feb.

[7] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

transportation refrigeration units (TRUs) that are assumed to be powered by small diesel motors. The facility would generate only 3 truck trips per week during the off-peak season from December through March. Trucks travel both north and south on U.S. Highway 101 and then along Gloria Road to the facility.

Truck and TRUs were modeled as occurring during the peak season (April through November) for 244 days per year, 24 hours/day. Off-season trucks were not included since they would be minimal, representing 3 trucks per week (6 trips). All Shipping and Cross Dock trucks were assumed to have TRUs operating while traveling on and off site, and for 2 hours while at the project's loading dock. All other trucks were assumed to not have TRUs. Truck travel routes within about one-quarter mile of the residence on Gloria Road near U.S. 101 were evaluated as part of the modeling.

Emissions

Truck travel emissions for heavy heavy-duty diesel trucks (HHDT class) operating in 2025 were calculated using emission factors from CARB's latest emission factor model, EMFAC2021. Travel speeds and traffic volumes used to develop emission factors for input to AERMOD were based on parameters shown in Table 1.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM concentrations at sensitive receptors in the vicinity of the project area. The modeling used a five-year meteorological data set (2016-2020) from the Salina Municipal Airport prepared for use with the AERMOD model by the CARB for use in health risk assessment modeling. Truck emissions were modeled as occurring daily over 24 hours between March and November. Annual DPM concentrations during 2025 were computed at existing residential receptors and at nearby potential future residential receptors using the model. For the potential future residential receptors, a grid of receptors spaced about every 15 meters (49 feet) and extending out 300 feet from the project boundary was used. Receptor heights of 4.9 feet (1.5 meters) were used to represent the breathing height of residents. Exhaust emissions from the truck travel were input into AERMOD as volume sources along a line (i.e., line volume source) used to represent emissions from truck exhaust (i.e., DPM).

The maximum-modeled DPM concentration at an existing residential receptor occurred west of the site along Gloria Road near U.S. 101. This is considered to be the location of the existing residential maximally exposed individual (MEI). The maximum-modeled DPM concentration at a potential future residential receptor occurred adjacent to the northern boundary of the project site. This is considered to be the location of the residential maximally exposed individual (MEI). The location of the MEI is identified on Figure 1.

Cancer Risk and Hazards

Increased residential cancer risks were calculated using the maximum modeled annual DPM concentrations and cancer risk assessment methods described previously. **The maximum cancer risk at the existing residence near U.S. 101 was 5.33 in one million**, which is below

MBARD's threshold of greater than 10 excess cancer cases per million. **The maximum cancer risk at a nearby potential future residential would be 8.9 in one million**, which is below MBARD's threshold of greater than 10 excess cancer cases per million.

In addition to potential future residents, cancer risks for school children at a potential future elementary school were evaluated. To be conservative, the maximum DPM concentration for a potential future resident was used to calculate the maximum school child cancer risk. The school child exposure was assumed to occur for a period of 6 years (kindergarten through sixth grade) for 9 hours per day, 250 days per year. **The maximum school child cancer risk at a nearby potential future elementary school would be 1.6 in one million**, which is below MBARD's threshold of greater than 10 excess cancer cases per million.

The location of the receptors with the maximum increased residential cancer risks for existing and potential future residents are shown in Figure 1. Non-cancer hazards for DPM would be well below MBARD threshold of greater than 1.0 at all sensitive receptors, with **the maximum chronic HI computed at <0.01**.

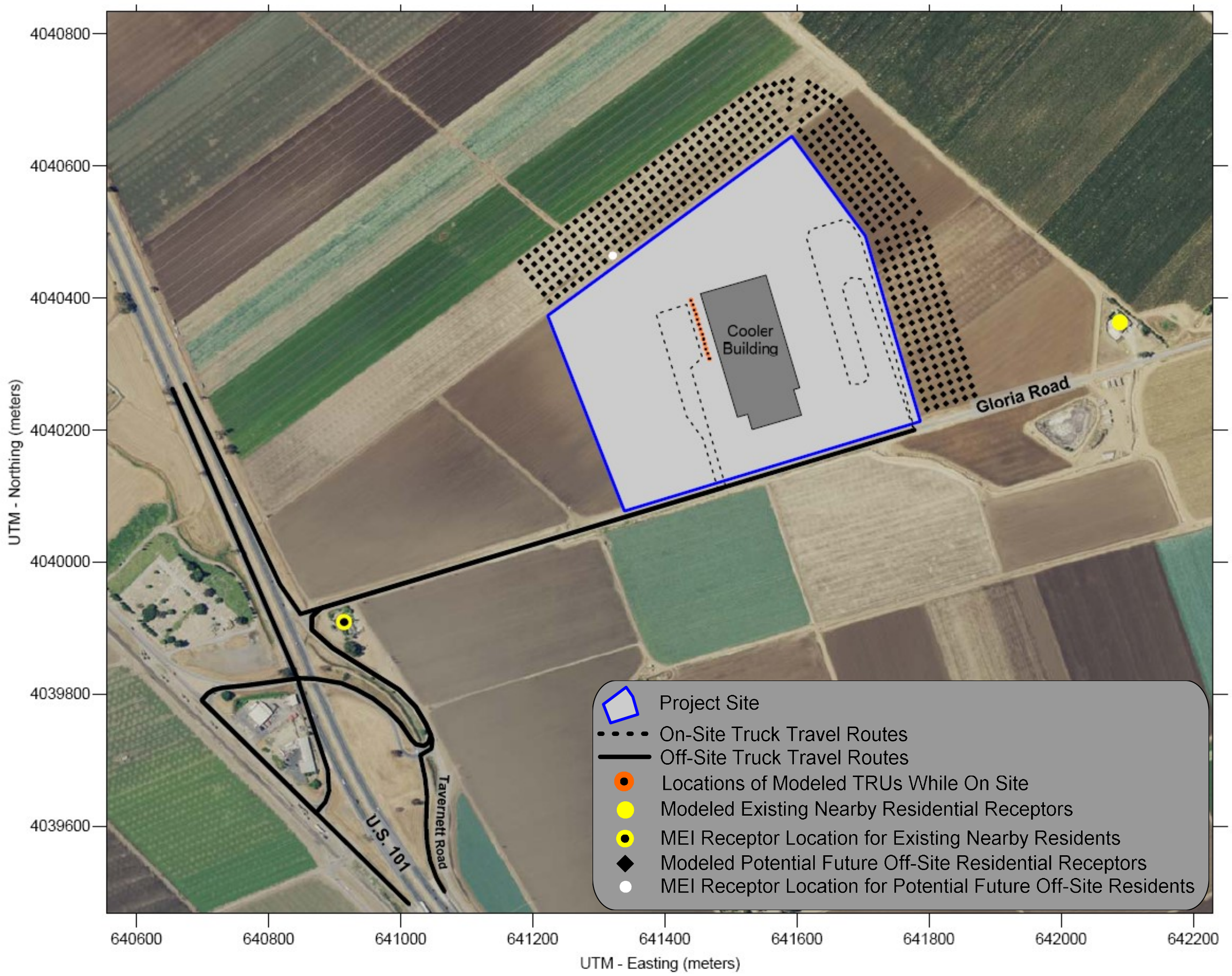
Attachment 2 to this report includes the emission calculations for the project operation sources used in AERMOD, and the cancer risk calculations.

Table 1 Road Segments and Truck Information Used for Modeling

Road Segment	Truck* Type	Trip Distribution (%)	Trips per Day	Travel Speed (mph)
Off-Site				
Gloria Rd to Travernett Rd - Other Trucks	Other	100	112	30
Gloria Rd to Travernett Rd - Shipping Trucks	Shipping	100	324	30
Gloria/Travernett Rds to Northbound 101	All	50	218	45
Gloria/Travernett Rds to Southbound 101	All	50	218	25
Southbound 101 to Southbound Exit	All	65	283	60
Southbound Exit to Gloria/Travernett Rds	All	65	283	25
Northbound 101 to Gloria/Travernett Rds	All	34	148	30
Road Segment	**Truck* Type**	**Truck Distribution (%)**	**Trucks per Day**	**Travel Speed (mph)**
On-site				
On-site Route - Shipping Trucks	Shipping	100	162	10
On-site Route - Other Trucks	Other	100	56	10
Total				

* Shipping trucks include cross dock and shipping trucks. Other trucks include field, carton/FLM, and culls/trash trucks.

Figure 1. Project Site, Roadway Sources, Sensitive Receptors and MEI Locations



Attachment 1: Health Risk Calculation Methodology

A health risk assessment for exposure to TACs requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and CARB develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[8] These guidelines incorporate methods designed to provide for enhanced protection of children, as required by State law. CARB has provided additional guidance on implementing OEHHA's recommended methods.[9] This health risk assessment used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. Current MBARD regulations/guidelines (Rule 1000 – Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants) specify use of the most recent OEHHA guidelines when conducting health risk assessments. The new OEHHA guidelines and CARB recommended exposure parameters were used in this evaluation.

<u>Cancer Risk</u>

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency of exposure, and the exposure duration. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of school child exposures. For this evaluation, as recommended by CARB, the 95th percentile breathing rates are used for all age groups. Additionally, CARB and the MBARD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions.

Under previous OEHHA HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 years and greater.

For an initial cancer risk estimate the fraction of time at home factors are assumed to equal one (FAH = 1.0) for the 3rd trimester, less than 2 years, and for 2 years to less than 16 years age groups. For projects

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[8] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

[9] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

with any school within the 1 in one million cancer risk isopleths (or greater) based on initial estimates a FAH = 1 should be used for the child age groups (3rd trimester, 0<2 years, and 2<16 years).

Functionally, cancer risk is calculated using the following parameters and formulas;

Cancer Risk (per million) = *CPF x Inhalation Dose x ASF x ED/AT x FAH x* 10^6

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} *x DBR x A x (EF/365) x* 10^{-6}

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
8HrBR* = 8-hour breathing rate (L/kg body weight-8 hours)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Health Risk Parameters Used for Cancer Risk Calculations

Parameter	***Exposure Type*** / ***Age Range***	**Infant** 3rd Trimester	**Infant** 0<2	**Child** 2 < 16	**Adult** 16 - 30
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14**
Exposure Frequency (days/year)		350	350	350	350**
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home		1.0	1.0	1.0	0.73**

* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures
** For worker exposures (adult) the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

Non-Cancer Hazards

Non-cancer health risk is usually determined by comparing the predicted level of exposure to a chemical to the level of exposure that is not expected to cause any adverse effects (reference exposure level), even to the most susceptible people. Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the MBUAPCD significance threshold of a HI greater than 1.0 to determine whether a significant non-cancer health impact from a project would occur.[10]

Typically, for projects involving construction with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is DPM. For DPM, the chronic inhalation REL is 5 μg/m^3.

[10] MBUAPCD Rule 1000

Attachment 2 – Project Operation Emissions, Modeling Information, and Health Risk Calculations

EMFAC2021 Emission Factors

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: County
Region: Monterey
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, g/mile for RUNEX, PMBW and PMTW, mph for Speed, kWh/mile for Energy Consumption, gallon/mile for Fuel Consumption. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Total VMT	CVMT	EVMT	NOx_RUN	PM2.5_RU	PM10_RUNEX	CO2_RUN	CH4_RUN	N2O_RUN	ROG_RUN	TOG_RUN	CO_RUNE	SOx_RUN	NH3_RUN	PM10_PM	PM2.5_PM	Fuel Consu
Monterey	2025	HHDT	Aggregate	5	Diesel	329.9525	329.9525	0	18.7414	0.105271	0.110031302	3421.662	0.026869	0.539084	0.578482	0.658558	1.357096	0.032401	0.140284	0.155953	0.054584	0.336928
Monterey	2025	HHDT	Aggregate	10	Diesel	2470.931	2470.931	0	9.380018	0.028282	**0.029560826**	3049.37	0.007579	0.480429	0.163171	0.185757	0.750565	0.028876	0.194965	0.147994	0.051798	0.300268
Monterey	2025	HHDT	Aggregate	15	Diesel	4925.022	4925.022	0	5.602595	0.012555	0.013123119	2452.79	0.002687	0.386438	0.05785	0.065858	0.396415	0.023226	0.206325	0.143756	0.050315	0.241524
Monterey	2025	HHDT	Aggregate	20	Diesel	14331.35	14331.35	0	3.550424	0.006662	0.006963205	2073.406	0.001295	0.326666	0.027888	0.031749	0.266974	0.019634	0.215457	0.054569	0.019099	0.204166
Monterey	2025	HHDT	Aggregate	**25**	Diesel	5680.065	5680.065	0	3.472359	0.008798	**0.009196234**	1907.517	0.001219	0.30053	0.02625	0.029883	0.216014	0.018063	0.207344	0.136669	0.047834	0.187831
Monterey	2025	HHDT	Aggregate	**30**	Diesel	6579.74	6579.74	0	2.968902	0.009672	**0.010108873**	1775.012	0.001108	0.279654	0.023846	0.027147	0.179551	0.016808	0.204555	0.135214	0.047325	0.174784
Monterey	2025	HHDT	Aggregate	35	Diesel	7584.356	7584.356	0	2.451117	0.010232	0.010694929	1662.258	0.00091	0.261889	0.019595	0.022308	0.141242	0.015741	0.204676	0.11599	0.040597	0.163681
Monterey	2025	HHDT	Aggregate	40	Diesel	9205.854	9205.854	0	1.953066	0.01126	0.01176873	1567.092	0.000722	0.246896	0.015542	0.017694	0.106685	0.014839	0.206796	0.101131	0.035396	0.15431
Monterey	2025	HHDT	Aggregate	**45**	Diesel	9940.104	9940.104	0	1.690999	0.013623	**0.014238503**	1515.098	0.000637	0.238704	0.013714	0.015613	0.082249	0.014347	0.207397	0.086723	0.030353	0.14919
Monterey	2025	HHDT	Aggregate	50	Diesel	11281.06	11281.06	0	1.32756	0.016222	0.016955859	1484.107	0.000536	0.233822	0.011546	0.013144	0.05933	0.014054	0.211712	0.075509	0.026428	0.146139
Monterey	2025	HHDT	Aggregate	55	Diesel	16683.45	16683.45	0	1.223283	0.020529	0.021457544	1469.934	0.000527	0.231589	0.011347	0.012918	0.047001	0.013919	0.214505	0.073256	0.02564	0.144743
Monterey	2025	HHDT	Aggregate	**60**	Diesel	41535.8	41535.8	0	1.254906	0.026557	**0.027757365**	1475.619	0.000547	0.232484	0.011775	0.013405	0.039843	0.013973	0.217579	0.070851	0.024798	0.145303
Monterey	2025	HHDT	Aggregate	65	Diesel	75718.96	75718.96	0	1.530652	0.032691	0.03416899	1549.293	0.000625	0.244092	0.013465	0.015329	0.040865	0.014671	0.219032	0.07034	0.024619	0.152557

Truck Travel and TRU Emission Calculations

Gloria Road Agricultural Cooler - Gonzales, CA

Project Truck Travel DPM Emissions - Peak Season (April - November)

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Truck* Type	Trip Distribution (%)	Trips per day	Speed (mph)	DPM EFs[b] Exhaust g/veh-mi	Truck DPM Emissions		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)						Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)
Off-Site																			
Gloria Rd to Travernett Rd - Other Trucks	GLO_OTH	3079	938.4	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Other	100	112	30	0.0101089	0.6601603	7.64E-06	0.355118711
Gloria Rd to Travernett Rd - Shipping Trucks	GLO_SHP	2186	666.3	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Shipping	100	324	30	0.0101089	1.3559493	1.57E-05	0.72940307
Gloria/Travernett Rds to Northbound 101	NENT_ALL	1278	389.5	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	50	218	45	0.0142385	0.7512513	8.70E-06	0.404119122
Gloria/Travernett Rds to Southbound 101	SENT_ALL	3691	1125.1	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	50	218	25	0.0091962	1.4015073	1.62E-05	0.753910007
Southbound 101 to Southbound Exit	S101_ALL	1589	484.3	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	All	65	283	60	0.0277574	2.3670583	2.74E-05	1.273306907
Southbound Exit to Gloria/Travernett Rds	SRMP_ALL	3732	1137.4	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	65	283	25	0.0091962	1.8418731	2.13E-05	0.990795072
Northbound 101 to Gloria/Travernett Rds	NRMP_ALL	1768	538.8	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	34	148	30	0.0101089	0.5017353	5.81E-06	0.269897468
Total																	8.88	1.03E-04	4.78
Road Segment	**Segment ID**	**Segment length**		**Segment Width**		**Plume Height[a]**		**Vertical Dispersion[a]**		**Release Height[a]**		**Truck* Type**	**Truck Distribution (%)**	**Trucks per day**	**Speed (mph)**	**DPM EFs[b] Exhaust g/veh-mi**	**Truck DPM Emissions**		
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)						Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)
On-site																			
On-site Route - Shipping Trucks	OS_SHP	2045	623.2	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Shipping	100	162	10	0.0295608	1.85441	2.15E-05	1.4922174
On-site Route - Other Trucks	OS_OTH	3581	1091.6	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Other	100	56	10	0.0295608	1.12282	1.30E-05	0.903518022
Total																	2.98	3.45E-05	2.40

* Shipping trucks include crossdock and shipping trucks. Other trucks inclue field, carton/FLM, and culls/trash trucks.

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] Emissions Factors from EMFAC2021 for 2025

Facility/Truck Operating Information- Peak Season

Total Trucks per day =	218
Total Truck Trips per day =	436
Shipping Trucks per day =	162
Shipping Truck Trips per day =	324
Other Trucks per day =	56
Other Truck Trips per day =	112
Peak Season (Apr - Nov) Operation Days =	244
Off Season (Dec - Mar) Operation Days =	121
Operation Hours per Day =	24

On-Site TRU Emissions at Loading Dock

Emissions Source	Emission[a] Factor (g/hp-hr)	TRUs Operating per Day	TRU Operation (hours/day)	DPM Emissions	
				Daily (lb/day)	Peak Season (lb/year)
On-Site Shipping Trucks	0.02	162	2	0.219	53.46

TRU Operating Parameters [a]

TRU Horsepower[a] =	33.8
TRU Load Factor[a] =	0.46

a CARB, 2019. *Draft 2019 Update to Emissions Inventory for Transport Refrigeration Units*. October 2019.

b Based on 365 days per year operation.

TRU Modeling Information[a]

Emissions Source	Number of Stacks	Average Hourly[b] DPM Emissions			Height (m)	Diameter (m)	Exit Velocity (m/s)	Temp (K)
		Total Emissions (lb/hr)	Total Emissions (g/s)	per Source (g/s)				
Truck TRUs	13	0.009	1.15E-03	8.85E-05	4.0	0.04445	49	501

a Point source parameters from SJVAPCD, Guidance for Air Dispersion Modeling, Draft 01/07 Rev 2.0.

[b] Average hourly emissions for modeling based on annual emissions divided by operating days per year and hours per day.

Project Truck Travel & TRU DPM Emissions - Peak Season (April - November)

Road Segment	Segment ID	Segment length		Segment Width		Plume Height[a]		Vertical Dispersion[a]		Release Height[a]		Truck* Type	Trip Distribution (%)	Trips per day	Speed (mph)	DPM EFs[b] Exhaust g/veh-mi	Truck Travel DPM Emissions			Truck TRU DPM Emissions			Travel + TRU DPM
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)						Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)	Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)	Hourly (g/s)
Off-Site																							
Gloria Rd to Travernett Rd - Other Trucks	GLO_OTH	3079	938.4	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Other	100	112	30	0.0101089	0.6601603	7.64E-06	0.355118711	0	0.00E+00	0	7.64E-06
Gloria Rd to Travernett Rd - Shipping Trucks	GLO_SHP	2186	666.3	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Shipping	100	324	30	0.0101089	1.3559493	1.57E-05	0.72940307	1.3713462	1.59E-05	0.737685493	3.16E-05
Gloria/Travernett Rds to Northbound 101	NENT_ALL	1278	389.5	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	50	218	45	0.0142385	0.7512513	8.695E-06	0.404119122	0.3596136	4.16E-06	0.193446202	1.29E-05
Gloria/Travernett Rds to Southbound 101	SENT_ALL	3691	1125.1	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	50	218	25	0.0091962	1.4015073	1.62E-05	0.753910007	1.8697046	2.16E-05	1.005766432	3.79E-05
Southbound 101 to Southbound Exit	S101_ALL	1589	484.3	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	All	65	283	60	0.0277574	2.3670583	2.74E-05	1.273306907	0.4359203	5.05E-06	0.234493743	3.24E-05
Southbound Exit to Gloria/Travernett Rds	SRMP_ALL	3732	1137.4	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	65	283	25	0.0091962	1.8418731	2.132E-05	0.990795072	2.457182	2.84E-05	1.321786971	4.98E-05
Northbound 101 to Gloria/Travernett Rds	NRMP_ALL	1768	538.8	12	3.66	8.5	6.8	10.38	3.16	11.15	3.40	All	34	148	30	0.0101089	0.5017353	5.807E-06	0.269897468	0.5074326	5.87E-06	0.272962173	1.17E-05
Total																	8.88	0.00	4.78	7.00	8.10E-05	3.77	1.84E-04
Road Segment	**Segment ID**	**Segment length**		**Segment Width**		**Plume Height[a]**		**Vertical Dispersion[a]**		**Release Height[a]**		**Truck* Type**	**Truck Distribution (%)**	**Trucks per day**	**Speed (mph)**	**DPM EFs[b] Exhaust g/veh-mi**	**Truck DPM Emissions**			**Truck DPM Emissions**			**Travel + TRU DPM**
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)	(ft)	(m)						Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)	Daily (g/day)	Hourly (g/s)	Peak Season (lb/year)	Hourly (g/s)
On-site																							
On-site Route - Shipping Trucks	OS_SHP	2045	623.2	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Shipping	100	162	10	0.0295608	1.85441	2.15E-05	1.4922174	1.9240485	2.23E-05	1.5482575	4.37E-05
On-site Route - Other Trucks	OS_OTH	3581	1091.6	24	7.32	8.5	6.8	10.38	3.16	11.15	3.40	Other	100	56	10	0.0295608	1.12282	1.30E-05	0.903518022	0	0	0	1.30E-05
Total																	2.98	3.45E-05	2.40	1.92	2.23E-05	1.55	5.67E-05

[a] Source Parameters from EPA *Transportation Conformity Guidance for Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenace Areas* (2015)

[b] Emissions Factors from EMFAC2021 for 2025

Risk Calculations at Existing Off-Site Residential MEI

Gloria Road Truck TAC Evaluation, Gonzales, CA - Project Operation
DPM Cancer Risks From Project Operation Sources
Maximum DPM Cancer Risk at Existing Residential MEI Receptor
1.5 Meter Receptor Heights

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

MEI Cancer Risk From Project Trucks and TRUs
1.5 meter receptor height (2025-2054)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.00716	0.10
2	1 - 2	10	0.00716	2.35
14	3 - 16	3	0.00716	2.59
14	17 - 30	1	0.00716	0.29
Total Increased Cancer Risk				**5.33**

* Third trimester of pregnancy

Gloria Road Truck TACs - Project Operation
AERMOD Risk Modeling Parameters and
Maximum Concentrations at Exixting Residential MEI Receptor
Residential Recepotrs - 1.5 Meter Receptor Heights

Emissions Year	2025
Receptor Information	
Number of Receptors	2
Receptor Height =	1.5 meter
Receptor distances =	at nearby residential locations
Meteorological Conditions	
CARB Salinis Municipal Airport Met Data	2016-2020
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

MEI Maximum DPM Concentrations

Emission Source	Concentration ($\mu g/m^3$) DPM
Truck & TRU Travel	0.00653
TRUs at Loading Docks	0.00063
Total	**0.00716**

Risk Calculations at Potential Future Off-Site Residential MEI and Elementary School

Gloria Road Truck TAC Evaluation, Gonzales, CA - Project Operation
DPM Cancer Risks From Project Operation Sources
Maximum DPM Cancer Risk at Potential Future Residences
1.5 Meter Receptor Heights

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age -->	3rd Trimester	0 - <2	2 - <16	16 - 30
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

MEI Cancer Risk From Project Trucks and TRUs
1.5 meter receptor height (30-year exposure)

Exposure Duration (years)	Age	Age Sensitivity Factor	DPM Annual Conc (ug/m3)	DPM Cancer Risk (per million)
0.25	-0.25 - 0*	10	0.01195	0.16
2	1 - 2	10	0.01195	3.93
14	3 - 16	3	0.01195	4.33
14	17 - 30	1	0.01195	0.48
Total Increased Cancer Risk				**8.89**

* Third trimester of pregnancy

Gloria Road Truck TACs - Project Operation
AERMOD Risk Modeling Parameters and
Maximum Concentrations at Future Residential MEI Receptor
Residential Recepotrs - 1.5 Meter Receptor Heights

Emissions Year	2025
Receptor Information	
Number of Receptors	2
Receptor Height =	1.5 meter
Receptor distances =	at nearby residential locations
Meteorological Conditions	
CARB Salinis Municipal Airport Met Data	2016-2020
Land Use Classification	rural
Wind speed =	variable
Wind direction =	variable

MEI Maximum DPM Concentrations

Emission Source	Concentration ($\mu g/m^3$) DPM
Truck & TRU Travel	0.00110
TRUs at Loading Docks	0.01084
Total	**0.01195**

Gloria Road Truck TAC Evaluation, Gonzales, CA - Project Operation
Maximum DPM Cancer Risk Calculations From Project Operation Sources
Impacts at Potential Future Elementary School Site (1.5 m receptor height)

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)

Inhalation Dose = C_{air} x SCAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SCAF = School Child Adjustment Factor (unitless) for source operation and exposures different than 8 hours/day
= (24/SHR) x (7days/SDay) x (SCHR/8 hrs)
SHR = Hours/day of emission source operation
SDay = Number of days per week of source operation
SCHR = School operation hours while emission source in operation
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	**Child**
Age -->	**0 - <2**	**2 - <16**
Parameter		
ASF =	10	3
DPM CPF =	1.10E+00	1.10E+00
8-Hr BR* =	1200	520
SCHR =	9	9
SHR =	24	24
SDay =	7	7
A =	1	1
EF =	250	250
AT =	70	70
SCAF =	1.13	1.13

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Preschool Impact Receptor Location

Exposure Year	**Exposure Duration (years)**	**Age**	**Child - Exposure Information: DPM Conc (ug/m3) Year**	**Annual**	**Age* Sensitivity Factor**	**Child Cancer Risk (per million)**	**Maximum Hazard Index**
K - 6th Grade	7	5 - 11	2024	0.01195	3	1.58	0.0024
Total Increased Cancer Risk						**1.58**	

* Children assumed to be in 6th - 12th grade

Special-Status Species in the Project Vicinity

C
APPENDIX

Appendix C Special-Status Plant Species with Potential to Occur in the Project Vicinity

Species	Status (Federal/State/ CNPS)	Suitable Habitat Description	Potential to Occur on Project Site
Bristlecone fir *(Abies bracteata)*	--/--/1B	Lower montane coniferous forest, rocky sites in Monterey and San Luis Obispo; elevation 210-1600m. Evergreen.	Unlikely. Suitable habitat not found at the project site.
Carmel Valley bush-mallow *(Malacothamnus palmeri* var. *involucratus)*	--/--/1B.2	Chaparral, cismontane woodland, coastal scrub; elevation 30-1100m. Blooming Period: May – October.	Unlikely. Suitable habitat not found at the project site.
Carmel Valley malacothrix *(Malacothrix saxatilis* var. *arachnoidea)*	--/--/1B.2	Chaparral (rocky); elevation 25-335m. Blooming Period: March – December.	Unlikely. Suitable habitat not found at the project site.
Congdon's tarplant *(Centromadia parryi* spp. *congdonii)*	--/--/1B.1	Valley and foothill grassland (alkaline); elevation 1-230m. Known to occur on various substrates, and in disturbed and ruderal (weedy) areas. Blooming Period: June – November.	Low potential. Disturbed and ruderal habitat found at the project site.
Davidson's bush-mallow *(Malacothamnus davidsonii)*	--/--/1B.2	Coastal scrub, riparian woodland, chaparral, sandy washes; elevation 180-855m. Blooming Period: June – January.	Unlikely. Suitable habitat not found at the project site.
Gabilan Mountains manzanita *(Arctostaphylos gabrielensis)*	--/--/1B.2	Chaparral, cismontane woodland, granitic substrates; elevation 300-700m. Blooming Period: March.	Unlikely. Suitable habitat not found at the project site.
Hooked popcorn flower *(Plagiobothrys uncinatus)*	--/--/1B.2	Chaparral (sandy), cismontane woodland, valley and foothill grassland; elevation 300-730m. Blooming Period: April – May.	Unlikely. Suitable habitat not found at the project site.
Indian Valley bush-mallow *(Malacothamnus aboriginum)*	--/--/1B.2	Chaparral and cismontane woodland; rocky, often burned areas. Prefers granitic outcrops and sandy bare soil; elevation 150-1700m. Blooming Period: April – October.	Unlikely. Suitable habitat not found at the project site.
Jolon clarkia *(Clarkia jolonensis)*	--/--/1B.2	Cismontane woodland, chaparral, coastal scrub; elevation 20-660m. Blooming Period: April – June.	Unlikely. Suitable habitat not found at the project site.
Lemmon's jewel-flower *(Caulanthus coulteri* var. *lemmonii)*	--/--/1B.2	Pinyon-juniper woodland, valley and foothill grassland; elevation 80-1220m. Blooming Period: March - May	Unlikely. Suitable habitat not found at the project site.
Monterey spineflower *(Chorizanthe pungens* var. *pungens)*	FT/--/1B.2	Sandy openings in maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland; elevation 3-450m. Blooming Period: April - June	Unlikely. Suitable habitat not found at the project site.
Pine rose *(Rosa pinetorum)*	--/--/1B.2	Closed-cone coniferous forest; elevation 2-300m. Blooming Period: May – July.	Unlikely. Suitable habitat not found at the project site.
Pinnacles buckwheat *(Eriogonum nortonii)*	--/--/1B.3	Sandy sites in chaparral and valley and foothill grassland, often on recent burns; elevation 300-975m. Blooming Period: May – June.	Unlikely. Suitable habitat not found at the project site.
Santa Cruz Mountains pussypaws *(Calyptridium parryi* var. *hesseae)*	--/--/1B.1	Sandy or gravelly openings in chaparral and cismontane woodland; elevation 305-1530m. Blooming Period: May – August.	Unlikely. Suitable habitat not found at the project site.

Species	Status (Federal/State/ CNPS)	Suitable Habitat Description	Potential to Occur on Project Site
Santa Lucia bedstraw *(Galium clementis)*	--/--/1B.3	Lower montane coniferous forest, upper montane coniferous forest. Forms soft mats in shady rocky patches, on granite or serpentine, mostly on exposed peaks; elevation 1130-1780m. Blooming Period: May – July.	Unlikely. Suitable habitat not found at the project site.
Toro manzanita *(Arctostaphylos montereyensis)*	--/--/1B.2	Maritime chaparral, cismontane woodland, coastal scrub, sandy; elevation 30-730m. Blooming Period: February – March.	Unlikely. Suitable habitat not found at the project site.
Umbrella larkspur *(Delphinium umbraculorum)*	--/--/1B.2	Cismontane woodland, mesic sites; elevation 400-1600m. Blooming Period: April – June.	Unlikely. Suitable habitat not found at the project site.

SOURCE: CDFW 2023, CNPS 2023

NOTE: Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: A Candidate for listing as Threatened or Endangered under the Federal Endangered Species Act.

FSC: Species of Special Concern.

FD: Delisted under the Federal Endangered Species Act.

State (CDFW)

SE: Listed as Endangered under the California Endangered Species Act.

ST: Listed as Threatened under the California Endangered Species Act.

SR: Listed as Rare under the California Endangered Species Act.

SC: A Candidate for listing as Threatened or Endangered under the California Endangered Species Act.

SSC: Species of Special Concern.

SFP: Fully Protected species under the California Fish and Game Code.

SD: Delisted under the California Endangered Species Act.

CNPS Rare Plant Ranks and Threat Code Extensions

1B: Plants that are considered Rare, Threatened, or Endangered in California and elsewhere.

2B: Plants that are considered Rare, Threatened, or Endangered in California, but more common elsewhere.

.1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat).

.2: Fairly endangered in California (20-80% occurrences threatened).

.3: Not very endangered in California (<20% of occurrences threatened or no current threats known).

Appendix C Special-Status Wildlife Species with Potential to Occur in the Project Vicinity

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
American badger *(Taxidea taxus)*	--/SSC	Most abundant in drier, open stages of most shrub, forest, and herbaceous habitats. Need sufficient food and open, uncultivated ground with friable soils to dig burrows. Prey on burrowing rodents.	Unlikely. Suitable habitat not found at the project site.
Bank swallow *(Riparia riparia)*	--/ST	Highly colonial species that nests in alluvial soils along rivers, streams, lakes, and ocean coasts. Nesting colonies only occur in vertical banks or bluffs of friable soils at least one meter tall, suitable for burrowing with some predator deterrence values. Breeding colony present in Salinas River.	Unlikely. Suitable habitat not found at the project site.
Bay checkerspot butterfly *(Euphydryas editha bayensis)*	FT/--	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Castilleja densiflora* and *C. exserta* are secondary host plants.	Unlikely. Suitable habitat not found at the project site.
Big-eared kangaroo rat *(Dipodomys venustus elephantinus)*	--/SSC	Chaparral-covered slopes of the southern part of the Gabilan Range, in the vicinity of the Pinnacles. Forages under shrubs and in the open. Burrows for cover and for nesting.	Unlikely. Suitable undisturbed habitat not found at the project site.
Burrowing owl *(Athene cunicularia)*	--/SSC	Open, dry, annual or perennial grasslands, desert, or scrubland, with available small mammal burrows.	Low potential to occur on project site due to presence of marginally suitable habitat. CNDDB occurrences recorded within the project site vicinity.
California red-legged frog *(Rana draytonii)*	FT/SSC	Rivers, creeks, and stock ponds with pools and overhanging vegetation. Requires dense, shrubby or emergent riparian vegetation, and prefers short riffles and pools with slow-moving, well-oxygenated water. Needs upland habitat to aestivate (remain dormant during dry months) in small mammal burrows, cracks in the soil, or moist leaf litter.	Unlikely. Suitable habitat not found at the project site.
California tiger salamander *(Ambystoma californiense)*	FT/ST	Grasslands and oak woodlands near seasonal pools and stock ponds in central and coastal California. Needs upland habitat to aestivate (remain dormant during dry months) in small mammal burrows, cracks in the soil, or moist leaf litter. Requires seasonal water sources that persist into late March for breeding habitat.	Unlikely. Suitable habitat not found at the project site.
Coast horned lizard *(Phrynosoma blainvillii)*	--/SSC	Arid grassland and scrubland habitats; prefers lowlands along sandy washes with scattered low bushes. Requires open areas for sunning, bushes for cover, patches of loose soil for burrowing, and abundant supply of ants and other insects for feeding.	Unlikely. Suitable habitat not found at the project site.

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
Foothill yellow-legged frog *(Rana boylii)*	--/SSC	Partly shaded, shallow streams and riffles with rocky substrate in a variety of habitats. Requires at least some cobble-sized substrate for egg-laying and 15 weeks of available water to attain metamorphosis.	Unlikely. Suitable habitat not found at the project site.
Golden eagle *(Aquila chrysaetos)*	--/SFP	Rolling foothill mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range. Also uses large trees in open areas.	Unlikely. Suitable habitat not found at the project site.
Hoary bat *(Lasiurus cinereus)*	--/SSC	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Unlikely. Suitable habitat not found at the project site.
Monterey dusky-footed woodrat *(Neotoma fuscipes luciana)*	--/SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Nests constructed of grass, leaves, sticks, feathers, etc. Population may be limited by availability of nest materials.	Unlikely. Suitable habitat not found at the project site.
Northern California legless lizard *(Anniella pulchra)*	--/SSC	Sandy or loose loamy soils under sparse vegetation, moist soils. Anniella pulchra is traditionally split into two subspecies: *A. pulchra pulchra* (silvery legless lizard) and *A. pulchra nigra* (black legless lizard), but these subspecies are typically no longer recognized.	Unlikely. Suitable habitat not found at the project site.
Pallid bat *(Antrozous pallidus)*	--/SSC	Deserts, grasslands, scrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures.	Unlikely. Suitable habitat not found at the project site.
Prairie falcon *(Falco mexicanus)*	--/SSC	Nesting Habitats. Open terrain, either level or hilly breeding sites located on cliffs. Forages far distances, including to marshlands and ocean shores.	Unlikely. Suitable habitat not found at the project site.
Salinas pocket mouse *(Perognathus inornatus psammophilus)*	--/SSC	Annual grassland and desert shrub communities in the Salinas Valley. Prefers fine-textured, sandy, friable soils. Burrows for cover and nesting.	Unlikely. Suitable habitat not found at the project site.
San Joaquin coachwhip *(Masticophis flagellum ruddocki)*	--/SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Requires mammal burrows for refuge and oviposition sites.	Unlikely. Suitable habitat not found at the project site.
San Joaquin kit fox *(Vulpes macrotis mutica)*	FE/ST	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose-textured sandy soils for burrowing, and suitable prey base.	Unlikely. Suitable habitat not found at the project site.

Species	Status (Federal/State)	Suitable Habitat Description	Potential to Occur on Project Site
Steelhead *(Oncorhynchus mykiss irideus)*	FT/--	Coastal stream with clean spawning gravel. Requires cool water and pools. Needs migratory access between natal stream and ocean.	Unlikely. Suitable habitat not found at the project site.
Swainson's hawk *(Buteo swainsoni)*	--/ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas, such as grasslands or agricultural fields supporting rodent populations.	Unlikely. Suitable habitat not found at the project site.
Townsend's big-eared bat *(Corynorhinus townsendii)*	--/SCT	Inhabits a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Unlikely. Suitable habitat not found at the project site.
Tricolored blackbird *(Agelaius tricolor)*	--/SE	Areas adjacent to open water with protected nesting substrate, which typically consists of dense, emergent freshwater marsh vegetation.	Unlikely. Suitable habitat not found at the project site.
Western mastiff bat *(Eumops perotis californicus)*	--/SSC	Many open, semi-arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Unlikely. Suitable habitat not found at the project site.
Western pond turtle *(Emys marmorata)*	--/SSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites (such as rocks or partially submerged logs) and suitable upland habitat for egg-laying (sandy banks or grassy open fields).	Unlikely. Suitable habitat not found at the project site.
Western red bat *(Lasiurus blossevillii)*	--/--	Roosts primarily in trees, 2-40 feet above the ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Unlikely. Suitable habitat not found at the project site.
Western spadefoot *(Spea hammondii)*	--/SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands, breeds in winter and spring (January - May) in quiet streams and temporary pools.	Unlikely. Suitable habitat not found at the project site.

SOURCE: CDFW 2023

NOTE: Status Codes:

Federal (USFWS)

FE: Listed as Endangered under the Federal Endangered Species Act.

FT: Listed as Threatened under the Federal Endangered Species Act.

FC: A Candidate for listing as Threatened or Endangered under the Federal Endangered Species Act.

FSC: Species of Special Concern.

FD: Delisted under the Federal Endangered Species Act.

State (CDFW)
SE: Listed as Endangered under the California Endangered Species Act.
ST: Listed as Threatened under the California Endangered Species Act.
SR: Listed as Rare under the California Endangered Species Act.
SC: A Candidate for listing as Threatened or Endangered under the California Endangered Species Act.
SSC: Species of Special Concern.
SFP: Fully Protected species under the California Fish and Game Code.
SD: Delisted under the California Endangered Species Act.

EMFAC Results

D

APPENDIX

Appendix X
EMFAC2021 Results
Gloria Road Cooler
January 13, 2023

2028 Fuel Demand

Vehicle Class	Fuel	Process	Kgal/day
All Other Buses	Dsl	IDLEX	7.50E-06
All Other Buses	Dsl	RUNEX	0.000754
LDA	Dsl	RUNEX	0.000483
LDT1	Dsl	RUNEX	7.42E-07
LDT2	Dsl	RUNEX	0.000448
LHD1	Dsl	IDLEX	7.82E-05
LHD1	Dsl	RUNEX	0.012882
LHD2	Dsl	IDLEX	5.23E-05
LHD2	Dsl	RUNEX	0.006544
MDV	Dsl	RUNEX	0.00179
MH	Dsl	RUNEX	0.000397
Motor Coach	Dsl	IDLEX	0.00011
Motor Coach	Dsl	RUNEX	0.002299
PTO	Dsl	RUNEX	0.002223
SBUS	Dsl	IDLEX	0.000219
SBUS	Dsl	RUNEX	0.002455
T6 CAIRP Class 4	Dsl	IDLEX	2.00E-07
T6 CAIRP Class 4	Dsl	RUNEX	2.50E-05
T6 CAIRP Class 5	Dsl	IDLEX	2.63E-07
T6 CAIRP Class 5	Dsl	RUNEX	3.46E-05
T6 CAIRP Class 6	Dsl	IDLEX	9.29E-07
T6 CAIRP Class 6	Dsl	RUNEX	8.72E-05
T6 CAIRP Class 7	Dsl	IDLEX	1.49E-06
T6 CAIRP Class 7	Dsl	RUNEX	0.00052
T6 Instate Delivery Class 4	Dsl	IDLEX	3.48E-05
T6 Instate Delivery Class 4	Dsl	RUNEX	0.000659
T6 Instate Delivery Class 5	Dsl	IDLEX	1.65E-05
T6 Instate Delivery Class 5	Dsl	RUNEX	0.000304
T6 Instate Delivery Class 6	Dsl	IDLEX	5.69E-05
T6 Instate Delivery Class 6	Dsl	RUNEX	0.001072
T6 Instate Delivery Class 7	Dsl	IDLEX	1.33E-05
T6 Instate Delivery Class 7	Dsl	RUNEX	0.000358
T6 Instate Other Class 4	Dsl	IDLEX	0.000134
T6 Instate Other Class 4	Dsl	RUNEX	0.002768
T6 Instate Other Class 5	Dsl	IDLEX	0.000243
T6 Instate Other Class 5	Dsl	RUNEX	0.005197
T6 Instate Other Class 6	Dsl	IDLEX	0.000183
T6 Instate Other Class 6	Dsl	RUNEX	0.003858
T6 Instate Other Class 7	Dsl	IDLEX	0.000161
T6 Instate Other Class 7	Dsl	RUNEX	0.003065
T6 Instate Tractor Class 6	Dsl	IDLEX	1.05E-06

Fuel Type	Demand
Diesel	
kgal/day	0.12
gal/year	42842.41
Gas	
kgal/day	0.55
gal/year	199646.54
Phe (hybrids)	
kgal/day	0.01
gal/year	1898.05
TOTAL	
gal/year	244387.00
Mileage Check	
VMT/year	5,912,964
mpg	24

Appendix X
EMFAC2021 Results
Gloria Road Cooler
January 13, 2023

T6 Instate Tractor Class 6	Dsl	RUNEX	2.94E-05
T6 Instate Tractor Class 7	Dsl	IDLEX	5.90E-05
T6 Instate Tractor Class 7	Dsl	RUNEX	0.001517
T6 OOS Class 4	Dsl	IDLEX	1.08E-07
T6 OOS Class 4	Dsl	RUNEX	1.34E-05
T6 OOS Class 5	Dsl	IDLEX	1.41E-07
T6 OOS Class 5	Dsl	RUNEX	1.85E-05
T6 OOS Class 6	Dsl	IDLEX	5.04E-07
T6 OOS Class 6	Dsl	RUNEX	4.71E-05
T6 OOS Class 7	Dsl	IDLEX	7.21E-07
T6 OOS Class 7	Dsl	RUNEX	0.000322
T6 Public Class 4	Dsl	IDLEX	1.41E-05
T6 Public Class 4	Dsl	RUNEX	0.000186
T6 Public Class 5	Dsl	IDLEX	2.03E-05
T6 Public Class 5	Dsl	RUNEX	0.000268
T6 Public Class 6	Dsl	IDLEX	1.71E-05
T6 Public Class 6	Dsl	RUNEX	0.000236
T6 Public Class 7	Dsl	IDLEX	4.01E-05
T6 Public Class 7	Dsl	RUNEX	0.000682
T6 Utility Class 5	Dsl	IDLEX	5.19E-06
T6 Utility Class 5	Dsl	RUNEX	0.000146
T6 Utility Class 6	Dsl	IDLEX	9.81E-07
T6 Utility Class 6	Dsl	RUNEX	2.74E-05
T6 Utility Class 7	Dsl	IDLEX	1.10E-06
T6 Utility Class 7	Dsl	RUNEX	3.78E-05
T7 CAIRP Class 8	Dsl	IDLEX	0.001128
T7 CAIRP Class 8	Dsl	RUNEX	0.01461
T7 NNOOS Class 8	Dsl	IDLEX	0.001227
T7 NNOOS Class 8	Dsl	RUNEX	0.01727
T7 NOOS Class 8	Dsl	IDLEX	0.000539
T7 NOOS Class 8	Dsl	RUNEX	0.006417
T7 Other Port Class 8	Dsl	IDLEX	9.86E-13
T7 Other Port Class 8	Dsl	RUNEX	4.17E-11
T7 POAK Class 8	Dsl	IDLEX	3.21E-05
T7 POAK Class 8	Dsl	RUNEX	0.000696
T7 POLA Class 8	Dsl	IDLEX	1.04E-12
T7 POLA Class 8	Dsl	RUNEX	2.83E-11
T7 Public Class 8	Dsl	IDLEX	8.36E-05
T7 Public Class 8	Dsl	RUNEX	0.002089
T7 Single Concrete/Transit Mix Class 8	Dsl	IDLEX	4.24E-05
T7 Single Concrete/Transit Mix Class 8	Dsl	RUNEX	0.001102
T7 Single Dump Class 8	Dsl	IDLEX	0.000104
T7 Single Dump Class 8	Dsl	RUNEX	0.00203
T7 Single Other Class 8	Dsl	IDLEX	0.000303

Appendix X
EMFAC2021 Results
Gloria Road Cooler
January 13, 2023

T7 Single Other Class 8	Dsl	RUNEX	0.005689
T7 SWCV Class 8	Dsl	IDLEX	3.34E-05
T7 SWCV Class 8	Dsl	RUNEX	0.002342
T7 Tractor Class 8	Dsl	IDLEX	0.000487
T7 Tractor Class 8	Dsl	RUNEX	0.006244
T7 Utility Class 8	Dsl	IDLEX	3.96E-06
T7 Utility Class 8	Dsl	RUNEX	0.000185
UBUS	Dsl	RUNEX	0.001493
LDA	Gas	RUNEX	0.20736
LDA	Gas	STREX	0.006377
LDT1	Gas	RUNEX	0.021218
LDT1	Gas	STREX	0.000768
LDT2	Gas	RUNEX	0.137912
LDT2	Gas	STREX	0.004338
LHD1	Gas	IDLEX	0.000114
LHD1	Gas	RUNEX	0.028913
LHD1	Gas	STREX	0.000373
LHD2	Gas	IDLEX	1.64E-05
LHD2	Gas	RUNEX	0.00394
LHD2	Gas	STREX	4.53E-05
MCY	Gas	RUNEX	0.001108
MCY	Gas	STREX	0.000108
MDV	Gas	RUNEX	0.116291
MDV	Gas	STREX	0.003879
MH	Gas	RUNEX	0.0016
MH	Gas	STREX	2.85E-07
OBUS	Gas	IDLEX	6.56E-06
OBUS	Gas	RUNEX	0.001784
OBUS	Gas	STREX	1.15E-05
SBUS	Gas	IDLEX	7.47E-05
SBUS	Gas	RUNEX	0.002039
SBUS	Gas	STREX	8.10E-06
T6TS	Gas	IDLEX	2.83E-05
T6TS	Gas	RUNEX	0.00686
T6TS	Gas	STREX	5.02E-05
T7IS	Gas	RUNEX	1.55E-05
T7IS	Gas	STREX	5.24E-08
UBUS	Gas	RUNEX	0.001733
UBUS	Gas	STREX	4.38E-06
LDA	Phe	RUNEX	0.003815
LDA	Phe	STREX	0.000181
LDT1	Phe	RUNEX	3.23E-05
LDT1	Phe	STREX	1.71E-06
LDT2	Phe	RUNEX	0.000655

LDT2	Phe	STREX	3.80E-05
MDV	Phe	RUNEX	0.000445
MDV	Phe	STREX	3.19E-05

SB 610 Water Supply Assessment for the
Vista Lucia Specific Plan Project

E

APPENDIX

SB 610

Water Supply Assessment

January 2023

Administrative Draft

for the

Vista Lucia Specific Plan Project

Vista Lucia Specific Plan Project
SB 610 Water Supply Assessment

Prepared for
City of Gonzales, CA

Administrative Draft

January 2023

Prepared by:

ZANJERO
ADVISE • MANAGE • SOLVE

Table of Contents

This Water Supply Assessment was prepared under the direction
of a California licensed civil engineer.

SECTION 1 – PROJECT INTRODUCTION

As the lead agency under the California Environmental Quality Act ("CEQA"), the City of Gonzales ("City") is assessing the potential environmental effects associated with the proposed Vista Lucia Specific Plan Community (referred to as the "Proposed Project"). To inform the CEQA analysis, this Water Supply Assessment ("WSA") has been prepared for the Proposed Project. The City of Gonzalez ("City") has been identified as the public water system that will supply water for the Proposed Project, and therefore has been tasked with the preparation and approval of this WSA.

1.1 ANALYTICAL METHOD

This WSA estimates the Proposed Project's water demand through build-out, presents and discusses the availability of water sources identified to meet that demand, and assesses whether expected water supplies will be sufficient to meet the projected water demand of the City with the Proposed Project along with current customers and other planned uses during normal, single dry, and multiple dry year conditions.

The above-referenced analytical method is derived from the Water Supply Assessment Law ("WSA Law") codified at Water Code section 10910 *et seq.* The WSA Law, sometimes referred to as "SB 610," outlines the information and analysis that must be included in a CEQA document prepared for certain projects of a specified size and composed of certain land-uses (e.g., subdivisions larger than 500 residential units).[1] For such covered projects, the WSA Law requires an assessment of whether projected water supplies identified to serve a proposed project will be sufficient to meet existing and planned water demands over a 20-year horizon. The WSA Law expressly anticipates events like the most recent drought by requiring assessment of water supply sufficiency in single dry years and multiple dry years – not just under normal, or average, hydrologic conditions.

The Proposed Project requires a WSA because it consists of a Specific Plan residential community development with more than 500 dwelling units. The WSA will be incorporated into the CEQA documents — an Environmental Impact Report (EIR) — being prepared for the Proposed Project (the Project EIR).[2]

1.2 DOCUMENT PREPARATION AND APPROVAL

The WSA law requires that the lead agency – in this case, the City of Gonzales – identify a "public water system"[3] and further requires the lead agency to request that each identified public

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[1] Water Code § 10912(a).
[2] Water Code § 10911(b).
[3] A "public water system" is a system that provides water for human consumption that has at least 3,000 service connections.

water system prepare a WSA for the project. The City operates a public water system that serves customers within its current City limits; it is anticipated that the City would expand its water distribution system to also serve the Proposed Project.

The City will be required to determine, based on the entire record, whether projected water supplies will be sufficient to satisfy the demands for the Proposed Project, in addition to existing and planned future uses.

This WSA provides the necessary information for the City to make its determinations and to comply with the statutory assessment of water supply sufficiency as required by WSA Law. The governing body of the City is required to approve this WSA.

1.3 DOCUMENT ORGANIZATION

The WSA is organized according to the following sections:

- **Section 1: Proposed Project Introduction**. This section provides an overview of the WSA's purpose and organization, along with a detailed description of the Proposed Project, including the land use elements that will create water demand.
- **Section 2: Proposed Project Estimated Water Demands**. This section describes the methodology used to estimate water demands of the Proposed Project and details the estimated water demands from initiation through build-out.
- **Section 3: Estimated Water Demands for Existing City Customers and Other Planned Uses**. This section describes the methodology used to estimate water demands from the City of Gonzales' customers within its existing service area. Section 3 also includes analysis of other planned projects that are reasonably foreseeable within the selected planning horizon.
- **Section 4: Water Supply Characterization**. This section characterizes the water sources identified to serve the Proposed Project as well as existing City customers and other planned uses. Water sources are characterized for their projected availability during normal, single dry, and multiple dry year conditions.
- **Section 5**: **Sufficiency Conclusion**. This section assesses whether the projected availability of the identified water sources will be sufficient to meet the Proposed Project's water demands during normal, single dry, and multiple dry year conditions, pursuant to Water Code Section 10910. The analysis integrates the demand detailed in Section 2 and Section 3 with the characterization of the Proposed Project's water sources detailed in Section 4.

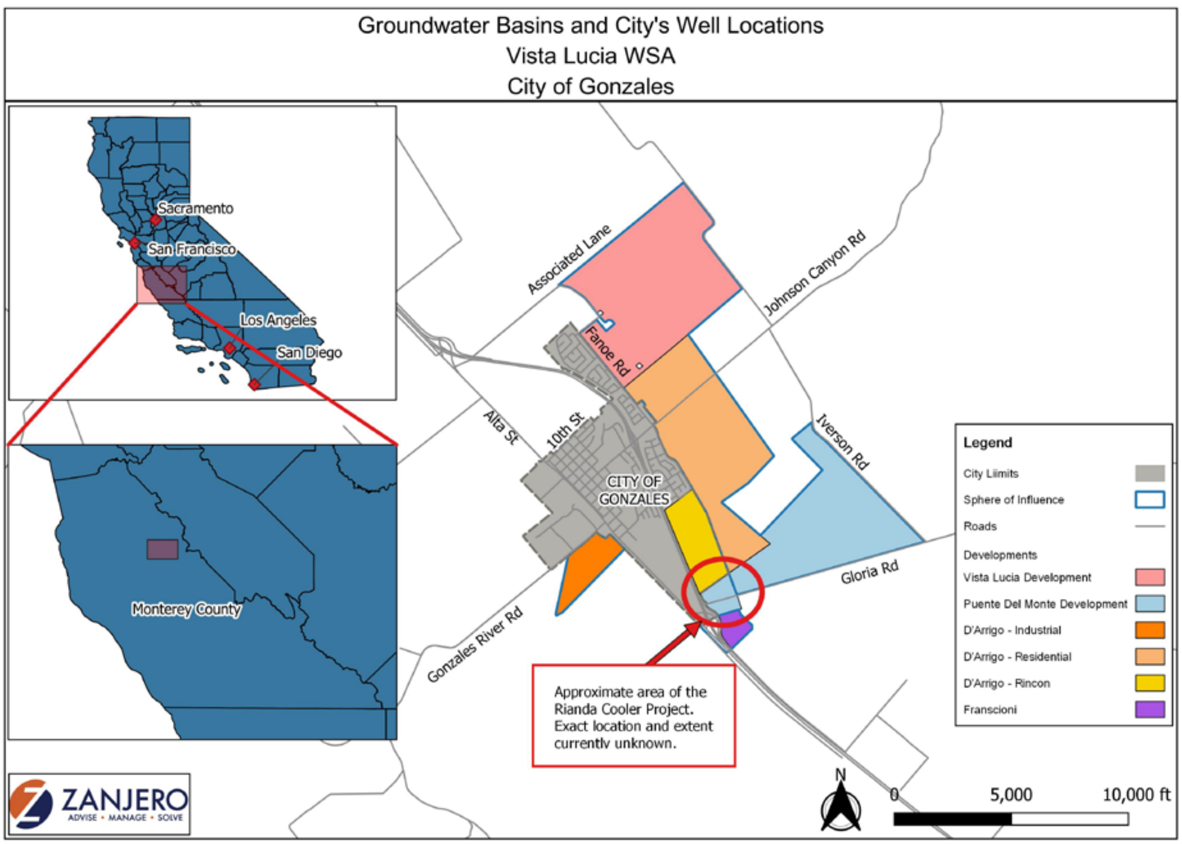
1.4 PROPOSED PROJECT DESCRIPTION

The Proposed Project consists of the Vista Lucia Specific Plan community. The Vista Lucia community site is situated on approximately 768 acres in the northeast area of Gonzales within the City's Sphere of Influence (SOI), east of Fanoe Road with the existing alignment of Associated Lane forming its northern boundary.

The Proposed Project includes several residential and non-residential land-use classifications including market rate housing, mixed use commercial and residential elements, public facilities such as schools, parks (including trails and plazas), and open space (including storm water retention and managed aquifer recharge percolation facilities). The Proposed Project represents the development of a portion of the City's SOI, which is identified by the City's General Plan for "*orderly development consistent with the approved Neighborhood Design Guidelines and Standards and Community Character policies*" of new neighborhoods guided by Specific Plans.[4]

Figure 1-1 displays a location map of the Proposed Project, as well as other planned developments which are expected to occur. These other planned developments include the Puente Del Monte Community, the Rianda Cooler, the Franscioni Development, and three projects by D'Arrigo, all of which are discussed in more detail in Section 3.

Figure 1-1: Proposed Project Location Map



[4] City of Gonzales General Plan, June 2018, p. II-18.

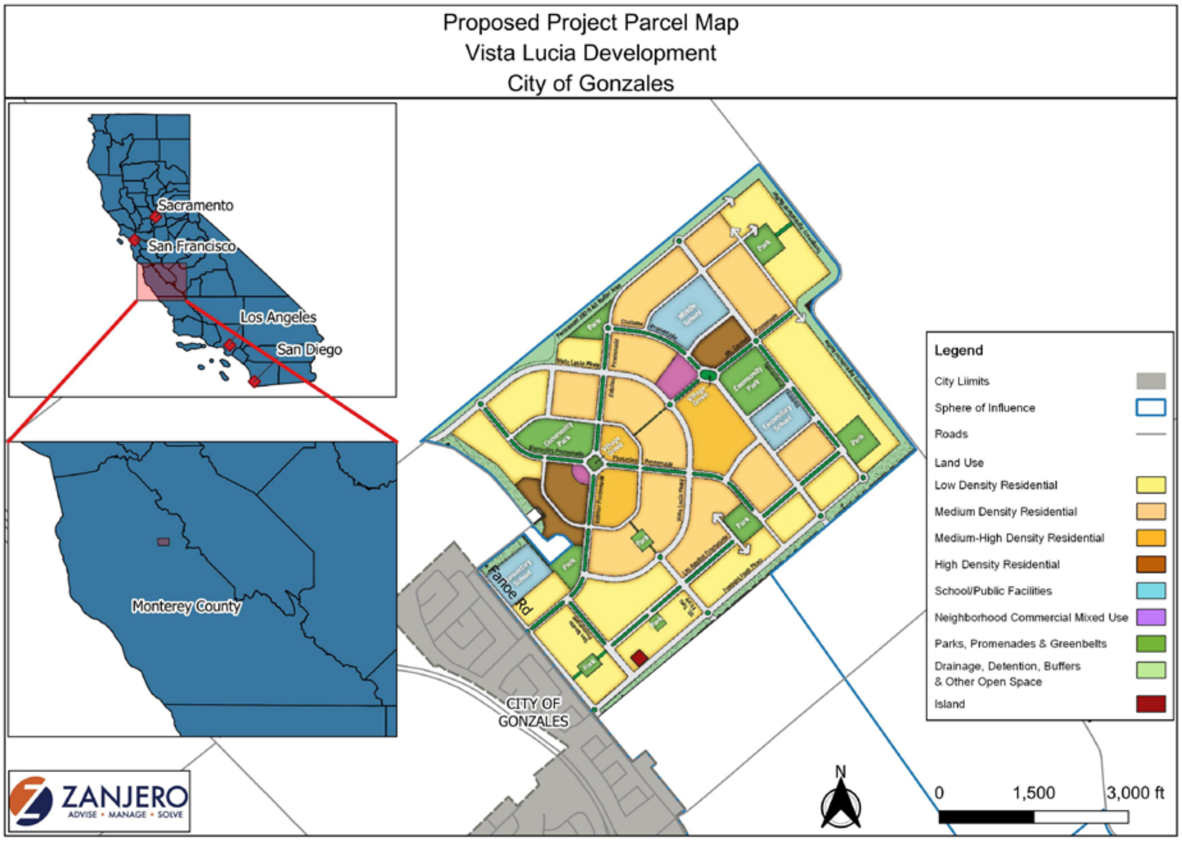
1.4.1 Project Summary

As described in more detail in the Vista Lucia Specific Plan,[5] the Proposed Project plans for 3,498 dwelling units, with 995 designated low density, 1,239 designated medium density, 540 designated as medium-high density, 620 designated as high density, and 104 designated as mixed use. The Proposed Project anticipates 57 acres of neighborhood and community parks, 20 acres designated as promenades, 2 acres designated as neighborhood greens,[6] 73 acres dedicated to stormwater detention, and 42 acres for schools.

Figure 1-2 provides the Proposed Project's land-use plan[7,8] while **Table 1-1** presents the detailed residential unit counts and non-residential acreage. This information becomes the foundational land use data used to derive the demand forecast presented in Section 2.

[5] Vista Lucia Specific Plan, February 2022 (Administrative Draft).
[6] Neighborhood Greens are small parks, which may include features such as a "bandstand, a clock tower, a monument, landscape art, passive gardens, park benches, a fountain, an interactive splash pad for children, a hardscape plaza, or other appropriate amenities." Vista Lucia Specific Plan, February 2022 (Administrative Draft).
[7] City of Gonzales General Plan, June 2018, p. II-18.
[8] Vista Lucia Specific Plan, February 2022 (Administrative Draft).

Figure 1-2: Proposed Project Land Use Map (Vista Lucia)



Land Use Source: Vista Lucia Specific Plan, February 2022 (Administrative Draft), Figure 2-1

Table 1-1: Summary of Proposed Project Land Uses and Acreages

Land Use by Type		Vista Lucia	
		Acres	DUs
Residential			
	Low	199	995
	Medium	177	1,239
	Medium-High	45	540
	High	31	620
	Mixed Use		104
	Subtotal	452	3,498
Non-Residential			
	Mixed Use Commercial	8	
	Neighborhood Parks	28	
	Community Parks	29	
	Promenade	20	
	Neighborhoods Greens	2	
	Elementary School	24	
	Middle School	18	
Other			
	Open Space and Storm Detention	73	
	Roads	114	

1.4.2 Proposed Project Phasing

For purposes of this WSA, the Proposed Project anticipates all land uses to be completed by 2050 to allow the analysis to fully evaluate the complete project. Actual project phasing may take longer. **Table 1-2** is obtained from the Vista Lucia Specific Plan, and presents the phasing assumed for Vista Lucia development.[9] Consistent with the City's projections, the Proposed Project is anticipated to be completed within 30 years.[10] The specifics and timing of the later phases will be determined by several external factors including market conditions. However, for purposes of this WSA, the Proposed Project is anticipated to reach build-out by 2050.

[9] Specific timing will be determined by market conditions but for the purposes of this WSA, all units are assumed to be completed within the planning horizon of 30 years.
[10] City of Gonzales, (2018). *Community Development*. https://gonzalesca.gov/services/community-development.

Table 1-2: Vista Lucia Phasing Plan

Category	2025	2030	2035	2040	2045	2050
Residential (Units)						
Low Density	129	358	607	886	995	995
Medium Density	161	446	756	1,103	1,239	1239
Medium-High Density	70	194	329	481	540	540
High Density	81	223	378	552	620	620
Mixed Use Residential	14	37	63	93	104	104
Non-Residential (Acres)						
Neighborhood Center Mixed Use	0	2	4	6	8	8
Elementary & Middle School	0	12	42	42	42	42
Neighborhood Parks	0	6	11	17	22	28
Community Parks	0	6	12	17	23	29
Promenade	0	4	8	12	16	20
Neighborhood Greens	0	0	1	1	2	2
Streetscape Landscaping	0	23	46	68	91	114
Other Miscellaneous Uses (Acres)						
Open Space (Stormwater Det.)	73	73	73	73	73	73

SECTION 2 – PROPOSED PROJECT ESTIMATED WATER DEMANDS

This section describes the methodology, provides the supporting evidence, and presents the estimated annual water demands for the Proposed Project. For the purpose of estimating annual water demand, the Proposed Project is planned to develop according to the phasing presented in **Table 1-2**.

This section is organized to first describe the basis for determining unique demand factors for the various land uses within the Proposed Project, then provides a detailed forecast of the water needs for the Proposed Project, followed by an overall demand summary that forms the foundation for the water supply sufficiency analysis included in Section 5.

2.1 DETERMINING UNIT WATER DEMAND FACTORS

As detailed in Section 1, the Proposed Project consists of the Vista Lucia Specific Plan community. The Proposed Project's two communities include up to 3,498 residential units and accompanying infrastructure and improvements such as streetscapes, mixed-use and commercial areas, public facilities including schools, and parks and open space. To understand the water needs of the Proposed Project, unique water demand factors are used that correspond with the anticipated residential lots and other Proposed Project attributes. This subsection presents the methodology for determining the unit water demand factors that become the basis of the Proposed Project water demand estimate.

This section presents the demand factors associated with the Proposed Project as two distinct groups of demand factors: (1) residential, and (2) non-residential. Values developed for each distinct group of demand factors are based on several sources of information, details of which are provided in the following subsections.

2.1.1 Current and Future Mandates Affecting Water Use

There are several factors that affect the development of unit water demand use, ranging from state-imposed and City landscape ordinances and other water-use mandates, to changes in the types of housing products being offered. These factors are incorporated into unit water demand factor determination and discussed in this section. Characteristics of the factors relevant to this WSA are described below.

Water Conservation Objectives

In 2009, Governor Arnold Schwarzenegger signed Senate Bill No. 7 (SBX7-7), which established a statewide goal of achieving a 20 percent reduction in urban per capita water use by

2020 for urban retail water suppliers.[11] Since the Proposed Project communities are yet to be built, this legislation only indirectly applies.

However, the efforts undertaken throughout the State by urban retail suppliers to comply with this statute, though not directly, would affect the Proposed Project's use of appliances, fixtures, landscapes and other water using features, through changes or additions to City ordinances and/or through a continuing "conservation ethic" developed in communities in and around the Proposed Project as a result of the most recent statewide drought conditions.

In response to the 2013 through 2015 multi-year drought conditions, Governor Brown issued Executive Order B-37-16 in May 2016 entitled "Making Water Conservation a California Way of Life." In May 2018, Governor Brown signed into law SB 606 and AB 1668, which imposed additional statutory requirements above and beyond the 20 percent by 2020 target reflected in the 2009 legislation. This is expected to result in continued efforts to increase water use efficiency and ultimately to reduce water demands of existing water users and continue to influence the expected demands of future water user. While yet to be codified in statute, the actions currently underway to establish new targets likely will further influence future water use for development projects such as the Proposed Project.

Indoor Infrastructure Requirements

Beginning in January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (hereafter the "CAL Green Code") requiring the installation of water-efficient indoor and outdoor infrastructure for all new projects after January 1, 2011. The CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations, and was revised in 2013 and in 2016 to address changes to the State's Model Water Efficient Landscape Ordinance ("MWELO") adopted during the drought.[12] Revisions to the CAL Green Code in 2019 modified sections to direct users to MWELO regulations contained in other regulatory sections.[13]

The CAL Green Code applies to the planning, design, operation, construction, use and occupancy of every newly constructed or remodeled building or structure. All new residential and non-residential customers must meet the water use requirements of the CAL Green Code as well as the outdoor requirements described by MWELO.

The CAL Green Code's indoor requirements generally manifest through: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building

[11] California Water Code § 10608.20.

[12] The 2016 Triennial Code Adoption Cycle consisted primarily of the MWELO updates adopted in response to the drought. Indoor infrastructure changes were limited to some minor non-residential fixture changes and changes to the voluntary Tier 1 and Tier 2 requirements. Additionally, the Code was updated to match the new Title 20 Appliance Efficiency Regulations.

[13] The 2019 updated sections to direct CAL Green code users to Title 23 of the California Code of Regulations to allow Title 23 to be the sole location of MWELO requirements.

"water use baseline."[14] The Proposed Project will satisfy these indoor requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, or other fixtures, as well as Energy Star and California Energy Commission-approved appliances. Outdoor requirements are discussed in the following subsection.

California Model Water Efficient Landscape Ordinance and County Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, requiring the Department of Water Resources ("DWR") to update the Model Water Efficient Landscape Ordinance.[15] In 2009, the Office of Administrative Law (OAL) approved the updated MWELO, which required a retail water supplier or a county to adopt the provisions of the MWELO by January 1, 2010, or to enact its own provisions equal to or more restrictive than the MWELO provisions.[16,]

In response to the Governor's executive order dated April 1, 2015, (EO B-29-15), DWR updated the MWELO and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELO on July 15, 2015, effective after December 1, 2015. [17,18]

The changes included a reduction to 55 percent for the maximum amount of water that may be applied to a landscape for residential projects, which effectively reduces the landscape area that can be planted with high water use plants, such a turf. For residential projects, the coverage of high water use plants is reduced to 25% of the landscaped area (down from 33%). The newly updated MWELO also now applies to new construction with a landscape area greater than 500 square feet (the prior MWELO applies to landscapes greater than 2,500 square feet).[19]

The City of Gonzales adopted a water efficiency landscaping ordinance in July 2015 to comply with the then-current MWELO standards. However, this landscaping ordinance is now obsolete.

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[14] See CAL Green Code. For Residential construction, Section 4.303.1 provides the residential water conservation standard and Table 4.303.2 identifies the infrastructure requirements to meet this standard. Table 4.303.1 and Worksheets WS-1 and WS-2 are to be used in calculating the baseline and the reduced water use if Option 2 is selected. For non-residential construction, Section 5.303.2.3 provides the water conservation standard as well as the baseline and reduced flow rate infrastructure standards. Note that Worksheets WS-1 and WS-2 incorporate both residential and non-residential fixtures, yet the water use is still to be analyzed by "building or structure" as specified in Chapter 1, Section 101.3.

[15]Gov. Code §§ 65591-65599.

[16] California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 492.4. The MWELO provides the local agency discretion to calculate the landscape water budget assuming a portion of landscape demand is met by precipitation, which would further reduce the outdoor water budget. For purposes of a conservative analysis, precipitation is not assumed to satisfy a portion of the outdoor landscape requirement because the determination of an appropriate effective precipitation factor is highly uncertain given the various landscape slopes, terrain composition, concurrent watering schedules, etc.

[17] The County landscape ordinance will be updated to be at least as stringent as the updated MWELO, or else the MWELO will be applied as the default landscape ordinance.

[18] These updated changes have been incorporated into California Code of Regulations (CCR), Tit. 23, Div. 2, Ch. 27, Sec. 490-495.

[19] CCR Tit. 23, Div. 2, Ch. 27, Sec. 490.1.

With the revised MWELO in 2015, the City has yet to update its ordinance and is not listed as in compliance with the state as of the drafting of this WSA.[20]

However, the Proposed Project includes water conservation features that even extend beyond the updated MWELO. Therefore, this WSA calculates demands that are fully in compliance with, and in fact go beyond, the revised MWELO and likely any future updated City requirements.

The MWELO provides a methodology to calculate total water use based upon a given plant factor and irrigation efficiency. Finally, the MWELO requires the landscape design plan to delineate hydrozones (based upon plant factors) and then to assign a unique water use value for each hydrozone (low, medium, high).[21]

Metering, Volumetric Pricing, and Water Budgets

California Water Code Section 525 requires water purveyors to install meters on all new service connections after January 1, 1992. California Water Code section 527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed. Though the City would be billing customers on a volumetric basis, this action alone is not expected to substantially reduce water use. However, it is anticipated that the retail billing system would encourage and help maintain reasonable use (e.g., through implementation of a tiered rate structure and/or water budgets), so that the Proposed Project's water demands at build-out are not expected to increase as the Proposed Project ages.

Project Specific Landscape Requirements

The Proposed Project includes a number of requirements for landscape efficiency beyond what is found in MWELO. Extensive landscaping guidelines have been prepared for the Vista Lucia community. Among the Vista Lucia restrictions is a limit on residential turf to 25 percent of the landscape area for each residential lot classification.[22] Other restrictions include a vast majority of identified plant-types defined by the MWELO's guidance documents as having "Low" or "Very Low" water use.[23] Using defined methods, guidelines for landscaping for many portions of the Proposed Project have been defined and water budgets have been prepared. This information is presented later in this section.

The strict landscaping guidelines result in estimates of outdoor water use lower than the maximum allowed under the current MWELO. This changes the character of typical residential development, replacing turf with ornamental shrubs, groundcovers, and trees as well as a reliance on numerous native or adaptive species for landscaping.

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[20] Agencies in compliance are listed here: https://data.cnra.ca.gov/dataset/2019-mwelo-reports/resource/e8a5945a-fe2b-4ac1-ba46-ee12da278626

[21] CCR Tit. 23, Div. 2, Ch. 27, Secs. 492.3(a)(2)(A) and 492.7(a)(2).

[22] Vista Lucia Specific Plan, Appendix B

[23] The MWELO water use methods refer to plant water use factors as defined by the University of California's Water Use Classifications of Landscape Species (WUCOLS). Reference is available here: http://ucanr.edu/sites/WUCOLS/

2.2 VISTA LUCIA WATER USE DEMAND FACTORS

The Vista Lucia Specific Plan (VLSP) community will be developed on 768 acres in the northeast area of Gonzales within the City's Sphere of Influence in Monterey County. The remainder of this subsection described the methodology used to calculate the indoor and outdoor residential and non-residential water demand associated with the VLSP portion of the Proposed Project.

2.2.1 Residential Water Use Demand Factors

The Proposed Project anticipates five general residential land use designations. The size of the lot generally has the greatest impact on the annual per-lot demand for water as the irrigation needs for landscaping generally increase with larger landscaped areas. However, as discussed previously, the VLSP includes defined plant material selection and design that significantly reduces the outdoor component of the forecast residential water demands compared to more conventional landscape designs, thus limiting, but not eliminating, this traditional lot-size effect. In contrast, indoor water demands remain relatively consistent regardless of lot size, but do vary slightly based on the number of people per dwelling unit. Distinct demand factors are provided for the following residential uses:

- Indoor Residential Use – this category identifies the generally anticipated water use for the varied housing types.
- Outdoor Residential Use – this category addresses the landscape water demands for the various planned lot sizes.

For purposes of this WSA, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or acre-feet/dwelling unit ("af/du"). Both indoor and outdoor residential water demands will be met with potable water supplied by the City.

2.2.1.1 Indoor Residential Water Use Factors

The VLSP residential elements would be built in accordance with all applicable building codes including the Cal Green Code discussed previously, as it may be further modified prior to Proposed Project implementation.

The VLSP indoor demands are estimated using an assumed value of 55 gallons-per person per day, multiplied by the assumed occupancy rates for conventional and high-density residential classifications. For purposes of this WSA, conventional housing assumes an average occupancy rate of 4.4 people per house, while the high-density and mixed-use classifications assumes 3.4 persons per house.[24]

[24] City of Gonzles 2015 Housing Element indicates an average occupancy of 4.4 people per household for conventional housing (low – medium-high densities). 3.4 persons per household is assumed for high density and mixed-use housing.

The assumed per-person rate of 55 gallons per day is derived from California Water Code Section 10609.4(a), which states a value of 55 gallons per capita (i.e., per person) per day ("gpcd") be the standard for indoor residential water use for purposes of an urban water suppliers determination of their water use objective.[25] When multiplied, the per-person use results in a per-dwelling unit demand of 0.27 acre-feet per year for conventional housing and 0.21 for high-density and mixed-use housing.

The 55 gpcd indoor use value has been confirmed through analyses of residential water meter data and is reflective of new suburban single-family dwelling units and older homes retrofitted with new water efficient fixtures and appliances.[26]

2.2.1.2 Outdoor Residential Water Use Factors

Outdoor water use is primarily a factor of lot size and the type and extent of landscaped area. The VLSP community includes up to 3,498 residential lots with five average lot sizes. Outdoor demands for the mixed-use residential classification are attributed to the mixed-use commercial portion of the development, described in section 2.2.2.5.

Outdoor demands for the Proposed Project are calculated based on a number of factors including the regulations and calculation methodologies contained in MWELO. The MWELO provides for determining the Maximum Applied Water Allowance ("MAWA") where the maximum is determined as 55 percent of the reference evapotranspiration for the area, resulting in the following equation:[27]

> *MAWA = (ETo) (0.62) (0.55 x LA), where ETo is the reference evapotranspiration in inches per year; LA is the landscape area in square feet; and 0.62 is a conversion factor from inches to gallons. The resulting value is in "gallons per year"*

A primary factor in this calculation is evapotranspiration ("ET"). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For the Proposed Project, the average ETo is 52.50 inches per year (or over 4.4 feet per year).[28] Besides the ETo value, the primary factor driving outdoor water use on a per-lot basis is the square footage of landscape area.

[25] California Water Code Section 10609.4 also decreases the indoor residential standard to 52.5 gpcd after January 1, 2025, then to 50 gpcd after January 1, 2030, unless otherwise revised by the State Water Resources Control Board. As of May 2022, California Senate Bill 1157 is proposing the 2030 value to be further lowered to 42 gpcd.

[26] With the increasingly stringent requirements of building codes as well as water and energy efficiency codes, it is likely that the actual indoor demand may be below the forecast values. Executive Order B-37-16, among other orders, directed state agencies to develop new urban water use targets including a standard for indoor residential per-capita water use. These new targets are to "build upon the existing state law" that requires a 20% reduction in urban water use by 2020 – which already includes the suggested 55 gallons-per-person per day planning guidance.

[27] This formula reflects the latest revision to the MAWA that became mandatory as of December 1, 2015.

[28] ETo is consistent with California Irrigation Management Information System data available for the region. ETo was recorded at the Soledad II station.

The VLSP relies on landscaping restrictions that go beyond the efficiency standards set by the MAWA equation above. Specifically, the VLSP restricts turf to 25 percent of the landscaped area, and restricts plant choices to a majority of low and very-low water use species. More information about these restrictions is discussed in Section 2.1.1 above.

The calculations for water use are based on specific restrictions and the water efficient character as presented in the VLSP.[29] This WSA utilizes individual calculations for each parcel type based on typical landscape areas, plant types, and average plant water use factors defined in the VLSP. The Estimated Total Water Use (ETWU) of the residential parcels was calculated using the following formula:

> *ETWU = (ETo - P_{eff}) (0.62) (PF/IE) (LA) (325,851), where: ETo is the reference evapotranspiration in inches per year; P_{eff} is effective precipitation in inches per year; 0.62 is a conversion factor from inches to gallons; PF is Plant Factor as a fraction of ETo; IE is irrigation efficiency as a fraction of water applied; LA is the landscape area in square feet; and 325,851 is a conversion factor from gallons to acre-feet. The resulting value is in "acre-feet per dwelling unit per year"*

The following assumptions form the basis of the residential landscape unit demand factors:

- Reference Evapotranspiration (ETo) is 52.50 inches per year – based on CIMIS data (see above)
- Effective Precipitation (P_{eff}) is 0 inches per year – an extremely conservative assumption that implies all plants' water needs will be met with irrigation water
- Plant Factors (PF) – based upon the plant palette described in Appendix B of the VLSP, the following factors are assumed:
    - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine, Zoysia, and Buffalo grass, may have factors less than 0.6.)
    - Shrubs and Trees = 0.3
- Irrigation Efficiency (IE) is 1.0, which assumes that all applied irrigation water is available to the root zone of plants[30]
- Landscape Area (LA) for the various residential lot types was supplied by the Proposed Project's landscape architect, as described below.

[29] Vista Lucia Specific Plan, Appendix B

[30] A sensitivity analysis was performed during this WSA's calculation of outdoor water use, to determine the effect of using various assumptions for irrigation efficiency (IE) and Effective Precipitation (P_{eff}). The sensitivity analysis assumed IE of 75%, 81%, and 90% for turf, shrubs, and trees respectively; P_{eff} was set to 50% of Gonzales' annual rainfall of 15 inches per year. Modifying these terms in the ETWU equation led to an increase of approximately 6% in the Proposed Project's residential outdoor water demands, or approximately 10 acre-feet/year. The effect of modifying IE and P_{eff} assumptions was determined to be insignificant. For simplicity, IE was set to 1.0 and P_{eff} set to 0 inches as described above.

- Because much of the landscape area will be trees and shrubs, the landscape area is reduced by 3 percent to reflect the "open/non-irrigated" space between plants. This area does not receive irrigation when using drip irrigation systems, which will be used for irrigating the trees and shrubs. This small deduction is reflected in the demand calculations for each residential lot category.

Using the plant factors and the MAWA equation, demand factors for each residential lot category are presented here:

- **Low Density –** The proposed 995 single family dwellings will be built on lots with an average net size of 5,250 sf.[31] For purposes of this WSA, an average of 2,450 sf of each lot is assumed to be landscaped,[32] with 25 percent of this area turf (maximum allowed in the VLSP guidelines), and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand factor is forecast to be 0.09 acre-feet per dwelling unit. [33]

- **Medium Density –** The proposed 1,239 attached and detached single-family dwelling units in this classification will be constructed on lots with an average net size of 3,530 sf.[34] Other configurations within this classification, as described in the VLSP, may include single and multifamily attached and detached units ranging in density between 6 and 9 du/acre, with a target density of 7 du/acre. For purposes of this WSA, an average of 1,230 sf of the lot is assumed to be landscaped,[35] with 25 percent of this area turf, and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand factor is forecast to be 0.05 acre-feet per dwelling unit.[36]

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[31] Based on personal correspondence with VLSP landscape architect regarding irrigable area on residential lots. Assumes roads will take up about 20% of the gross lot.
[32] Assumes each Low Density lot is 5,250 SF and contains a 2,200 SF home with 600 SF hardscape for driveway and yard.
[33] Calculated using ETWU equation.
[34] Based on personal correspondence with VLSP landscape architect. Assumes roads will take up about 25% of the gross lot.
[35] Assumes net lot of 3,530 SF and 1,800 SF home with 500 SF hardscape for driveway and yard.
[36] Calculated using the ETWU equation.

- **Medium-High Density –** The proposed 540 multifamily and single-family attached and detached dwelling units in this category will be built on 45 acres with most landscaping configured in common areas rather than individual lots. Most units will consist of townhome and/or auto-court type residences, without conventional driveways, instead being served by drive aisles, guest parking spaces, and tuck-under parking at homes. For purposes of this WSA, it is assumed that 25 percent of the gross area would be taken up in drive aisles, guest/resident parking, entry roads, etc. An additional 25 percent of the gross area will consist of outdoor amenities; 75 percent of the outdoor amenities would be sort of planting/landscaping (and the other 25 percent in hardscape, walkways, plazas, patios, decks, etc.).[37] The total of approximately 367,538 sf will be landscaped in this residential category, including 25 percent turf and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand is calculated to be 13.44 acre-feet per year for the 45 acres of Medium-High Density Residential use.[38] Divided by the 540 dwelling units in this category, the outdoor demand factor is forecast to be 0.02 acre-feet per dwelling unit.

- **High Density –** The proposed 620 units will include a variety of attached multi-family dwellings including 2 or 3 story walkup apartment buildings, with assigned parking/guest spaces and drive aisles. This dwelling unit type is typically associated with community controlled outdoor spaces so the average outdoor demands are quite low per unit. It is assumed that 15 percent of each gross parcel in this category will be landscaped common area, with the remainder consisting of building footprint, street, and other hardscape. With 31 acres planned in the high-density residential category, it can be expected that a total of 202,500 sf of landscaped area will be associated with this housing type, with 25 percent of this area turf, and the remainder mostly drought-tolerant and native or adaptive shrubs and trees. The resulting outdoor demand is forecast to be 7.40 acre-feet for the entire high-density potion of Vista Lucia. When divided by the 620 dwelling units, the outdoor demand factor is 0.01 acre-feet per dwelling unit.[39]

- **Mixed Use Residential. –** The proposed 104 units typically exist above commercial space. Outdoor demands are minimal if present but are assigned to the commercial portion of the Proposed Project. For purposes of this WSA, this classification assumes zero outdoor water demand.

2.2.1.3 Summary of Residential Water Use Demand Factors

Table 2-1 provides a summary of the residential unit water demand factor used to estimate the total Proposed Project water use.

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[37] Based on personal correspondence with VLSP landscape architect. Assumes roads will take up about 25% of the gross lot.
[38] Calculated using the ETWU equation.
[39] Calculated using the ETWU equation.

Table 2-1: Summary of Residential Demand Factors for VLSP

Water Demand Category by Dwelling Unit (du) Type	Average Density (du/ac)	Indoor Factor	Outdoor Factor	Total Demand Factor (af/du)
Low Density	5.0	0.27	0.09	0.36
Medium Density	7.0	0.27	0.05	0.32
Medium-High Density	12.0	0.27	0.02	0.30
High Density	20.0	0.21	0.01	0.22
Mixed Use	13.0	0.21	0.00	0.21

Using the factors presented above, **Table 2-2** provides a summary of the residential water demands for the Proposed Project.

Table 2-2: Summary of Residential Water Demand for VLSP

Water Demand Category by Dwelling Unit (du) Type	Acres	Dwelling Units	Indoor Factor (acre-feet per DU)	Indoor Use (acre-feet per year)	Outdoor Factor (acre-feet per DU)	Outdoor Use (acre-feet per acre)	Total Demand (acre-feet per year)
Low Density	199	995	0.27	269	0.09	89	358
Medium Density	177	1,239	0.27	335	0.05	56	390
Medium-High Density	45	540	0.27	146	0.02	13	159
High Density	31	620	0.21	130	0.01	7	138
Mixed Use	-	104	0.21	22	0.00	0	22
Residential Subtotal		3,498		901		166	1,067

2.2.2 Non-Residential Water Use Demand Factors

The Proposed Project has several non-residential features ranging from a mixed-use neighborhood center, three schools, landscaped promenades, community gardens, and storm detention facilities. Many of these proposed land-uses are unique, requiring specific demand forecasts for each component.

For purposes of this WSA, the demand for non-residential classifications is described as either "the acre-feet of water use annually per acre of land," acre-feet/acre (af/ac), or as a single demand projection for a demand category such as the indoor uses for the elementary and middle schools, acre-feet/unit (af/unit). These values reflect indoor or outdoor water needs expected for typical non-residential use for each of the following classifications:

- Neighborhood Center Indoor
- Elementary and Middle School Indoor
- Elementary and Middle School Outdoor

- Park Restroom Facilities
- Non-residential Outdoor
    - Neighborhood Parks
    - Community Parks
    - Promenades
    - Streetscape Landscaping
    - Neighborhood Greens
    - Stormwater Detention
- Other miscellaneous uses, including temporary irrigation to establish open space landscaping, and temporary construction water.

The method and basis for determining the unit water demand factor for each of these classifications is detailed in the following subsections.

2.2.2.1 Neighborhood Center Indoor

The proposed Neighborhood Center Mixed-Use area is anticipated to include up to 120,000 square feet (sf.) of commercial space on approximately 8 acres. Up to 104 residential units will also be located within this mixed-use zone. Mixed-Use residential units may be either horizontally mixed (uses in separate buildings) or vertically mixed (uses in the same building, stacked). Associated residential demands were discussed in the prior subsection.

Water uses will primarily include retail, service, professional, and offices meant to serve the daily convenience needs of Vista Lucia's residents. The non-residential unit water demands for the remaining land uses are highly dependent on the actual businesses and activities on each parcel. However, prior investigations for a variety of commercial, office and retail configurations – ranging from large regional warehouses, such as Home Depot, to small strip malls with multiple tenants, generally indicate the unit water demand per acre of land use averages to be nearly equivalent. This is in part due to regional facilities often having large parking areas with limited landscape, and smaller areas having a mix of uses from restaurants, with high use, to retail stores, with low use. Based upon meter studies conducted on existing neighborhood commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.[40]

2.2.2.2 Elementary and Middle School Indoor

The VLSP includes two 12-acre elementary schools, totaling 24 acres, and one 18-acre middle school. Based upon meter studies for existing elementary schools, total school use – indoor and outdoor – ranges from 20 to 30 gallons per day per student. Depending on the schools'

[40] Zanjero, Inc. has performed several meter studies in California's Central Valley. Specific small and large mixed-use commercial developments were analyzed and found to range from 0.78 af/ac/yr to 1.22 af/ac/yr for the total indoor and outdoor area (hard space such as parking and sidewalks). The majority of this use is from indoor needs, which do not significantly vary regionally between the Central Valley and the Salinas Valley.

landscape design and operation, 60 to 70 percent of this demand is used to meet outdoor needs.[41] Therefore, for purposes of this WSA, indoor demands are based upon an assumed use of 10 gallons per day per student. The total number of students per dwelling unit is estimated to be 0.4331 students/DU for elementary school (grades K-6) and 0.1137 students/DU for middle school (grades 7-8).[42] With a total of up to 3,498 dwelling units in Vista Lucia, the estimated elementary school student body (for both elementary schools) is 1,550 and the estimated middle school student body is 398. These unit demand factors would reflect all administrative, teacher, student, cafeteria, and janitorial uses for the school, averaged on a per-student basis. The resulting forecast for indoor demand for both of the two proposed elementary schools is 17.3 acre-feet/year, rounded up to 18 acre-feet/year for purposes of this WSA. The forecasted indoor demand for the proposed middle school is 4.5 acre-feet/year, rounded up to 5 acre-feet per year for purposes of this WSA. Total indoor use for three all VLSP schools combined totals 23 acre-feet per year.

2.2.2.3 Elementary and Middle School Outdoor

The VLSP's three proposed schools will total approximately 42 acres, including the two elementary schools and one middle school. Quantifying outdoor water demands for schools depends on many factors including campus landscaping, size and type of play fields, student population, and other factors. For each school, it is assumed that school sites will follow traditional school designs, with play fields occupying approximately 12.5 percent of the total site area and the remaining campus landscaping being trees and shrubs with lower water demands. This equates to 65,000 sf of turf (1.5 acres) for each of the two elementary schools and 97,500 sf of turf (2.25 acres) for the middle school. Turf areas are expected to require 2.6 acre-feet per acre. The remaining low water use landscaping is estimated to cover approximately 16.6 percent of each total site area, which equates to 2 acres for each elementary school and 3 acres for the middle school. This non-turf landscaping outdoor demand is estimated to be 1.31 acre-feet per year per low water use landscaped acre, which is less that the 45% of ETo required by the MWELO formula for non-residential uses. Total outdoor water use at all three Vista Lucia Community proposed schools is 22.8 acre-feet per year, rounded to 23 acre-feet.

2.2.2.4 Neighborhood and Community Park Restroom Facilities

The Vista Lucia community will include a total of 57 acres of parks, including community and neighborhood parks. There will likely be one restroom in each of the two large Community Parks, and possibly a restroom in two or three of the neighborhood parks, for a total of up to five park restrooms across the entire community. For purposes of this WSA, each park restroom facility is assumed to demand 1 acre-foot annually – equivalent to the indoor use of 4 single family homes. This is a conservatively high estimate. With five restrooms, a total of 5 acre-feet a year is estimated to be demanded for park restroom use.

[41] This is an estimate of indoor use per acre derived from a 2015 study of school demand in Folsom, California. A 2016 review of school demands in El Dorado Hills, California confirmed these numbers for newer schools.
[42] Based upon values from the Gonzales Unified School District Facilities Management Plan.

2.2.2.5 Other Non-Residential Outdoor (Landscaped Areas)

The Proposed Project includes several distinct outdoor landscaping areas including traditional parks and promenades as well as community areas and ornamental landscaping in the Neighborhood Center. For purposes of estimating water demand, assumptions have been made regarding the percentage of each acre that is irrigated, the percentage of irrigated area that is turf versus shrubs and groundcover, and the number of trees. Appendix B of the VLSP provides significant details on the Proposed Project's landscaping direction and plant selection.

The Proposed Project includes 28 acres of Neighborhood Parks, 29 acres of Community Parks, 20 acres of Promenades, and 2 acres of community greens. Other features include streetscape landscaping along the 114 acres of roads. The primary assumptions used to estimate the outdoor demand for these features include:

- The assumed reference evapotranspiration (ETo) – as discussed previously, an ETo of 52.5 inches per year is assumed.
- Plant Factors (PF) – based upon the plant palette described in Appendix B.10 of the VLSP, the following factors are assumed:
    - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine and Buffalo grass, may have factors < 0.6)
    - Shrubs and Trees = 0.3
- The estimated square footage of each type of planting within each land-use category (LA)

These assumptions are combined in the following formula:

> *Demand = (ETo) (0.62) (PF x LA)/IE, where ETo is the reference evapotranspiration in inches per year, PF is the plant factor, LA is the landscape area, and IE is the irrigation efficiency for each planting type by land classification. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year," which is converted to acre-feet per year*

Table 2-3 presents the assumed percentages of irrigated land per each planting designation.

Table 2-3: Summary of Non-Residential Landscape Demand Factors for VLSP

Public Use Element	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	% of Total Irrigated Area in Turf	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Neighborhood Center Mixed Use	8	10%	0.8	0%	1.0	0.13
Schools (Elementary and Middle)	42	29%	12.2	43%	22.8	0.54
Neighborhood Parks	28	75%	21.0	25%	34.3	1.22
Community Parks	29	75%	21.8	45%	41.2	1.42
Promenade	20	60%	12.0	0%	15.7	0.78
Neighborhood Greens	2	40%	0.8	25%	1.3	0.65
Streetscape Landscaping	114	10%	11.4	0%	14.9	0.13

2.2.2.6 Summary of Non-Residential Water Use Demand Factors

Table 2-4 provides a summary of the non-residential unit water demand factor used to estimate the total Proposed Project water use.

Table 2-4: Summary of Non-Residential Demand for VLSP

Water Demand Category	Acres	Indoor Use (AF/yr)	Outdoor Use (AF/acre)	Total Demand (AF/yr)
Neighborhood Center Mixed Use	8	8	0.13	9
Schools	42	23	0.54	46
Neighborhood Parks	28	5	1.22	39
Community Parks	29	-	1.42	41
Promenades	20	-	0.78	16
Street Landscaping	114	-	0.13	15
Neighborhood Greens	2	-	0.65	1
Stormwater Detention*	73	-	1.31	96

*Stormwater detention water demand occurs during establishment only.

2.2.3 Other Miscellaneous Uses

The Proposed Project has two primary additional miscellaneous land uses with water demands, albeit only temporary demands. These uses have minimal impacts to the overall forecast water use due to their limited duration.

Construction Water

As stated in Section 1, the Proposed Project would include site grading and infrastructure installation during early phases of construction that will require dust suppression and other incidental water uses. These would not continue beyond the construction phases of the Proposed Project. For purposes of identifying incremental water demands, construction water is conservatively assumed for purposes of this WSA to be 8 acre-feet per year (this is about 2,400,000 gallons – or about 600 fill-ups of a 4,000-gallon water truck per year).

Stormwater Detention, Drainage, Agricultural Buffers, and Other Open Space

As stated in Section 1, the Proposed Project would include 73 acres of open space surrounding the community and buffering it from the surrounding agricultural uses. It is anticipated that this open space will also contain percolation ponds and swales to capture and percolate storm water runoff. These areas are intended to be seeded with native or drought-tolerant water use plants and will require irrigation during establishment only. The 73 acres of this type of open space is expected to annually require 1.31 acre-feet per acre (95.3 acre-feet total) during the first 2-3 years of establishment.

2.2.4 Non-Revenue Water Demands

The demand factors presented earlier in this section represent the demand for water at the residential customer meter for each category. To fully represent the Proposed Project's demand on water resources, non-revenue water also needs to be included. Non-revenue water represents all of the water necessary to deliver to the customer accounts and reflects distribution system leaks, water demands from potentially un-metered uses such as fire protection, hydrant flushing, and unauthorized connections, and inescapable inaccuracies in meter readings.[43] In most instances, the predominant source of non-revenue water is from system leaks – the loss from fittings and connections from water sources through treatment plants, tanks, pumping plants, major delivery system back-bone pipelines, and community distribution systems. Because the delivery system distributing water within the Vista Lucia will be new, the percentage of non-revenue water is estimated to meet the 10 percent goal set forth by the American Water Works Association. Therefore, the Proposed Project's water delivery system is expected to require about an additional 138 acre-feet per year at build-out to serve the Proposed Project's needs. These values are included as the "loss factor" in **Table 2-5** and are considered to return to the groundwater system through percolation.

2.2.5 Summary of Vista Lucia Specific Plan Water Demand Forecast

Combining Vista Lucia's land use details and phasing with the demand factors presented in **Table 2-1**, **Table 2-2**, and **Table 2-3**, the water demands for Vista Lucia from implementation to build-out can be estimated. Upon completion of the Vista Lucia Specific Plan community, the demands are conservatively estimated at 1,234 acre-feet of water annually, excluding considerations of non-revenue water (see below), and up to approximately 1,371 acre-feet of water annually when considering of non-revenue water (see **Table 2-5**).

[43] The American Water Works Association and the California Urban Water Conservation Council recognize the inherent non-revenue water that is either lost or not accounted for in urban treated water distribution systems, and suggest purveyors strive for conveyance losses equal to 10% of all water delivered to customers. Obtaining this value depends on numerous factors including the age and extent of distribution system infrastructure, meter rehabilitation programs, and how a purveyor tracks fire flows and hydrant flushing.

Table 2-5: Vista Lucia Forecast Water Demands*

Category	2025	2030	2035	2040	2045	2050	Demand Factor (af/du or af/ac)	2025	2030	2035	2040	2045	2050
Residential (Dwelling Units)													
Low Density	129	358	607	886	995	995	0.27	35	97	164	239	269	269
Medium Density	161	446	756	1,103	1,239	1239	0.27	43	120	204	298	335	335
Medium-High Density	70	194	329	481	540	540	0.27	19	52	89	130	146	146
High Density	81	223	378	552	620	620	0.21	17	47	79	116	130	130
Mixed Use Residential	14	37	63	93	104	104	0.21	3	8	13	19	22	22
							Indoor Subtotal	117	324	550	802	901	901
Low Density	129	358	607	886	995	995	0.09	12	32	54	79	89	89
Medium Density	161	446	756	1103	1239	1239	0.05	7	20	34	50	56	56
Medium-High Density	70	194	329	481	540	540	0.02	2	5	8	12	13	13
High Density	81	223	378	552	620	620	0.01	1	3	5	7	7	7
Mixed Use Residential	14	37	63	93	104	104	0.00	0	0	0	0	0	0
							Outdoor Subtotal	22	60	101	147	166	166
Non-Residential (Acres)													
Neighborhood Center (Mixed Use)	0	2	4	6	8	8	1	0	2	4	6	8	8
Elementary & Middle School	0	12	42	42	42	42	N/A	0	9	23	23	23	23
Park Restrooms	0	1	2	3	4	5	N/A	0	1	2	3	4	5
							Indoor Subtotal	0	12	29	32	35	36
Neighborhood Center Mixed Use	0	2	4	6	8	8	0.13	0	0	1	1	1	1
Elementary & Middle School	0	12	42	42	42	42	0.54	0	6	23	23	23	23
Neighborhood Parks	0	6	11	17	22	28	1.22	0	7	14	21	27	34
Community Parks	0	6	12	17	23	29	1.42	0	8	16	25	33	41
Promenade	0	4	8	12	16	20	0.78	0	3	6	9	13	16
Neighborhood Greens	0	0	1	1	2	2	0.65	0	0	1	1	1	1
Streetscape Landscaping	0	23	46	68	91	114	0.13	0	3	6	9	12	15
							Outdoor Subtotal	0	28	66	88	110	131
Other Miscellaneous Uses													
Open Space (Stormwater Det.)	73	73	73	73	73	73	1.31 (estab.)	96	0	0	0	0	0
Construction Water							8	8	8	8	8	8	0
							Outdoor Subtotal	104	8	8	8	8	0
							Indoor Total	117	336	579	834	936	937
							Outdoor Total	125	96	175	243	283	297
							Total	242	432	754	1,077	1,219	1,234
							Non-revenue water at 10%	27	48	84	120	135	137
							Total Vista Lucia Demand	**269**	**480**	**838**	**1,197**	**1,355**	**1,371**

*Totals may not sum exactly due to rounding to the nearest whole acre-foot.

2.3 Proposed Project Water Demand Projection

As described in the previous subsections, the Proposed Project consists of the Vista Lucia Specific Plan Community. Including all anticipated residential and non-residential indoor and outdoor water demands plus miscellaneous and non-revenue water, the VLSP community is anticipated to generate 1,371 acre-feet of water demand at full build-out. This demand is summarized in **Table 2-6**.

Table 2-6: Summary of Proposed Project Water Use

Proposed Project		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Vista Lucia	Residential	901	166	-	1,234	137	1,371
	Non-Residential	36	131				

2.3.1 Water Demands during Single- and Multiple-Dry Year Conditions

To adequately assess the sufficiency of available water supplies – discussed in Section 5 – the Proposed Project's normal-year water demand is modified to reflect anticipated increases in demand during drier conditions. Conservative modifications to the Proposed Project's water demand to reflect conditions expected during dry conditions are as follows (see **Table 2-7**):

Single dry year: Landscape irrigation demands would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment factor of 5 percent is applied to the total normal-year water demand values to conservatively reflect the expected increase in demand for water.[44]

Multiple dry years: During multiple dry years, demands are also expected to increase during the first in a series of dry years – as discussed above for the single dry year condition. However, during the second, third or more consecutive dry years, demands also are expected to reflect water shortage contingency plans implemented by the retail water purveyor.[45] During the second year, the water purveyor is assumed to request a reduction target of 10 percent. To be conservative, this WSA assumes a resulting demand reduction of 5 percent to accommodate conservatively low participation by customers. Thus, the already higher expected demand increase of 5 percent during dry conditions is decreased by 5 percent to reflect conservation – resulting in the original normal condition demand forecast. During the third year, fourth, and fifth years of a multi-year drought, the purveyor is expected to set a conservation target of 20 percent. For this analysis, the demands in the third year are reduced by 15 percent. Thus, during multiple dry conditions, demands initially increase due to reduced effective precipitation, but then decrease due to short-term conservation measures, with a net effect of a 10 percent reduction from the forecasted normal condition.

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[44] Based on meter studies and work with DWR on "weather normalization" of per capita water use values, Zanjero has demonstrated that urban water use increases during low rainfall months. Based on conversations with urban water purveyors, DWR and landscape water professionals, it appears common for landscape irrigation timers to be turned on "early" when February and March are unusually dry.
[45] This WSA anticipates the retail purveyor serving the Proposed Project will apply a water shortage contingency plan to address drought conditions.

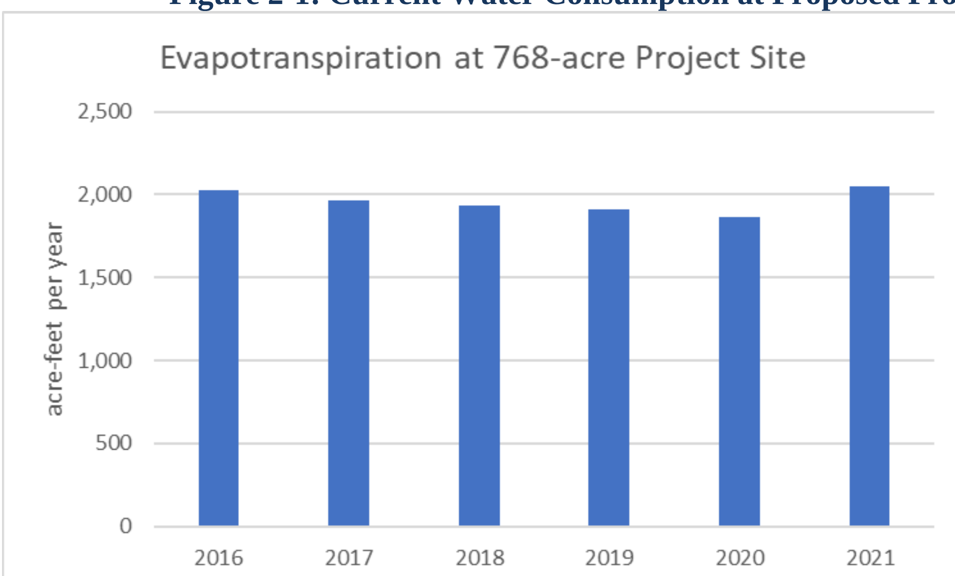
Table 2-7: Proposed Project Water Demands under Dry-Year Conditions

			Multiple Dry Year		
	Normal	Single Dry	Year 1	Year 2	Year 3-5
% Increase (reduction)	0%	5%	5%	0%	-10%
Resulting Change in Demand (af/yr)	0	69	69	0	-137
Total Demand (af/yr)	1,371	1,439	1,439	1,371	1,234

2.3.2 Implications of Land Use Change on Groundwater Demand

The Proposed Project will be constructed on a 768-acre site currently used for the farming of truck crops irrigated with groundwater. To lend context to the demands presented in this WSA, the current water consumption of the Proposed Project site was estimated using OpenET.[46] From 2016 – 2021, approximately 1,900 – 2,000 acre-feet a year of water has been consumed (evaporated) on the Proposed Project site, as shown in **Figure 2-1**. It is likely that a greater among of irrigation water was applied to the Project Site, with excess applied water percolating deeply and returning to the groundwater basin. This analysis focuses on the portion of applied water that is consumed through evaporation.

Figure 2-1: Current Water Consumption at Proposed Project Site



Source: Custom spatial summary by OpenET for years 2016-2021.

Some of the water consumption documented in **Figure 2-1** is met by precipitation, with the remaining water consumption representing the quantity of groundwater applied as irrigation. Gonzales averages 16 inches of precipitation annually; some of which runs off or infiltrates the ground and sinks below the root zone where it is no longer accessible to plants. This WSA estimates that 75 percent of the annual precipitation is effective (a conservatively high

[46] https://explore.etdata.org/

assumption), which across the 768-acre site equates to 768 acre-feet of water from effective precipitation. By subtracting this value from the total evaporation calculated in **Figure 2-1**, this WSA estimates that approximately 1,100-1,280 acre-feet of groundwater is consumed by the Proposed Project site's current agricultural use annually.

The Proposed Project is expected to generate 1,375 acre-feet per year of demand under normal conditions, with only 297 acre-feet per year of that demand used outdoors (and therefore most likely to evaporate rather than be captured by the City's wastewater collection system, see Sections 3, 4, and 5). This analysis demonstrates that the Proposed Project is expected to generate significantly less consumptive demand for groundwater than the site's current agricultural land use.

SECTION 3 – ESTIMATED WATER DEMANDS FOR EXISTING CITY CUSTOMERS AND OTHER PLANNED USES

This section describes the methodology, provides the supporting evidence, and presents the estimated annual water demands for the existing City of Gonzales and other reasonably foreseeable planned developments. Characteristics such as how water uses vary among different land use classifications, throughout the year, and under differing hydrologic conditions, all help with that understanding. Because the Proposed Project will be served by the City of Gonzales, assessing these other foreseeable water demands is crucial to the overall determination of water availability.

This section is organized to first describe the basis for estimating the future use of the City of Gonzales' existing customers, including population growth within the existing service area. Later in this chapter, the water use of other foreseeable developments known to the City of Gonzales planning department are considered. These other planned developments include the Puente Del Monte Community, the Rianda Cooler, the Franscioni Development, and three projects by D'Arrigo. This section concludes with a summary combining the forecasted demands of the existing City and other planned developments, which provide the basis for the water sufficiency analysis presented in Section 5.

3.1 EXISTING CITY OF GONZALES

The City of Gonzales is located in central Monterrey County in the Salinas Valley along Highway 101. The population was estimated to be 8,536 in 2020 according to the CA Department of Finance.[47] Gonzales is situated in a primarily agricultural region, and has long provided residential, commercial, and industrial services related to its agricultural setting.

The City relies entirely upon groundwater to meet its municipal water supply needs. Accurately assessing current water use is key to estimating future water use.

3.1.1 Current Customer Water Use

Water use data from the most recent 5 years, from 2016 to 2021, provided the primary basis for analyzing current water use trends. In 2021, the most recent year for which data is available, the City of Gonzales served 1,958 service connections, all of which are metered. Of these

[47] https://dof.ca.gov/forecasting/demographics/estimates/e-5-population-and-housing-estimates-for-cities-counties-and-the-state-2020-2022/

connections, 1,599 were single-family residential, 176 were multi-family residential, 132 were commercial or institutional, 39 were industrial, and 12 were landscaping. [48]

Customer Water Use 2016-2021

Recent customer water use data can advance an understanding of water use trends, effects of temporary use restrictions imposed during the most recent prolonged drought and recovery from such temporary restrictions, effects of long-term demand management measures, and other pertinent water use factors relevant to forecasts of future water use.

Over the last few years, a number of new industrial facilities have opened or expanded, including agricultural produce processing facilities owned by Taylor Farms and DelMonte Fresh Produce. The new industrial facilities have led to a significant increase in the annual water use attributable to industrial connections. In 2019, approximately 47 existing customer accounts that were previously classified as "Other" were reclassified as Commercial/Institutional or Landscape. During this same period, City public works staff identified and corrected water meter reading errors that had previously caused inaccuracies in the City's water use data. As a result of these recent changes in how the City's water use data is collected and recorded, this WSA assumes that the most recent years of 2020 and 2021 are the most accurate and representative of the City's current water use.

Table 3-1 presents the City's past water use by customer classification for 2020-2021.

Table 3-1: City Water Use 2020-2021 (Acre-Feet per Year)

Use Type	2020	2021	Average Percent of Total
Single Family	571	543	31%
Multifamily	99	96	6%
Commercial/Institutional	95	97	5%
Industrial	953	1070	57%
Landscape	6	20	1%
Total	1724	1827	100%

The historic data also provide insight into the relative ratio of differing customer classifications to each other. Industrial use and single-family homes together represent 88 percent of the City's total water use in recent years.

[48] The City of Gonzales has recently recategorized some of its existing service connections. Approximately 40 connections that were classified as "Other" were reclassified as "Commercial/Institutional" in 2020, and the "Other" category was discontinued. An additional small number of accounts from other categories have been recategorized as landscaping meters. All recent changes in meter classification have been taken into account in the following analysis.

Existing Distribution System Losses

The City of Gonzales served 1,958 total service connections in 2021, which is under the threshold of 3,000 service connections set by DWR that would trigger the requirement to submit an Annual Water Loss Audit to DWR.[49] To date, the City has not submitted a Water Loss Audit. Instead, this WSA estimates water loss based upon a comparison of the quantity of groundwater pumped and the quantity of water delivered. It is assumed that the difference in these values represents water loss, as shown in Table 3-2. Because of water meter reading errors identified and corrected in 2019, City staff advised that the water use and well extraction data from 2020 and 2021 represented the most accurate recent data to evaluate water loss.

Table 3-2: City System Distribution Loss

	2020	2021	2-year Average
Total Extractions (AF)	1,826	1,993	1,910
Total Deliveries (AF)	1724	1,827	1,775
Apparent Loss (AF)	102	166	134
Loss Percent	6%	8%	7%

As **Table 3-2** illustrates, the City's distribution loss was below 10 percent in 2020 and 2021, the two recent years for which there was reliable data.

Calculating Indoor and Outdoor Water Use Through Wastewater Flows

The proportion of the City's existing water demand that is used indoors versus outdoors is not directly measured, but has important implications for the groundwater sustainability and supply sufficiency analyses presented in Sections 4 and 5 of this WSA.

As the best available proxy, this WSA compared the inflows to the City's Wastewater Treatment Plant (WWTP) to its total metered deliveries. As noted above, due to water meter reporting errors identified and corrected in 2019, data from 2020 and 2021 are assumed to the most accurate recent data available. It is assumed that the measured influent flow at the City's WWTP represents the quantity of water used indoors, while the difference between WWTP inflow and total metered deliveries is assumed to be used outdoors (or otherwise lost through evapotranspiration). **Table 3-3** presents these calculations. On average, approximately 42 percent of the City's total metered deliveries are assumed to have been used outdoors and did not ultimately flow to the City's WWTP.

[49] Department of Water Resources. (2022). *Water Audit Report Data*. WUEdata. Retrieved from https://wuedata.water.ca.gov/awwa_plans

Table 3-3: Existing City Indoor and Outdoor Use

	2020	2021	2-year Average
Total Deliveries (AF)	1,724	1,827	1,775
Total Inflow to WWTP/ Assumed Indoor Use (AF)	1006	1039	1,023
Difference/ Assumed Outdoor Use (AF)	718	788	753
Percent Used Outdoors	41.6%	43.1%	42.4%

Demand Management Measures

The City of Gonzales is affected by many of the same current and future mandates affecting water use for the Proposed Project. In particular, the City is subject to water conservation objectives, indoor infrastructure requirements, the California Model Water Efficient Landscaping Ordinance, metering, volumetric pricing, and water budgets, which are described in detail in Section 2.1.1.

3.1.2 Wastewater Collection and Consumptive Water Use

When groundwater is extracted from a basin and used for municipal purposes, some portion of the water used will ultimately transpire through plants or otherwise evaporate and be lost to the groundwater basin. However, much of the groundwater used may ultimately return to the basin. A portion of the water applied to landscaping may percolate deeply and return to the aquifer. If the water is used indoors, then collected and treated at a wastewater treatment plant, the water may be recycled to offset existing groundwater demands or directly recharged to the basin.

A project's consumptive use of water equals the project's total water use minus the quantity of water from the proposed project returning to recharge the basin (or to meet demands that would otherwise be met by groundwater). The distinction between the quantity of water used and the quantity of water consumed is crucial when considering the sustainability criteria required by SGMA.

Currently, water used indoors in the City of Gonzales is collected by the City's sanitary sewer system and conveyed to the Gonzales Wastewater Treatment Plant (GWWTP), located approximately two miles west of the City at 400 Short Road, Gonzales, CA. The GWWTP is a grade II lagoon ponding treatment plant,[50] which treats wastewater to secondary standards and disposes of effluent through three 7-acre infiltration basins, [51] with some evaporation also occurring during the treatment process. The GWWTP has a permitted discharge capacity of 1.3 MGD, but the full build out of the existing city and SOI is expected to generate 3.60 MGD of

[50] City of Gonzales. (2018). *Wastewater*. The City of Gonzales, California . Retrieved from https://gonzalesca.gov/services/public-works/wastewater

[51] Central Coast Region; State of California, Staff Report for Regular Meeting of March 24, 2006 (2006). Retrieved from: https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2006/march/item6/item6_staff_report.pdf

wastewater.[52] The proposed project and other developments in the City of Gonzales east of Highway 101 will require the City to add new wastewater collection and treatment capacity.

To accommodate the expected increase in wastewater flows, the City of Gonzales will construct a new 1 million gallon per day Industrial Wastewater Treatment Facility adjacent to the current GWWTP. The City plans to construct a separate wastewater collection system from the Gonzales Agricultural Industrial Park to the new Industrial Wastewater Treatment Facility, thereby separating industrial wastewater from the City's domestic wastewater and freeing up capacity at the existing GWWTP. This approach is anticipated to achieve more efficient operations at both treatment plants, because domestic and industrial wastewater contain different contaminants and therefore can be more efficiently treated separately. When needed, the City will also complete a phased expansion of its existing GWWTP to increase the plant's capacity as development proceeds and new connections are added. Both treatments plants will continue to dispose of treated wastewater through infiltration basins. All influent to the GWWTP not lost to evaporation during the treatment and percolation process will return to the groundwater basin. This concept is important from a long-term sustainability perspective and is discussed again in Section 5 – Sufficiency Analysis.

This WSA assumes that recharge to the groundwater system by percolation of treated wastewater can be calculated by subtracting the volume evapotranspirated (ET) during the treatment process from the volume of influent to the GWWTP. Influent volumes are recorded in the City's Wastewater Treatment Plant Annual Reports. Due to metering errors discovered and corrected in 2019, only data from the years 2020 and 2021 was used, as City staff has indicated those years' data to be the most accurate. To determine the volume of water lost to evaporation, the GWWTP's treatment and percolation ponds were analyzed using data from OpenET.[53] A custom polygon was drawn around the GWWTP's treatment and infiltration ponds with an area of 31.858 acres. A report was downloaded from the OpenET website reporting the cumulative ET in acre-feet per month, which was summarized on an annual basis. **Table 3-4** shows the results of this analysis below. During the two most recent years for which there is accurate data, approximately 12 percent of the wastewater volume arriving at the GWWTP was lost to evaporation, while the remainder was returned to the groundwater basin through infiltration.

Table 3-4: Treated Wastewater Evaporation and Recharge

	2020	2021	2-year Average
Influent to WWTP (AF per year)	1,005	1,038	1,022
Annual ET (AF per year)	121	121	121
Estimated Loss to ET (%)	12%	12%	12%
Estimated Recharge to Groundwater (AF)	884	917	900

[52] Kimley Horn, *Existing City Plus Sphere of Influence Wastewater Master Plan*, p 11 (2019).
[53] https://openetdata.org/

3.1.3 Estimate of Current Net Consumptive Water Use

To inform the analysis of supply sufficiency in Sections 4 and 5 of this WSA, it is useful to estimate the City of Gonzales' current net consumptive use of groundwater. Net consumptive use is equal to the quantity of water extracted from the groundwater basin which ultimately evaporates and does not return to the basin through recharge. In the case of the City of Gonzales, the two contributors to net consumptive use are outdoor water use and loss from the ponds of the GWWTP, both of which are assumed to evaporate and permanently leave the groundwater basin. This approach can be expressed by the following formula:

"Net Consumptive Use" = "Outdoor Water Use" + "WWTP Loss to ET"

Using the 2-year average values for 2020-2021 presented earlier in Section 3.1, this formula becomes:

"Net Consumptive Use" = 753 acre-feet + 121 acre-feet

"Net Consumptive Use" = 874 acre-feet

This WSA therefore estimates that currently, the City of Gonzales has a net consumption of 874 acre-feet per year of groundwater. Of the 1,910 acre-feet of groundwater pumped on average during 2020 and 2021, the remaining 1,036 acre-feet were returned to the groundwater basin through system losses (134 acre-feet) and percolation at the GWWTP (900 acre-feet).[54]

3.1.4 Forecasting Customer Water Use

According to the City's 2019 Water Master Plan, the existing developed footprint of the City of Gonzles has limited opportunity for infill. It is expected that the vast majority of new development will occur as specific planned projects on land currently used for agriculture within the current City limit and in the City's SOI.[55] The major new developments expected are the Proposed Project (Vista Lucia community, see Section 2) and the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni developments (see Section 3.2, below). There are no other projects known at this time that would require water service by the City, and new growth of connections within the existing developed footprint is not expected, beyond the possible addition of a small number of auxiliary dwelling units (ADUs) in existing residential areas.

Therefore, this WSA assumes that current water use trends in the City of Gonzales are a good indication of what future water use will be in the City's existing developed area. Ongoing demand management measures will likely decrease per capita water use, mostly notably the impending implementation of Urban Water Use Objectives (UWUO).[56] Some infill construction

[54] Values do not sum exactly, due to rounding.
[55] Kimley Horn, *Existing City Plus Sphere of Influence Water Master Plan*, p 4 (2019).
[56] Legislation passed in 2018 (Senate Bill 606 and Assembly Bill 1668) establishes a new framework for long-term improvements in urban water use efficiency and drought planning, which will require decreases in per capita water use.

of ADUs may slightly increase the number of residential connections or occupants per connection. Overall, these effects are expected to cancel each other out, with residential water use in the existing built footprint of the City of Gonzales remaining constant over the planning period. Multifamily, Commercial/Institutional, and Landscape water use are also expected to remain stable of the planning horizon of this WSA. Using the City's historic water use from 2015-2021, average demand factors for each customer connection type were developed. These demand factors are presented as "current" in **Table 3-5**, below.

The City does anticipate that increases in the water use of existing industrial facilities are possible, through expansion of facilities. As a conservative assumption, this WSA assumes that industrial water use demand factors increase by 10 percent in 2030 and again in 2040. Any other future increases in the City's water demand will be from the Proposed Project and Other Planned Developments, which are explicitly considered elsewhere in this WSA. As a conservative assumption, water system loss is also forecasted at 10 percent rather than the 8 percent the City currently experiences. Total water use in 2050 is projected to be 2,257 acre-feet per year within the existing City of Gonzales, as shown in **Table 3-5**.

Table 3-5: Existing City Forecasted Water Use

Customer Class	Connections per Customer Class	Demand Factors (acre-feet/ connection)							Demands (acre-feet)						
		Current (2021)	2025	2030	2035	2040	2045	2050	Current (2021)	2025	2030	2035	2040	2045	2050
Single Family Residential	1,599	0.34	0.34	0.34	0.34	0.34	0.34	0.34	543	543	543	543	543	543	543
Multifamily Residential	176	0.55	0.55	0.55	0.55	0.55	0.55	0.55	96	96	96	96	96	96	96
Commercial/Institutional	132	0.74	0.74	0.74	0.74	0.74	0.74	0.74	97	97	97	97	97	97	97
Industrial	39	27.42	27.42	30.17	30.17	33.18	33.18	33.18	1,070	1,070	1,177	1,177	1,294	1,294	1,294
Landscape	12	1.69	1.69	1.69	1.69	1.69	1.69	1.69	20	20	20	20	20	20	20
Water Loss		8%	10%	10%	10%	10%	10%	10%	152	183	193	193	205	205	205
					Total Customer Demand				1,993	2,010	2,127	2,127	2,257	2,257	2,257

3.2 OTHER PLANNED DEVELOPMENTS

The City of Gonzales anticipates expanding its footprint into its sphere of influence by approving the development of the following projects: Puente Del Monte, Rianda Cooler,[57] D'Arrigo (SOI, Rincon, Industrial), Franscioni, and the Proposed Project (Vista Lucia). While the Proposed Project is considered in detail in Section 2, the other planned developments that will be served by the City are discussed below. The land use details of these developments are presented in **Table 3-6**. A map presenting to locations of the other planned developments is presented as **Figure 1-1** in Section 1.

[57] Rianda Cooler is a possible variation within the area covered by the Puente Del Monte development. If the Rianda Cooler is built, Puente Del Monte would be 70 acres smaller than the acres shown in Table 3-6. Including the cumulative acreages of both alternatives is a conservative assumption to ensure that the water demands of either development scenario is not under-stated.

Table 3-6: Other Planned Development Land Use (acres)

Development		Current	2025	2030	2035	2040	2045	2050	Buildout
Puente Del Monte	Mixed Use	-	58	68	78	92	185	104	585
Rianda Cooler	Industrial	-	-	70	70	70	70	70	70
D'Arrigo	SOI	-	-	-	-	-	-	597	597
	Rincon	-	69	138	138	138	138	138	138
	Industrial	-	-	47	95	95	95	95	95
Franscioni	Industrial	-	-	28	55	55	55	55	55

Before the ultimate approval and construction of the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni developments discussed above, each development will be required to produce its own WSA that examines the expected water use of these developments based on details provided by each developments' Specific Plan. At this time, the Puente Del Monte development has released a Specific Plan that would allow this level of analysis, which this WSA completed and included as **Attachment A**.

The Rianda Cooler, D'Arrigo, and Franscioni developments have not released Specific Plans. This WSA has instead uses the best currently available information to estimate the future water use from these developments. This information includes proposed land use information shared by the developers, construction phasing estimates provided by the City of Gonzales, and water use demand factors calculated by this WSA for similar land use categories in the Proposed Project, as detailed in Section 2.

3.2.1 Puente Del Monte

In earlier drafts of this WSA, the Puente Del Monte (PDM) Specific Plan community was considered part of the Proposed Project, and detailed analysis of its expected water demands was performed by Zanjero. Ultimately, the Proposed Project description was revised to include only the Vista Lucia Community, with the Puente Del Monte Community analyzed as one of the Other Planned Uses to be served by the City of Gonzales. The analysis of Puente Del Monte's future water demands is included in this WSA as **Attachment A** and summarized briefly in this section.

The Puente Del Monte Specific Plan community will be developed on 585 acres located partly within the City of Gonzales and partly within the City's Sphere of Influence in Monterey County (See **Figure 1-1**). The developable areas will contain low to high density housing, open space, commercial, light industrial and school uses. An agriculture buffer bounds a majority of the Specific Plan area providing transition from farmlands to the built environment. The anticipated water use of the Puente Del Monte Specific Plan community is presented in **Table 3-7**.

Table 3-7: Puente Del Monte Water Use at Full Buildout

		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Puente Del Monte	Residential	676	267	18	1,135	126	1,262
	Non-Residential	72	102				

3.2.2 Rianda Cooler Project

An approximately 70-acre property within the planning area of the Puente Del Monte Specific Plan is owned by the Rianda family. This land may be developed according to the Puente Del Monte Specific Plan, therefor generating a portion of the water demands already accounted for above, in Section 3.2.1.

However, the Rianda developers have indicated that the 70-acre Rianda property may instead be developed separately from the PDM Specific Plan, as an industrial facility for agricultural cold processing (referred to in this WSA as the Rianda Cooler Project). The Rianda Cooler facility would consist of processing, cooler, dry storage/warehousing, administrative, and maintenance space for the processing of local and non-local fresh produce, as well as employee parking and minimal landscaping. The Rianda Cooler project is still speculative at this time, and its developers have not yet produced the planning documents that would allow a detailed analysis of the facility's exact configuration and water demands. But because the Rianda Cooler may be developed within the planning horizon of this WSA, it is considered here and its water use is estimated using the currently best available information.

The exact level of indoor water use for the Rianda Cooler Project will depend on the final design of the facility. City of Gonzales Staff have indicated that this facility, if built, would generate a total demand of approximately 200,000 gal/day, or about 225 acre-feet of total use. 95 percent of this indoor water use would be collected as wastewater and be delivered to the Gonzales WWTP.[58] For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 225 acre-feet/year total.

For the purposes of calculating outdoor water use, it is assumed that the Cooler facility will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 7 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the Rianda Cooler's outdoor water use would be 9.1 acre-feet per year total or 0.13 acre-feet per acre for the 70-acre project.

If the Rianda Cooler Project is ultimately pursued, its development will result in the Puente Del Monte development being approximately 70 acres smaller and having a lower total water demand than was presented above in section 3.2.1. However, because it is uncertain at this time how land use within a smaller reconfigured PDM community might vary from the land uses

[58] Personal Communication, June 17, 2022 Zoom meeting with City Staff.

presented in the current PDM Specific Plan, this WSA makes the conservative assumption that the City may need to serve both the full PDM community and the Rianda Cooler Project.

While the timeline for the development of the Rianda Cooler Project is uncertain at this time, this WSA assumes that the Cooler Project would be complete and operational by 2030. Once fully built out, it is expected to demand 234 acre-feet per year total for indoor and outdoor water use. After including in a loss factor of 10 precent, this demand is equal to 258 acre-feet per year.

3.2.3 D'Arrigo Developments' Land Use

Property owned by D'Arrigo Brothers Inc. within the City of Gonzles and its SOI is expected to be developed within the planning horizon of this WSA. The developments consist of three distinct projects: SOI, Rincon, and Industrial.

D'Arrigo SOI

In the middle of the City's SOI, between Johnson Creek and Gloria Road, is the D'Arrigo – SOI development comprised of approximately 597 acres of residential, mixed-use, and park land use types. The existing land use currently consists of agricultural lands. Part of this development (approximately 238.1 acres) was documented in the City's 2019 WMP, though the current conceptual land use plan has differing land uses than the 2019 WMP. In total, 681 dwelling units are planned, plus 50 acres of parks and 90 acres of mixed-use commercial development.

It is unlikely that this project will be developed in the near future. For the purposes of this WSA, it is assumed that build out occurs at the end of the planning horizon, in 2050, to allow for this project to be included in the analysis of total water demand for the City and Other Planned Uses at buildout. Using similar demand factors as developed for the Proposed Project, the total water demand for indoor use is estimated to be 268 acre-feet per year and estimated for outdoor uses at 119 acre-feet, for a total of 386 acre-feet per year at full build out. The D'Arrigo – SOI development's water use and phasing is included in **Table 3-8**, below.

D'Arrigo Rincon

Within the City limit, along the east side of Highway 101, between Herold Parkway and the Puente del Monte development, is the D'Arrigo – Rincon development, which is comprised of approximately 138 acres of residential land use. The existing land use currently consists of agricultural lands. This development was not documented in the City's 2019 WMP.

It is anticipated that the D'Arrigo – Rincon project will be built in the next several years because it is located within the City's existing City Limit and is therefore likely to benefit from an expedited approval process. In total, 700 dwelling units are included in this project. For the purposes of this WSA, it is assumed that half of the units will be built by 2025 and the remainder complete by 2030. Using similar demand factors as developed for the Proposed Project, the total water demand for indoor uses is expected to be 183 acre-feet per year and 37 acre-feet per year for outdoor uses, for a total of 220 acre-feet per year at buildout. The D'Arrigo – Rincon development water use and phasing is included in **Table 3-8**, below.

D'Arrigo Industrial

In the southwestern corner of the City's SOI is the D'Arrigo – Industrial development (previously called Vosti in some planning documents), which is comprised of approximately 95.3 acres of industrial land use. The exact industrial uses of the project are not yet known, but will likely be similar to existing agricultural processing facilities already operating in the City of Gonzales. The existing land use currently consists of agricultural lands. This development was documented in the City's 2019 WMP.

For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 304 acre-feet/year total. This approach is consistent with the assumptions used to estimate the demand of the Rianda Cooler Project above in Section 3.2.2.

For the purposes of calculating outdoor water use, it is assumed that the D'Arrigo – Industrial development will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 9.5 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the D'Arrigo – Industrial development's outdoor water use would be 12.4 acre-feet per year total, or 0.13 acre-feet per acre across the 95 total acres.

The total water demand for indoor and outdoor uses is expected to be 317 acre-feet per year. The D'Arrigo – Industrial development water use and phasing is included in **Table 3-8**, below.

D'Arrigo Water Use Summary

The three D'Arrigo Developments (SOI, Rincon, and Industrial) may all be completed within the planning horizon of this WSA. While the exact phasing and configuration of these projects is not yet finalized, this WSA has used the best available current information to estimate the future water demands of these projects. The water use of the three D'Arrigo Developments is estimated to be 923 acre-feet per year at full buildout. After factoring in a loss factor of 10 percent, the total demand for the D'Arrigo Developments is expected to be 1,015 acre-feet per year, as presented in **Table 3-8.**

Table 3-8: D'Arrigo Phasing and Water Use

D'Arrigo		Total Du or Acres	Demand Factor*	Water Demand in Acre-Feet 2025	2030	2035	2040	2045	2050	Buildout
SOI	Low-Density	238 du	0.36	-	-	-	-	-	86	86
	Medium-Density Residential	239 du	0.32	-	-	-	-	-	75	75
	Medium-High Density Residential	102 du	0.29	-	-	-	-	-	30	30
	High Density Residential	102 du	0.22	-	-	-	-	-	23	23
	Mixed-Use Non-Residential	90 acres	1.13	-	-	-	-	-	102	102
	Parks	50 acres	1.42	-	-	-	-	-	71	71
Rincon	Low-Density	245 du	0.36	44	88	88	88	88	88	88
	Medium-Density Residential	245 du	0.32	39	77	77	77	77	77	77
	Medium-High Density Residential	105 du	0.29	15	31	31	31	31	31	31
	High Density Residential	105 du	0.22	12	23	23	23	23	23	23
Industrial	Industrial	95 acres	3.33	-	159	317	317	317	317	317
			Subtotal	110	378	537	537	537	923	923
			Loss factor	11	38	54	54	54	92	92
			Total Demand	121	416	591	591	591	1,015	1,015

*Table 3-8 Demand Factors include both indoor and outdoor water use.

3.2.4 Franscioni Development Land Use

Property owned by the Franscioni family is also expected to be developed within the planning horizon of this WSA. The Franscioni development is located at the southeastern corner of the City's SOI, along the east side of Highway 101 south of the Puente del Monte development. The development is comprised of approximately 55 acres of industrial land use. The existing land use currently consists of agricultural lands. This development was documented in the City's 2019 WMP, but the proposed acreage is different.

The exact industrial uses of the project are not yet known, but will likely be similar to existing agricultural processing facilities already operating in the City of Gonzales. For the purposes of this WSA, the indoor unit demand factor for this type of industrial facility is estimated at approximately 3.2 acre-foot/acre or 176 acre-feet/year total. This approach is consistent with the assumptions used to estimate the demand of the Rianda Cooler Project above in Section 3.2.2.

For the purposes of calculating outdoor water use, it is assumed that the Franscioni development will include 10 percent of its total area landscaped with drought tolerant plantings, for a total of 5.5 irrigated acres. Using an assumed maximum allowable plant factor of 0.30, the D'Arrigo – Industrial development's outdoor water use would be 7.2 acre-feet per year total, or 0.13 acre-feet per acre across the 55 total acres.

The total water demand for indoor and outdoor uses is expected to be 183 acre-feet per year. After adding in a loss factor of 10 percent, the total water demand is expected to be 202 acre-feet per year.

3.3 Existing City and Other Planned Developments Water Use Conclusions

In addition to serving the Proposed Project, as described in Section 2, the City of Gonzales will continue to serve its existing customers and will extend water service to other planned developments (Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni). Including all anticipated residential and non-residential indoor and outdoor water demands plus non-revenue water, the existing City and other planned developments are expected to generate 4,992 acre-feet of water demand annually at full buildout. These demands are summarized in **Table 3-9**.

Table 3-9: Summary of Existing City and Other Planned Developments Water Demand

Sector		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Existing City		1,182	869	N/A	2,051	205	2,257
Puente Del Monte	Residential	676	267	18	1,135	126	1,262
	Non-Residential	72	102				
Rianda Cooler	Industrial	225	9	N/A	234	23	258
D'Arrigo	SOI	268	119	N/A	922	92	1,015
	Rincon	183	37				
	Industrial	304	12				
Franscioni	Industrial	176	7	N/A	183	18	202
Existing City and Other Planned Water Demands Total							4,992

3.3.1 Water Demands During Single- and Multiple-Dry Year Conditions

The City does not currently have an adopted Urban Water Management Plan or Water Shortage Contingency Plan that addresses water demands in dry year condition.[59] To adequately assess the sufficiency of available water supplies – discussed in Section 5 – the other planned water demands in normal-year must be modified to reflect anticipated increases in demand during drier conditions. Conservative modifications to the total demand presented in **Table 3-9** to reflect conditions expected during dry conditions are as follows (see **Table 3-10**):

Single dry year: Landscape irrigation demands would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer's demand, an adjustment

[59] Senate Bill 552 (passed in 2021) requires small water suppliers - defined as those with fewer than 3,000 connections and serve fewer than 3,000 acre feet - to have an abridged water shortage contingency plan, annually report their water supply conditions and use by month, and upgrade their infrastructure to drought resilient standards, if needed. The City has not yet adopted an abridged water shortage contingency plan to meet this new legislative requirement.

factor of 5 percent is applied to the total normal-year water demand values to conservatively reflect the expected increase in demand for water.[60]

Multiple dry years: During multiple dry years, demands are also expected to increase during the first in a series of dry years – as discussed above for the single dry year condition. However, during the second, third or more consecutive dry years, demands also are expected to reflect water shortage contingency plans implemented by the City.[61] During the second year, the City is assumed to request a reduction target of 10 percent. To be conservative, this WSA assumes a resulting demand reduction of 5 percent to accommodate conservatively low participation by customers. Thus, the already higher expected demand increase of 5 percent during dry conditions is decreased by 5 percent to reflect conservation – resulting in the original normal condition demand forecast. During the third year through fifth years, the City is expected to set a conservation target of 20 percent. For this analysis, the demands in the third year are reduced by 15 percent. Thus, during multiple dry conditions, demands initially increase due to reduced effective precipitation, but then decrease due to short-term conservation measures, with a net effect of a 10 percent reduction from the forecasted normal condition.

Table 3-10: Other Planned Water Demands under Dry-Year Conditions

			Multiple Dry Year		
	Normal	Single Dry	Year 1	Year 2	Year 3 - 5
% Increase (reduction)	0%	5%	5%	0%	-10%
Resulting Change in Demand (af/yr)	-	250	250	-	(499)
Total Demand (af/yr)	4,992	5,242	5,242	4,992	4,493

[60] Based on meter studies and work with DWR on "weather normalization" of per capita water use values, Zanjero has demonstrated that urban water use increases during low rainfall months. Based on conversations with urban water purveyors, DWR and landscape water professionals, it appears common for landscape irrigation timers to be turned on "early" when February and March are unusually dry.
[61] This WSA anticipates the City of Gonzales will apply a water shortage contingency plan to address drought conditions.

SECTION 4 – WATER SUPPLY CHARACTERIZATION

This section characterizes the intended water supply that will be used to serve the estimated water demands of the Proposed Project as detailed in Section 2, as well as the existing City of Gonzales and other planned demands discussed in Section 3.[62]

The Proposed Project will be served by the City of Gonzales, which relies solely on groundwater to meet its water demands (including the future demand of the Proposed Project's, see **Table 2-7**). Because of the Proposed Project's commitment to efficiency and groundwater sufficiency, captured stormwater will be directed to the groundwater system through managed aquifer recharge facilities. Wastewater produced by the Proposed Project will be directed to a new and or expanded City of Gonzales wastewater treatment plant that directs treated water into the local aquifer as recharge, further offsetting existing City water demands. This current and continued future operation results in a limited quantity of the total water pumped by the City that is actually consumed and no longer available to the local groundwater system.[63]

Many existing water users, including the existing customers of the City of Gonzales and existing irrigated agriculture on the site of the Proposed Project, share groundwater available in the aquifer beneath the Proposed Project. This section provides a detailed characterization of the aquifer, as well as historic and projected uses of this shared resource. Section 5 details the sufficiency of groundwater resources to meet the long-term needs of the Proposed Project.

4.1 CHARACTERIZATION OF GROUNDWATER SUPPLIES

If a project's water supply includes the use of groundwater, the WSA must include: a description of any groundwater basin or basins from which the proposed project will be supplied, a detailed description and analysis of historical and projected groundwater pumping, and an analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project (the sufficiency analysis is presented in Section 5).[64] A detailed description of the groundwater resources underlying the Proposed Project is included as **Attachment B** and is briefly summarized below.

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[62] Water Code Section 10910(d)(1) requires that "The assessment... include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system...under existing water supply entitlements, water rights, or water service contracts. (2) An identification of existing water supply entitlements, water rights, or water service contracts held by the public water system...shall be demonstrated by providing information related to all of the following: (A) Written contracts or other proof of entitlement to an identified water supply. (B) Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system. (C) Federal, state, and local permits for construction of necessary infrastructure associated with delivering the water supply. (D) Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply."

[63] The City does not currently have plans for developing a new supply of either desalinated or recycled water. This WSA will not speculate on the future availability of recycled water.

[64] Water Code § 10910(f).

The Proposed Project includes the Specific Plan community of Vista Lucia, which is located in the City of Gonzales SOI. The City and Proposed Project are within the Salinas Valley and overlie the Salinas Valley Groundwater Basin. This area of the Salinas Valley is largely agricultural, with a significant groundwater basin that has been used historically for irrigation and, to a much lesser degree, for meeting municipal demands for cities including Gonzales and for individual domestic uses scattered throughout the valley. The extent of each subbasin and its connection with adjacent subbasins has been assessed by the California Department of Water Resources (DWR).

The Proposed Project is located near the intersection of three subbasins: the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04), as defined by DWR Bulletin 118.[65] The subbasins cover areas of 140 square miles, 90 square miles, and 147 square miles respectively. In the area around the City of Gonzales, the subbasins are generally bounded by the Gabilan Range to the east and the Sierra de Salinas to the west. The 180/400-Foot Aquifer Subbasin and Eastside Subbasin are both characterized as high-priority basins under the Sustainable Groundwater Management Act (SGMA), while the Forebay Subbasin is characterized as medium-priority.[66] All three subbasins have produced Groundwater Sustainability Plans, which were used by this WSA to evaluate the long-term reliability of groundwater supplies for the Proposed Project and the City of Gonzales. The Salinas Valley-Wide Integrated Groundwater Sustainability Plan was also used to evaluate conditions across subbasin boundaries.

While current supply wells for the City of Gonzales are located only in the 180/400-Foot Aquifer and Eastside Subbasins, a portion of the City and its other planned developments also overlies the Forebay subbasin. It is possible that water from any of the three subbasins would ultimately be used to serve the Proposed Project. Therefore, each of the three subbasins is described in turn below. See **Figure 4-1** for DWR's representation of the Groundwater Basins.

4.1.1 180/400-Foot Aquifer Subbasin Geology

The 180/400-Foot Aquifer Subbasin lies in northwestern Monterey County and includes the northern end of the Salinas River Valley. The Subbasin covers an area of 89,700 acres, or 140 square miles (DWR, 2004). It is bounded by the Eastside Aquifer and Langley Area Subbasins to the east, the Forebay Aquifer Subbasin to the south, the Monterey Subbasin to the west, and the Monterey Bay to the north. The 180/400-Foot Aquifer subbasin is located at the northern, down-gradient end of the larger Salinas Valley Basin. Land surface elevations in the Subbasin range from approximately 500 feet above sea level along its border with the Sierra de Salinas to sea level at Monterey Bay.[67] The geology of the 180/400-Foot Aquifer Subbasin is characterized by alluvium, terrace deposits, the Paso Robles Formation, and the Aromas Red Sands Formation. The 180/400-Foot Aquifer Subbasin contains a mix of sands, gravels, and clays. The clay layers

[65] California Department of Water Resources, *California's Groundwater Update 2020 Highlights* (2020).
[66] CA Department of Water Resources. (2022). *Basin Prioritization*. water.ca.gov. Retrieved from https://water.ca.gov/programs/groundwater-management/basin-prioritization
[67] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Ch 4.

form a number of horizontally continuous aquitards which restrict the vertical movement of water within the subbasin and create confined conditions in the deeper geologic layers. The shallowest aquitard, the Salinas Valley Aquitard, is generally encountered at depths of less than 30 feet below the ground surface and limits the ability of the Salinas River to provide recharge to the underlying aquifers. The major water-bearing formations are below one or more aquitards. The southern extent of the aquitards corresponds approximately with the City of Gonzales. Seawater intrusion is a major issue in the northern part of the subbasin, adjacent to Monterey Bay. [68]

4.1.2 Eastside Subbasin Geology

The Eastside Subbasin lies in northeastern Monterey County. The Subbasin covers an area of approximately 57,500 acres, or 90 square miles along the east side of the Salinas Valley. It is bounded by the Gabilan Range to the east, the Forebay Subbasin to the south, the 180/400-Foot Aquifer Subbasin to the west, and the Langley Area Subbasin to the north. Land surface elevations in the Subbasin range from approximately 900 feet above sea level along its border with the Gabilan Range to approximately 20 feet above sea level where it meets the 180/400-Foot Aquifer Subbasin along State Highway 101 near the City of Salinas. The geology of the Eastside Subbasin is dominated by alluvial fan deposits. Surface-water drainages originating in the Gabilan Range deposited a series of interconnected alluvial fans that extend from the Gabilan Range in the northeast to the fluvial deposits that define the 180/400-Foot Aquifer Subbasin in the southwest. There are no known structural features that restrict groundwater flow within the Eastside Subbasin, such as geologic folds, faults, or horizontally continuous aquitards. However, groundwater flow from the Eastside Subbasin to various other subbasins may be restricted due to lack of continuous sediments. Usually, groundwater flow follows the topography of the valley northwest toward Monterey Bay.[69]

4.1.3 Forebay Subbasin Geology

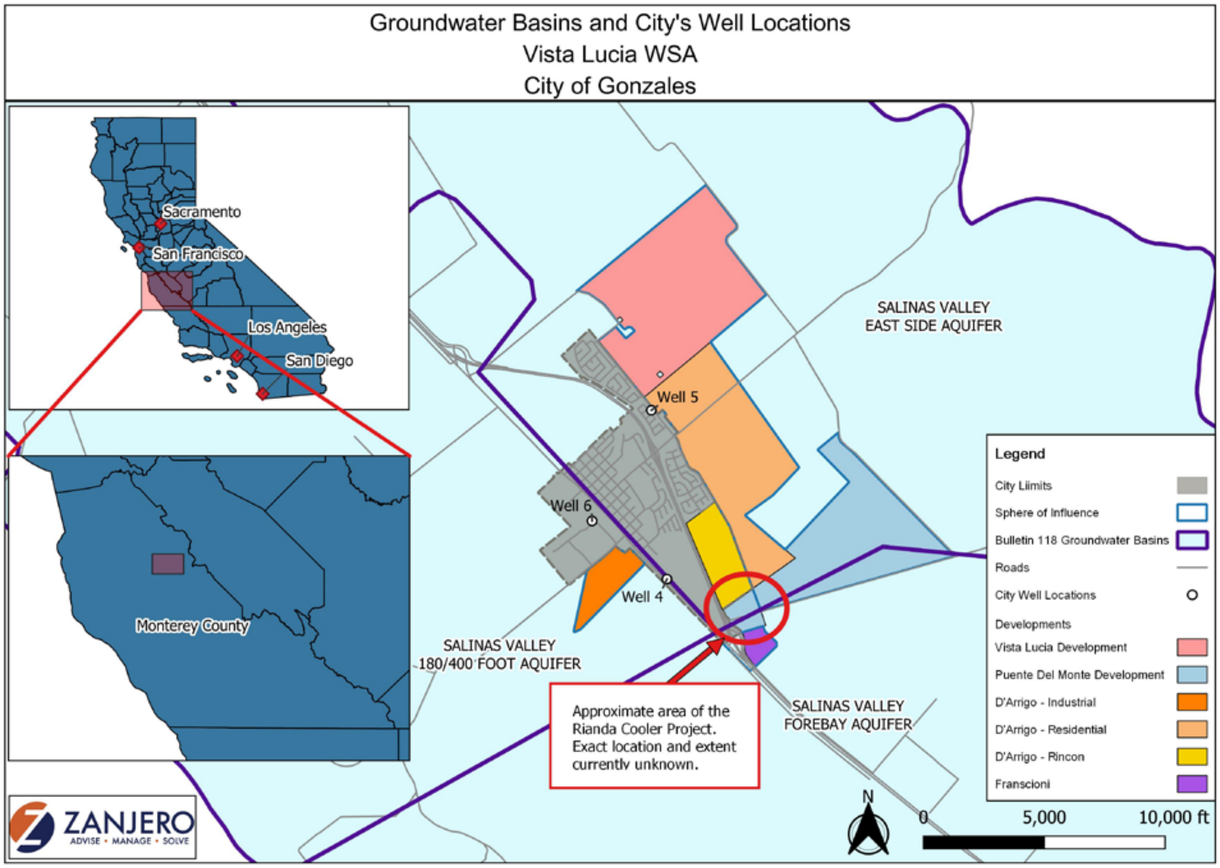
The Forebay Subbasin lies in the middle of Monterey County, and the middle of the Salinas Valley Groundwater Basin. The Forebay Subbasin is bounded by the Gabilan Range to the east, the 180/400-Foot Aquifer and Eastside Subbasins to the north, the Sierra de Salinas to the west, and the Upper Valley Subbasin to the south. Land surface elevations in the Subbasin range from approximately 1,800 feet along the Sierra de Salinas alluvial fans to less than 200 feet at the boundary with the 180/400-foot Aquifer Subbasin near the City of Gonzales. The geology of the Forebay Subbasin is characterized by 2 intersecting geologic facies: the fluvial and marine dominated deposits of the main Salinas Valley; and the Arroyo Seco alluvial fan originating in the Sierra de Salinas on the west side of the Subbasin. In general, the alluvial sediments encountered in the Arroyo Seco Cone are more coarse-grained than those found in the main

[68] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Section 4.2.
[69] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).

valley’s fluvial and marine deposits. The Forebay Subbasin lacks the major horizontally continuous aquitards that characterize the 180/400-Foot Aquifer Subbasin.[70]

[70] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

Figure 4-1: Location of Groundwater Subbasins



4.1.4 Movement of Groundwater between Subbasins

Because the Proposed Project lies at the intersection of three Salinas Valley Groundwater Basin subbasins, it is crucial to evaluate the quantity of groundwater flowing across subbasin boundaries. Groundwater in the Salinas Valley generally flows from the southeast towards the northwest and Monterrey Bay, from Forebay Subbasin into both the Eastside Subbasin and the 180/400-Foot Aquifer Subbasin. There is no reported hydraulic barrier between the Forebay Subbasin and the two subbasins down gradient; however, the sediments are more stratified in the 180/400-Foot Aquifer Subbasin than in the Forebay Subbasin.[71] The Forebay Subbasin GSP estimates that from 1980 to 2016, an average of approximately 800 acre-feet per year of groundwater flowed out of the Forebay subbasin into the Eastside subbasin and 3,100 acre-feet per year of groundwater flowed out of the Forebay subbasin into the 180/400-Foot Aquifer Subbasin.[72]

Groundwater also flows between the Eastside Subbasin and 180/400-Foot Aquifer Subbasin. The Eastside Subbasin GSP estimates the historical rate (WY 1980-2016) for flow from 180/400-Foot Aquifer Subbasin into Eastside Subbasin as 3,600 acre-feet per year. Based on groundwater

[71] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), page 4-10.
[72] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), page 6-20.

contours presented in **Figure 4-2** and discussed in the next section, it can be inferred that the greatest rates of flow between 180/400-Foot Aquifer Subbasin and Eastside Subbasin likely occur several miles north of the City of Gonzales closer to Monterey Bay.

4.1.5 Current Groundwater Conditions and Trends

The City of Gonzales and the Proposed Project lie at the intersection of three Salinas Valley Groundwater Basin subbasins, and the Proposed Project could potentially use water from any of these three subbasins. Therefore, this WSA assumes that the Valley-Wide Integrated Groundwater Sustainability Plan (VWIGSP) for the Salinas Valley Groundwater Basin offers the best available wholistic evaluation of the groundwater resources that supply the City of Gonzales and the Proposed Project.

According to the VWIGSP, groundwater production is primarily from the alluvium that fills the Salinas Valley, most of which does not contain clay layers that divide the alluvium vertically into distinguishable aquifers. The exception is in the northern portion of the basin, where laterally continuous clay layers in the 180/400-Foot Aquifer Subbasin create relatively shallow confined conditions, in contrast to the unconfined conditions over most of the basin. Additional deeper clay layers create definable aquifers in the 180/400-Foot Aquifer Subbasin, whereas most of the basin includes only a single undifferentiated aquifer. The City of Gonzales and the Proposed Project lie at the southern end of the 180/400-Foot Aquifer Subbasin, at the transition between confined and unconfined conditions.[73]

The Monterey County Water Resources Agency (MCWRA) generated groundwater elevation contours for fall 2017 (the most recent available) from monitored wells suggest that the groundwater gradient (flow direction) throughout the Salinas Valley is generally from the southeast to northwest, towards Monterey Bay. As shown in **Figure 4-2**, groundwater elevation contours from fall 2017 indicate elevations range from 90 feet above mean sea level (msl) in the southeastern portion of the City of Gonzales and the Proposed Project, to 60 feet above msl in the northwestern portion of the Project. If the City of Gonzales is assumed to be at an average elevation of approximately 135 feet above msl, the fall 2017 groundwater elevation contours represent the presence of water approximately 45 to 75 feet below ground surface (bgs), respectively. MCWRA found in its 2017 study that groundwater elevations of the 180-Foot aquifer and 400-Foot aquifer were very similar near the City of Gonzales, which may suggest that aquitards found further north do not have a significant confining effect under the location of the Proposed Project.[74]

Current groundwater extraction rates within the Basin will likely continue for the foreseeable future. However, as discussed later in this section, regional efforts to stabilize the basin are now

[73] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 4 page 17.
[74] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 5 page 20-11, Figures 5-2 and 5-3.

legally required. Each subbasin within the Salinas Valley Groundwater Basin has published a Groundwater Sustainability Plan on or before January 31, 2022.

It is important to note that California experienced a statewide drought from 2012 through 2016, which may have exacerbated rates of groundwater decline in some portions of the subbasin over the past few years, most notably in areas where groundwater extraction increased to supplement reduced or nonexistent surface water supply. It is also important to recognize that the land proposed for development has been actively irrigated for agriculture using groundwater. The parcel's current and historic use to serve irrigated agriculture is reflected in the representative Basin groundwater conditions.

An additional important attribute of the Basin is the base of freshwater. This term describes the interface of freshwater and brackish water in an aquifer system, or increased consolidation and cementation of sediments which decreases well yield. Although the sedimentary sequence in the Salinas Valley structural trough is 10,000 to 15,000 feet thick, the productive freshwater aquifers are only at shallower depths.[75] The base of the Salinas Valley groundwater basin was characterized by the USGS (Durbin et al., 1978). The VWIGSP displays data from this study, which suggests that the base of the groundwater basin slopes steeply towards the west under Gonzales. It is estimated that the base of freshwater occurs at an elevation of approximately 800 to 1,400 feet below msl beneath the middle of the Proposed Project, or at a depth of approximately 900 to 1,500 feet bgs. It should be noted that saltwater intrusion from Monterey Bay, which has been an issue in the northern portion of the Basin, has not been projected to affect the area around Gonzales.

Given the approximate groundwater elevation of 60 to 90 feet above msl beneath the Proposed Project in fall 2015 (**Figure 4-3**), the data suggest that there is 800 to 1,400 feet of saturated freshwater-bearing aquifer material in the immediate vicinity of the Proposed Project area. It should be noted that these groundwater levels reflect conditions during the peak of a record-setting drought. Groundwater levels fluctuate by as much as 20 feet between wet and dry seasons but have been relatively stable year-to-year.[76] Of the Subbasins within the Salinas Valley Groundwater Basin, the greatest historic declines have occurred in the Eastside Subbasin. From 1944 to 2021, the Eastside Subbasin declined by almost 60 feet, or a long-term average rate of approximately 9.3 inches per year (**Figure 4-4**).[77] If the Basin experienced a worst-case scenario rate of decline of 2 feet a year on a long-term average basis (a conservative assumption, very likely an overestimate of the actual rate of decline and a violation of the recent State-wide groundwater sustainability provisions), the projected decline over the next 30 years would be 60 feet. The base of freshwater is reported to be at an elevation of at least 800 feet below msl, as discussed above, indicating there is currently approximately 860 feet of saturated aquifer available. The rate of decline in this portion of the Subbasin can be expected to slow or even

[75] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Valley-Wide Integrated Groundwater Sustainability Plan (2021), Chapter 4 Page 13

[76] Monterey County Water Resource Agency, Salinas Valley Water Conditions for the Third Quarter of Water Year 2021-2022 (2022).

[77] Monterey County Water Resource Agency, Annual Groundwater Level Monitoring. Retrieved from [Annual Groundwater Level Monitoring | Monterey County, CA]

stabilize during the next sequence of consecutive “wet” years. There is more than sufficient depth of saturated aquifer underlying the Proposed Project to provide a reliable water supply. While this demonstrates that a reliable water supply is physically available to serve the proposed project, the analysis above does not address the legal standard of groundwater sustainability as established by Sustainable Groundwater Management Act (SGMA). That analysis is presented in the following section.

Figure 4-2: Groundwater Levels in the Vicinity of the Proposed Project from Representative Well Locations

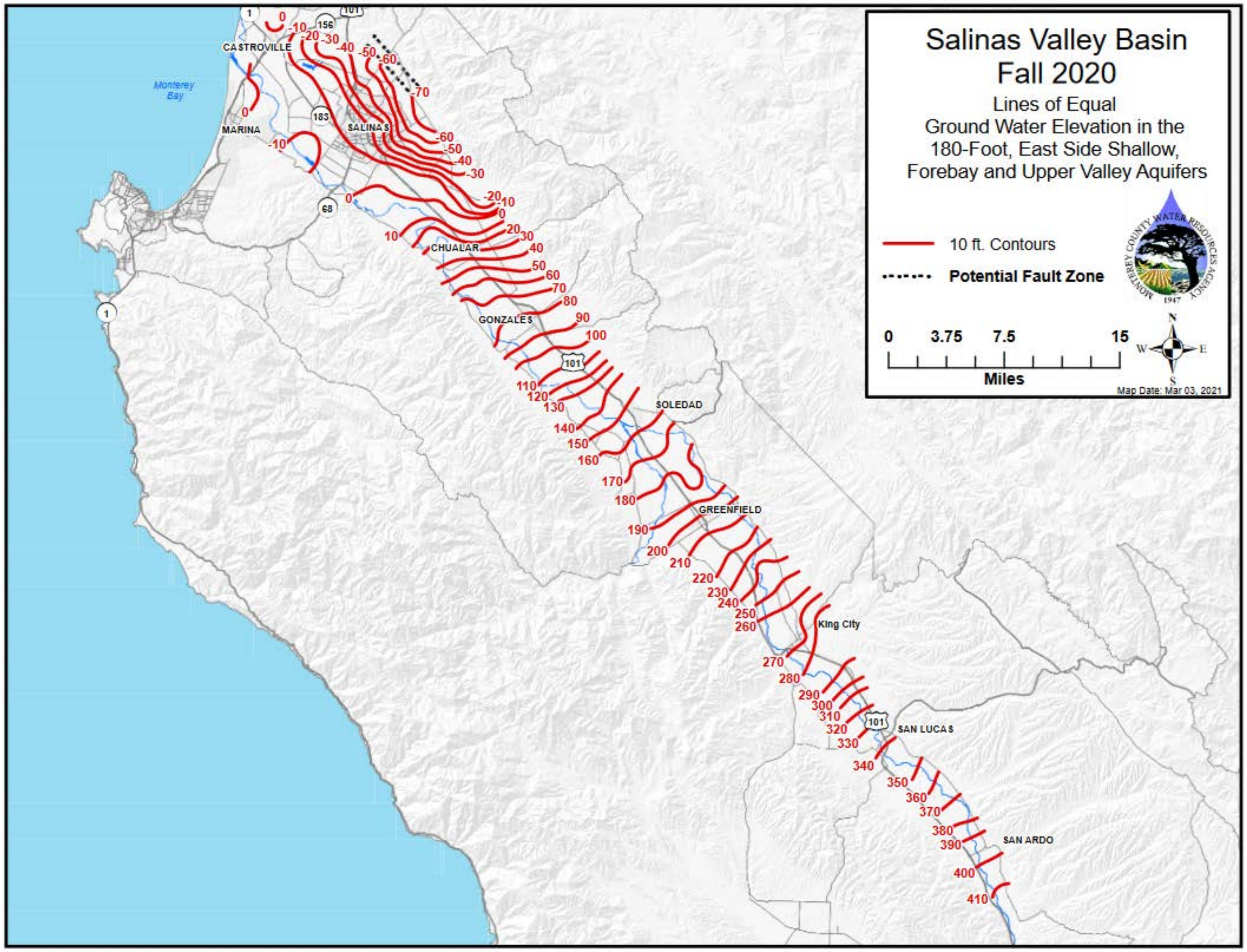


Figure 4-3: Base of Freshwater in the Vicinity of the Proposed Project

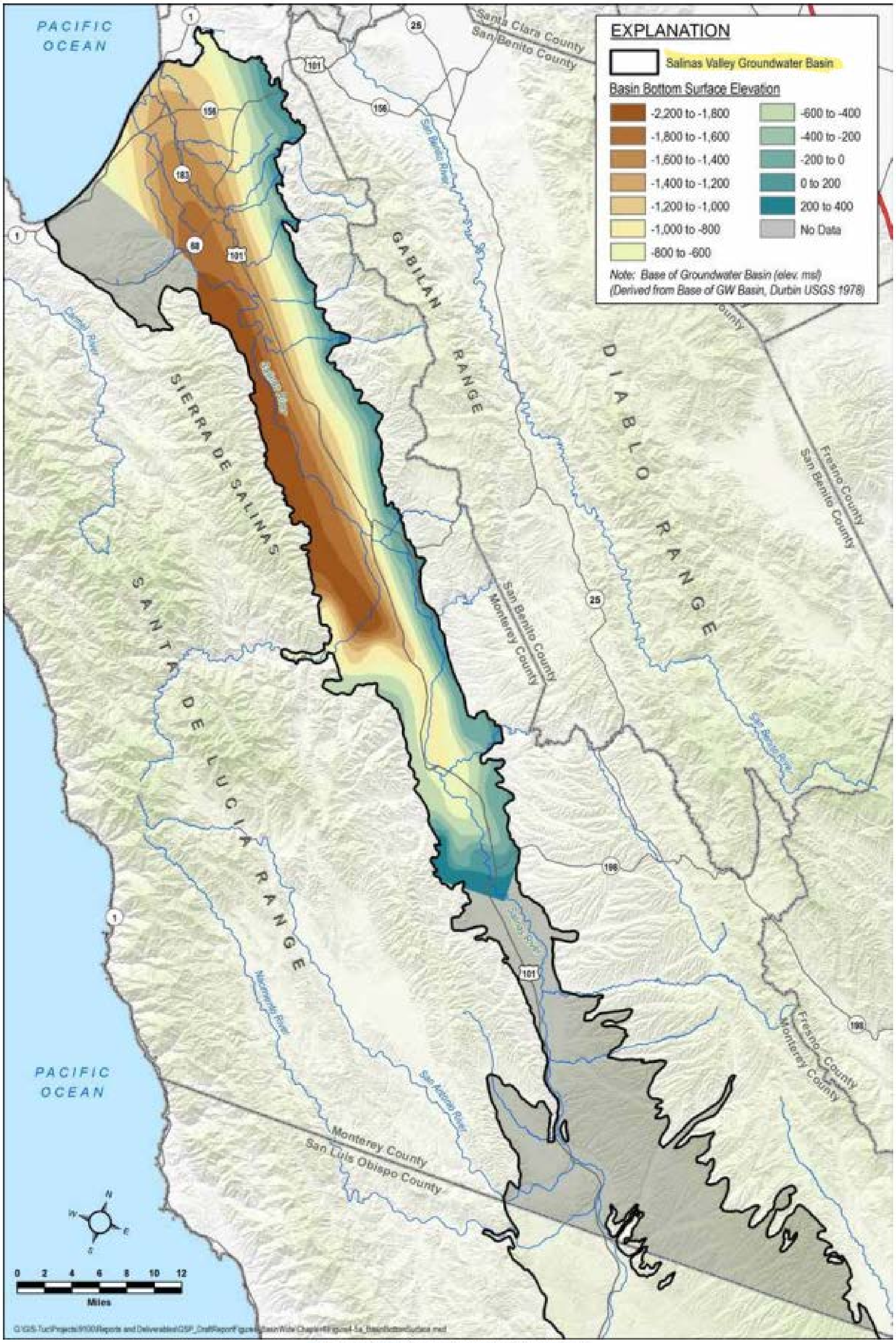
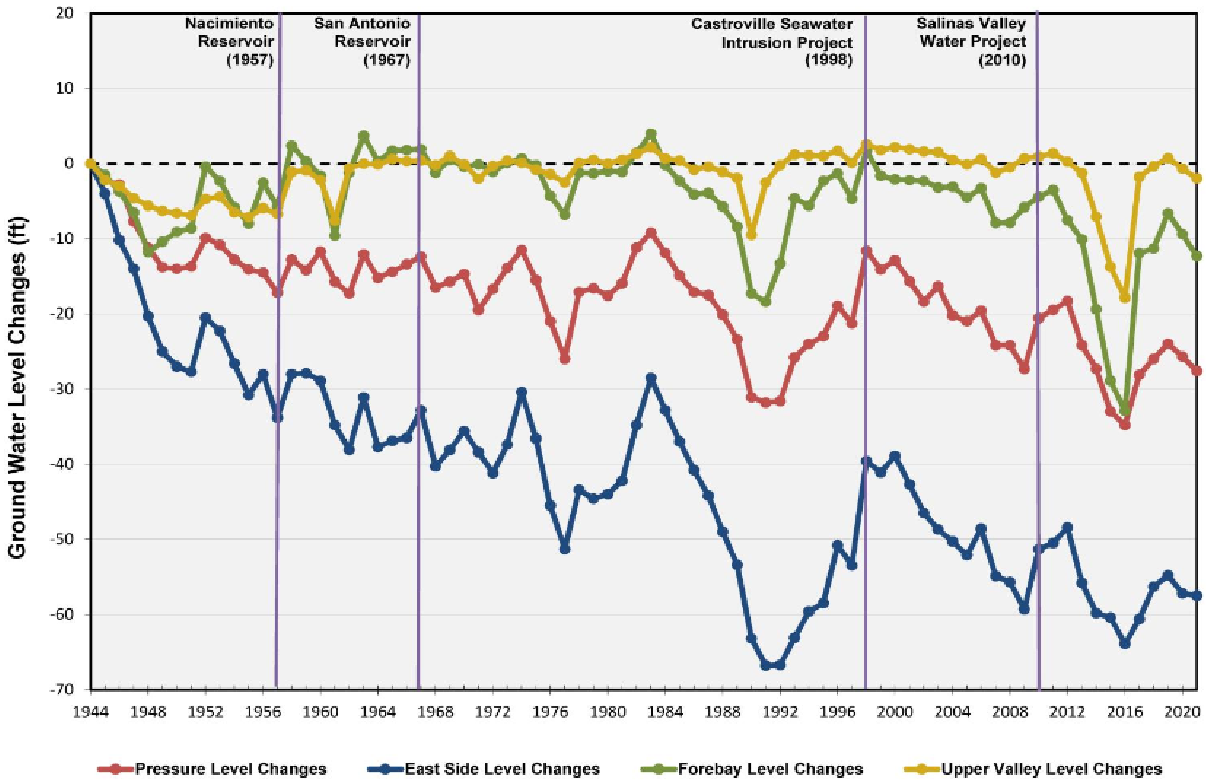


Figure 4-5: Elevation of the Base of the Basin

Figure 4-4: Salinas Valley Groundwater Levels Changes (1944 – 2021)



Source: Monterey County Water Resource Agency

4.2 GROUNDWATER MANAGEMENT IN THE SALINAS VALLEY GROUNDWATER BASIN

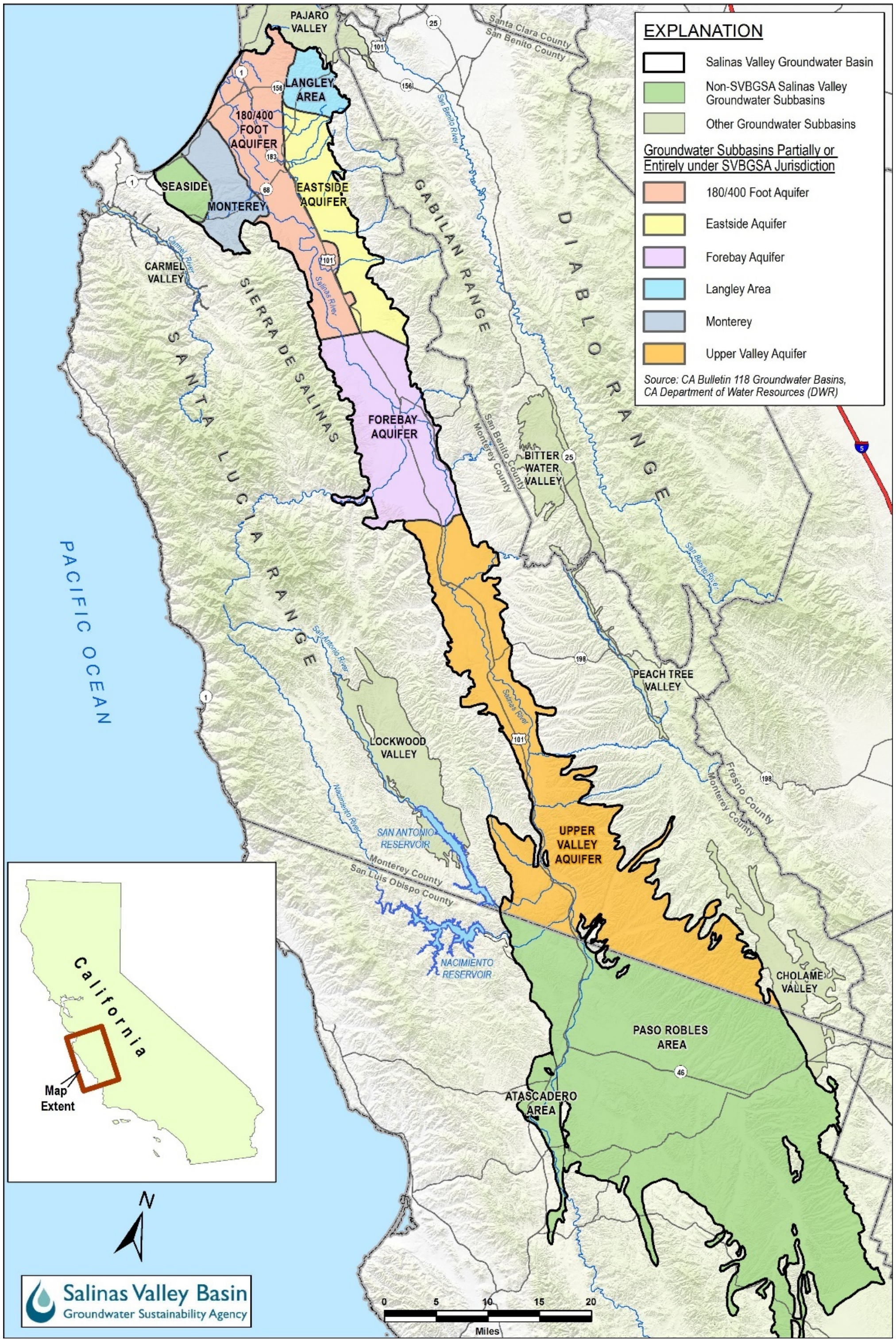
In California, regulation of groundwater has largely been left to local authorities. There are a variety of methods available for managing groundwater resources in California and the degree of groundwater management in any basin is often dependent on water availability and demand.[78] Typically, local groundwater management strategies include monitoring groundwater levels and production amounts, and conjunctive use of groundwater and surface water supplies.

In 2014 the State of California passed the Sustainable Groundwater Management Act (SGMA), which consist of three bills (AB 1739, SB 1168, and SB 1319). SGMA outlines necessary steps for local groundwater agencies to reach sustainable groundwater use. The framework allows local agencies to establish a Groundwater Sustainability Agency (GSA) in order to develop and implement groundwater sustainability plans (GSPs) for their respective jurisdiction. Where multiple GSAs cover a defined basin, the GSAs may submit one GSP or individual GSPs. If individual GSPs are developed, each GSA must provide the State with agreements demonstrating coordination on GSPs and cooperation for on-going implementation and enforcement. The GSP for the Basin must be submitted to the State by January 31, 2020 for high priority basins and

[78] Department of Water Resources, Bulletin 118 (2003), Ch. 2.

January 31, 2022 for medium priority basins. As shown in **Figure 4-5**, the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) is the GSA for six subbasins within the Salinas Valley: the 180/400-Foot Aquifer, Eastside, Forebay, Langley Area, Monterey, and Upper Valley Aquifer subbasins. The City of Gonzales overlies the 180/400-Foot Aquifer, Eastside, and Forebay subbasins, all of which are entirely under the jurisdiction of the SVBGSA. SVBGSA was responsible for producing each subbasin's GSP as well as the overarching Valley-Wide Integrated Groundwater Sustainability Plan.

Figure 4-5: Salinas Valley Basin Groundwater Sustainability Agency



4.2.1 Sustainable yield under SGMA

Each subbasin within the larger Salinas Valley Groundwater Basin has produced a GSP that estimates sustainable yield on a subbasin-wide basis. Sustainable yield is the amount of water that can be safely extracted and consumed each year from a subbasin while balancing the water budget, resulting in no net decrease in storage of useable groundwater or any other undesirable result as defined by SGMA.[79]

GSAs may also choose to implement, through a GSP, the formal process of quantifying pumping allocations that define the maximum amount of water that may be extracted annually by individual parties. Pumping allocations are not water rights and cannot determine water rights. Instead, they are a way to determine each extractor's pro-rata share of groundwater extraction and regulate groundwater extraction.

At this time, none of the subbasins within the Salinas Valley Groundwater Basin have issued pumping allocations. None of the subbasins' GSPs have expressed sustainable yield on a per-acre or per-party basis. In the absence of defined pumping allocations, this WSA assumes that sustainable yield on a subbasin-wide basis is the best available indicator to develop a proxy value for groundwater supplies available to the Proposed Project. Each subbasin's sustainable yield can then be interpolated to estimate sustainable yield on a per-acre basis and therefore supply available to the City of Gonzales and the Proposed Project.

The following section presents the estimated sustainable yield for each subbasin underlying the Proposed Project. The methodology described below is summarized in **Table 4-1**.

180/400-Foot Aquifer Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the 180/400-Foot Aquifer Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The 180/400-Foot Aquifer Subbasin GSP estimates that projected pumping will total 124,600 acre-feet/year for the entire subbasin, with 11,000 acre-feet/year attributed to urban uses and the remaining 113,600 acre-feet/year attributed to agriculture. 91.2% of the subbasin's total pumping is projected to be from agriculture. [80] Changes in storage from declining groundwater levels and due to seawater intrusion are projected to total 13,400 acre-feet/year. Subtracting the decline in storage from the projected pumping, the sustainable yield for the entire subbasin in 2030 will be 111,200 acre-feet/year.[81] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses.

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[79] California Department of Water Resources. (2022). Sustainable Groundwater Management Act (SGMA) . Retrieved from https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management

[80] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3

[81] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4

Table 4-1: Sustainable Yield Calculations for Agriculture (acre-feet/acre)

		180/400-Foot Aquifer Subbasin	Eastside Subbasin	Forebay Subbasin
2030 Adjusted Projected Pumping (AF/yr)	Urban	11,000	9,400	5,800
	Agricultural	113,600	81,000	165,700
	Total	124,600	90,400	171,500
Change in Storage		(13,400)	(10,000)	-
Projected Sustainable Yield		111,200	80,400	171,500
Continued Overdraft Projected?		Yes	Yes	No
Percent of Pumping From Ag		91.2%	89.6%	96.6%
Proportional Amount of Sustainable Yield Attributable to Ag		101,383	72,040	165,700
Acres in Subbasin Used for Ag		62,806	34,471	85,834
Estimated Sustainable Yield for Ag (acre-feet/acre)		1.61	2.09	1.93

Because the 2030 adjusted projected pumping values reflect a condition where storage continues to decline, the 113,600 acre-feet/year attributed to agriculture pumping was not used in this WSA. Instead, this WSA used projected sustainable yield, reduced to the percentage attributable to agriculture. Using 91.2% of the sustainable yield projection of 111,200 acre-feet/year, it is estimated that 101,383 acre-feet/year could be pumped sustainably for agricultural use across the existing 62,806 acres in the subbasin used for irrigated agriculture (**Table 4-1**).[82]

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[83] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[84] Consistent with this assumption, the Proposed Project and other planned developments involve urban development on land currently used for irrigated agriculture, within the assumed existing irrigated acreage value.

By dividing the portion of the projected sustainable yield used for agriculture by the number of irrigated acres in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 1.61 acre-feet/acre. Therefore, the Proposed Project could convert a sustainable

[82] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 3.2
[83] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), section 6.4.3
[84] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), section 6.4.1

supply of 1.61 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the 180/400-Foot Aquifer Subbasin.

Eastside Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the Eastside Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The Eastside Subbasin GSP estimates that projected pumping will total 90,400 acre-feet/year for the entire subbasin, with 9,400 acre-feet/year attributed to urban uses and the remaining 81,000 acre-feet/year attributed to agriculture.[85] 89.6% of the subbasin's total pumping is projected to be from agriculture.[86] Changes in storage from declining groundwater levels are projected to total 10,400 acre-feet/year. Subtracting the decline in storage from the projected pumping, the sustainable yield for the entire subbasin in 2030 will be 84,400 acre-feet/year.[87] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses.

Because the 2030 adjusted projected pumping values reflect a condition where storage continues to decline, the 81,000 acre-feet/year attributed to agriculture pumping was not used in this WSA. Instead, this WSA used projected sustainable yield, reduced to the percentage attributable to agriculture. Using 89.6% of the sustainable yield projection of 80,400 acre-feet/year, it is estimated that 72,040 acre-feet/year could be pumped sustainably for agricultural use across the existing 34,471 acres in the subbasin used for irrigated agriculture (**Table 4-1**).[88]

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[89] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[90] Consistent with this assumption, the Proposed Project involves urban development

[85] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4.
[86] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.3.
[87] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4
[88] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 3.2.
[89] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.3.
[90] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2022), Section 6.4.1.

on land currently used for irrigated agriculture and within the assumed existing irrigated acreage value.

By dividing the portion of the projected sustainable yield used for agriculture by the number of irrigated acres in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 2.09 acre-feet/acre. Therefore, the Proposed Project could convert 2.09 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the Eastside Subbasin.

Forebay Subbasin Sustainable Yield

This WSA calculated an estimate of sustainable yield for the Forebay Subbasin based on values projected for 2030 in Section 6.4 of the subbasin's 2022 GSP. These values are more conservative than those projected by the GSP for 2070.

The Forebay Subbasin estimates that the projected sustainable yield for the entire subbasin in 2030 will be 171,500 acre-feet/year and would result in no change in groundwater storage.[91] This quantity represents the sustainable yearly consumption of groundwater for all uses, including agriculture and municipal uses. The GSP estimates that 99.6% of projected groundwater pumping is by agriculture.[92] Of the sustainable yield of 171,500 acre-feet/year, the GSP estimates that 165,700 acre-feet/year will be pumped for agricultural use across the existing 85,834 acres in the subbasin used for irrigated agriculture (both row crops and pasture) (**Table 4-1)**.[93]

The GSP assumes that land use is static over the planning period, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in 2030 and 2070. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[94] The GSP states that if "urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use."[95] Consistent with this assumption, the Proposed Project involves urban development on land currently used for irrigated agriculture and within the assumed existing irrigated acreage value.

By dividing the portion of the projected sustainable yield used for agriculture by the number of agricultural acres (both row crops and pasture) in the subbasin, this WSA estimates the sustainable yield on a per irrigated acre basis is at least 1.93 acre-feet/acre. Therefore, the

[91] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2022), Section 6.4.4. Table 6-17: 2030 (Adjusted)
[92] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3.
[93] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 3.2.
[94] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.3.
[95] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021), Section 6.4.1.

Proposed Project could convert 1.93 acre-feet/acre of consumptive water use from irrigated agriculture to urban use without negatively impacting the sustainable yield represented by the GSP for the Forebay Subbasin.

City of Gonzales Sustainable Yield

The City of Gonzales straddles the intersection of the three subbasins described above, which somewhat complicates the consideration the City's future water use in each subbasins' GSP. However, the three GSPs are all consistent in their approach to municipal water use in future water budgets, which were the basis for calculating the sustainable yield values presented in this WSA. All three subbasins' GSPs state that, "Because the [groundwater] model assumes no urban growth, future municipal pumping was assumed to be equal to current municipal pumping. Future agricultural pumping is then calculated as the total projected pumping minus the current municipal pumping."[96] As calculated in Section 3.1 of this WSA, current pumping by the City of Gonzales is 1,910 acre-feet per year and the net consumption of groundwater after accounting for recharge is 874 acre-feet per year.

For the purposes of this WSA, it is assumed that 874 acre-feet of net water consumption by the City of Gonzales (2020-2021 average) represents the best available estimate of the long-term net consumption by the City accounted for in GSP future water budgets. Therefore, 874 acre-feet per year is considered an available consumptive supply to the existing City customers for the purposes of the sufficiency analysis presented in Section 5.

Sustainable Yield Conclusions

The Proposed Project will be supplied by the City of Gonzales, which is in turn supplied by groundwater from the Salinas Valley Groundwater Basin. While all of the City's existing wells are located in either the Eastside or the 180/400-Foot Aquifer Subbasin, the City could conceivably pump water from any of the three groundwater subbasins underlying Gonzales to serve its existing customers, the Proposed Project, and other planned uses. As described above, this WSA used the sustainable yields calculated by the three subbasins' GSPs as the basis to calculate the water supply available to the existing City, the Proposed Project, and the City's other planned developments.

Each of these underlying subbasins has calculated its own projected sustainable yield as a subbasin-wide annual value expressed in acre-feet per year of consumptive use. None of the subbasins have issued pumping allocations to individual entities or expressed sustainable yield on a per-acre or per-party basis. In order to determine the supply available to the Proposed Project and the City of Gonzales' other planned developments, this WSA estimated the sustainable yields attributed for irrigated agriculture for each subbasin, divided by the number of irrigated acres in each subbasin, to arrive at per-acre consumptive sustainable yield values. The average sustainable yield of the three subbasins would be 1.88 acre-feet/acre. As a conservative assumption, this WSA assumes that the most restrictive subbasin's sustainable yield estimate

[96] All three subbasin GSPs present this information in Section 6.4.3.

will limit the groundwater supply available to the proposed project. Therefore, the sustainable yield of 1.61 acre-feet/acre/year for consumptive water use calculated for 180/400-Foot Aquifer Subbasin is assumed to represent the water supply available to the Proposed Project and the City of Gonzales' other planned developments on a per acre basis. The water use of the existing City of Gonzales has already been accounted for as an "Urban Use" in the various Subbasins' water budgets.

The sustainable yield of 1.61 acre-feet/acre/year for consumptive water use can then be multiplied by the number of acres in the Proposed Project and the City's other planned developments to arrive at the total quantity of water available as consumptive supply. These calculations are presented in **Table 4-2**. With a total acreage of 2,239, the total sustainable consumptive groundwater supply available to the Proposed Project and the City of Gonzales' other planned developments is 3,672 acre-feet per year. In addition, the City of Gonzales was estimated to have had a current net consumption of 874 acre-feet of groundwater, which the GSPs assume will be constant throughout the planning period. The City's current consumption is a static value not scaled by acres. The grand total supply of sustainable yield is presented in **Table 4-2**.

Table 4-2: Sustainable Yield Conclusions

Development	Acres	Sustainable Yield	
		Acre-Feet Per Acre	Total Acre-Feet per Year
Proposed Project (Vista Lucia)	768	1.61	1,236
Puente Del Monte & Rianda Cooler	585	1.61	942
D'Arrigo	831	1.61	1,338
Franscioni	55	1.61	89
All New Developments Subtotal	2,239	1.61	3,604
Existing City	N/A		874
Grand Total	N/A		4,478

4.3 WATER RIGHTS, FINANCING, AND REGULATORY APPROVALS[97]

Upon construction of the Proposed Project, ownership and operation of all water utility systems will be transferred to the City of Gonzales. It is anticipated the Proposed Project will be annexed into the City prior to Project construction. The City of Gonzales will then be responsible for the continued operation and maintenance of all utility systems. However, the City assuming responsibility for water delivery will not have any impact on the Proposed Project's estimated water demand or the availability of the groundwater resources available to serve the Proposed Project, as described later in Section 5.

[97] See Water Code Section 10910(d)(2)

Absent an adjudication of a groundwater basin, California common law governs the right to use and extract percolating groundwater from a basin. The Salinas Valley Basin and all of its subbasins are unadjudicated groundwater basins and therefore subject to these common law rules. The owner of real property overlying a groundwater aquifer possesses a right as part and parcel of the land to extract groundwater from beneath the property for use on overlying land within the watershed. The Proposed Project applicants are, or will become as a result of approval of the Proposed Project, landowners overlying the Basin. Accordingly, both the current owner of the property and the proposed applicant of the Proposed Project are overlying owners and are entitled to produce groundwater to serve their reasonable and beneficial uses within the watershed or drainage area of the basin. The City, as a municipal water supplier, also has the opportunity to establish appropriative rights on this same groundwater resource as the Proposed Project and other planned future uses are established – consistent with the appropriative rights to groundwater it has already established through service to existing customers. These rights, however, are subject to the County's oversight and management, and as may be required to conform to SGMA.

4.3.1 Financing the Water Supply

The Proposed Project anticipates being served by the City of Gonzales. The Proposed Project is explicitly anticipated by the City of Gonzales' current Water Master Plan.[98] The estimated cost of developing the water system which will serve all planned developments in the City's Sphere of Influence, including other planned developments not included in the Proposed Project, is expected to be approximately $20.3-21.1 million.[99] New wells and other related infrastructure will be constructed by either the developers of new projects or the City of Gonzales. The anticipated expenses of infrastructure are relatively modest compared to the development as a whole, and financing is not expected to create a barrier to implementing the water supply plans identified in this WSA.

4.3.2 Regulatory Approvals and Permits

Prior to drilling new municipal wells, the Proposed Project will need to acquire permits from the County as detailed in the County's municipal code. The Proposed Project will likely be subject to at least the following regulatory approvals and filings for new wells:

- City Permit for Water System Design Standards[100]
- California Statues Related to the creation of a Drinking Water System[101]
- Well Completion Report must be filed with the Department of Water Resources[102]
- Meter permit required through City Public Works Department

[98] City of Gonzales (2019), *Existing City Plus Sphere of Influence Water Master Plan*
[99] City of Gonzales (2019), *Existing City Plus Sphere of Influence Water Master Plan*
[100] City of Gonzales Code § 10.04, et seq.
[101] Water Code § 14300, et seq.
[102] Water Code § 13750, et seq.

- Certification for operating a municipal well from the California SWRCB’s Division of Drinking Water.

SECTION 5 – SUFFICIENCY ANALYSIS & CONCLUSIONS

In conformance with WSA Law, this section includes an analysis of sufficiency of identified groundwater supplies to serve the Proposed Project, considering variations in supply and demand characteristics under normal, single-dry and multi-dry year hydrologic conditions.[103] The WSA provides a reasoned analysis of the likely availability of the identified supplies to serve the Proposed Project, while considering the demands of existing and other planned future land uses.[104]

5.1 WSA LAW SUFFICIENCY ANALYSIS

The WSA Law sufficiency analysis integrates the water demands details in Section 2 and Section 3 with the groundwater supplies characterized in Section 4.

The Proposed Project will be served by the City of Gonzales, which is in turn supplied entirely by groundwater from the Salinas Valley Groundwater Basin.[105] The City will be responsible for serving the Proposed Project, its existing customers, and the City's other planned developments including the Puente Del Monte, Rianda Cooler, D'Arrigo, and Franscioni projects. The demand for each of these components totals to 6,363 acre-feet per year (**Table 5-1)**.

Table 5-1: Total Combined Demand at Build-Out to be Met by City of Gonzales

Sector		Acre-Feet per Year at Full Buildout					
		Indoor	Outdoor	Misc	Subtotal	Loss Factor	Grand Total
Vista Lucia	Residential	901	166	-	1,234	137	1,371
	Non-Residential	36	131				
Existing City		1,167	885	N/A	2,051	205	2,257
Puente Del Monte	Residential	676	267	18	1,135	126	1,262
	Non-Residential	72	102				
Rianda Cooler	Industrial	225	9	N/A	234	23	258
D'Arrigo	SOI	268	119	N/A	922	92	1,015
	Rincon	183	37				
	Industrial	304	12				
Franscioni	Industrial	176	7	N/A	183	18	202
						Combined Total	**6,363**

[103] CWC § 10910 (c)(4) provides that "the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses."
[104] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 430-32.
[105] The City overlies portions of the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04). Water from any of these subbasins could be used to serve the demands considered in this WSA.

The Combined Total demand presented in **Table 5-1** represents all expected water demands to be served by the City of Gonzales (Proposed Project, existing City, and other planned uses) at full buildout. The projected pacing of these demands is presented in **Table 5-2**.

Table 5-2: Demand Pacing by Source (acre-feet/year)

Demand Source	2025	2030	2035	2040	2045	2050
Vista Lucia	269	480	838	1,197	1,355	1,371
Existing City	2,010	2,127	2,127	2,257	2,257	2,257
Puente	182	369	637	848	1,266	1,262
Rianda	-	258	258	258	258	258
D'Arrigo	121	416	591	591	591	1,015
Franscioni	-	101	202	202	202	202
Normal Year Total	2,582	3,751	4,652	5,352	5,928	6,363

To fully evaluate water supply sufficiency, it is necessary to evaluate the phased timing of these demands in various hydrologic year types. **Table 5-3** presents the Combined Total Demand to be served by the City beginning in 2025 and continuing through 2050 in 5-year increments. The analysis assumes that the Proposed Project and other planned developments are fully constructed by 2050. **Table 5-2** and **Table 5-3** incorporate the following analysis previously presented in this WSA:

- The Proposed Project's potable water demand projection from **Table 2-5**
- The existing City's demand projection from **Table 3-5**
- The buildout schedule for other planned developments presented in **Table 3-6**
- Puente Del Monte's demand projections, as detailed in **Attachment A** and summarized in Section 3.2.1 and **Table 3-7**.
- The Rianda Cooler's demand projections described in Section 3.2.2
- The three D'Arrigo Developments (SOI, Rincon, Industrial) demand projections from **Table 3-8**
- Franscioni demand projections described in Section 3.2.2

Prior to consideration of sustainable yields as defined by GSAs under SGMA, **Table 5-3** represents that sufficient groundwater physically exists in the saturated aquifers of the Salinas Valley Groundwater Basin to meet the needs of the Proposed Project. While this may demonstrate passing of a basic test regarding the physical availability of groundwater, it does not address the requirements of SGMA, which is a more applicable legal test of water supply sufficiency for purposes of this WSA. That analysis follows in the next subsection.

Table 5-3: Assessment of Sufficiency for Water Demands

Year	Total Combined Water Demand	Hydrologic Year Type		Groundwater Extracted	Sufficient Groundwater Physically Available?
2025	2,582	Normal		2,582	Yes
	2,711	Single Dry		2,711	Yes
	2,711	Muliple Dry	Year 1	2,711	Yes
	2,582		Year 2	2,582	Yes
	2,324		Year 3-5	2,324	Yes
2030	3,751	Normal		3,751	Yes
	3,939	Single Dry		3,939	Yes
	3,939	Muliple Dry	Year 1	3,939	Yes
	3,751		Year 2	3,751	Yes
	3,376		Year 3-5	3,376	Yes
2035	4,652	Normal		4,652	Yes
	4,884	Single Dry		4,884	Yes
	4,884	Muliple Dry	Year 1	4,884	Yes
	4,652		Year 2	4,652	Yes
	4,187		Year 3-5	4,187	Yes
2040	5,352	Normal		5,352	Yes
	5,619	Single Dry		5,619	Yes
	5,619	Muliple Dry	Year 1	5,619	Yes
	5,352		Year 2	5,352	Yes
	4,817		Year 3-5	4,817	Yes
2045	5,928	Normal		5,928	Yes
	6,224	Single Dry		6,224	Yes
	6,224	Muliple Dry	Year 1	6,224	Yes
	5,928		Year 2	5,928	Yes
	5,335		Year 3-5	5,335	Yes
2050	6,363	Normal		6,363	Yes
	6,681	Single Dry		6,681	Yes
	6,681	Muliple Dry	Year 1	6,681	Yes
	6,363		Year 2	6,363	Yes
	5,727		Year 3-5	5,727	Yes

As summarized in **Table 5-3**, the total combined demand of the existing Proposed Project, existing City, and other planned developments at buildout in 2050 is estimated to be 6,363 acre-feet annually under normal conditions – varying slightly during single and multiple dry years, ranging from 5,727 acre-feet to 6,681 acre-feet. **Table 5-3** demonstrates that sufficient groundwater physically exists in the Salinas Valley Groundwater Basin to meet the needs of the Proposed Project, City, and other planned developments.

5.2 SUSTAINABLE GROUNDWATER MANAGEMENT ACT COMPLIANCE

As discussed in Section 4, the State of California has passed the Sustainable Groundwater Management Act (SGMA), which outlines necessary steps for local groundwater agencies to reach long-term sustainable groundwater use. The City of Gonzales and the Proposed Project overlie three subbasins within the Salinas Valley Groundwater Basins. This WSA has used each subbasin's GSP as well as the Valley-Wide Integrated Groundwater Sustainability Plan (VWIGSP) to assess the availability of groundwater to serve the demands presented in **Table 5-2**.

Crucial to SGMA compliance is the demonstration that the total combined demands do not exceed Sustainable Yield. This is primarily accomplished by evaluating total groundwater pumped versus the net groundwater consumed – with the difference returning to the groundwater basin through purposeful or incidental recharge. As discussed later, in conjunction with the low-water demanding land-use and landscaping attributes described in Section 2, wastewater from the Proposed Project will be collected by the City of Gonzales, treated, and recharged back to the basin, consistent with current wastewater treatment operations.

5.2.1 Sustainable Yield in each Subbasin

As presented in Section 4.2.1, none of the subbasins' GSPs have expressed sustainable yield on a per-acre or per-entity basis. In the absence of defined pumping allocations, this WSA assumes that sustainable yield on a subbasin-wide basis is the best available indicator to develop a proxy value for groundwater supplies sustainably available to the Proposed Project. As detailed in Section 4, each subbasin's sustainable yield has be translated to an estimated sustainable yield on a per-acre basis, which then provides a definable sustainable yield available to the City and the Proposed Project. The GSPs assume that land use is static over the 30- and 50-year planning periods, aside from crop seasonality, therefore the existing irrigated agricultural acres represent the irrigated acres expected in both the 2030 and 2070 future conditions. Crucially, the water budget assumes no urban growth, with future municipal pumping equal to current municipal pumping.[106] The GSPs states that if "*urban growth replaces agricultural irrigation, the impact may be minimal because the urban growth will replace existing agricultural water use*."[107]

In order to determine the supply available to the Proposed Project and the City of Gonzales' other planned developments, this WSA divided the sustainable yields attributed for irrigated agriculture for each subbasin by the number of irrigated acres in each subbasin to arrive at per-acre consumptive sustainable yield values. As a conservative assumption, this WSA assumes that the most restrictive subbasin's sustainable yield estimate will limit the groundwater supply available to the proposed project. Therefore, the sustainable yield of 1.64 acre-feet/acre/year for consumptive water use calculated for 180/400-Foot Aquifer Subbasin is assumed to represent the

[106] 180/400-Foot Aquifer Subbasin GSP, Eastside Subbasin GSP, and Forebay Subbasin GSP all present this assumption in Section 6.4.3.
[107] 180/400-Foot Aquifer Subbasin GSP, Eastside Subbasin GSP, and Forebay Subbasin GSP all present this assumption in Section 6.4.1.

water supply available to the Proposed Project and the City's other planned developments. As noted previously, this 1.64 acre-feet/acre/year limit applies to consumptive water use, not total water use, because some water used indoors returns to replenish the basin as treated wastewater. With a total acreage of 2,239, the total sustainable consumptive groundwater supply available to the Proposed Project and the City's other planned developments is estimated to be 3,672 acre-feet per year.

As presented in Section 4.2.1, the groundwater use of the existing City is considered a municipal use that will remain static across the planning period of the GSPs. The current net consumptive use of the City was calculated as 874 acre-feet per year. Consistent with the planning approach presented in the GSPs, this WSA assumes that the City's current net consumptive use is the best available indicator of the sustainable yield available to the existing City customers in the future.

By summing together the sustainable yield available to the Proposed Project and the City's other planned developments with the sustainable yield available the City's current customers, a total sustainable yield of 4,546 acre-feet per year of net consumptive use is available.

5.2.2 Proposed Recharge of Treated Wastewater

When water is used indoors in urban settings, much of that water is collected as wastewater and conveyed to a wastewater treatment plant (WWTP). In the City of Gonzales, treated wastewater is disposed of through percolation ponds that infiltrate treated water back to the groundwater aquifer (see Section 4.2.2). As the City grows, it is anticipated that industrial wastewater flows will be separated from domestic flows and conveyed to a new Wastewater Treatment Plant. At both the City's existing WWTP and the City's planned new WWTP, the primary method of treated effluent disposal is percolation ponds. In these percolation ponds, the majority of water returns to the groundwater basin and a fraction evaporates. As presented in **Table 4-2**, approximately 12 percent of the inflow to the GWWTP currently evaporates during the treatment and infiltration process, while the remainder is assumed to return to the groundwater basin. This WSA assumes that this is a good indicator of expected future conditions, when the GWWTP also receives wastewater from the Proposed Project and other planned developments.

Thus, the total combined demand for groundwater at build-out to be served by the City of Gonzales (see **Table 5-1**, **Table 5-2,** and **Table 5-3**) is partially offset from a groundwater sustainability perspective by the treated wastewater returned to the basin – water that is used but never consumed and remains available to the basin. Under the full buildout condition, it is estimated that five percent of flow in industrial facilities for indoor use in "consumed" by industrial processes, with the remaining 95 percent flowing to the GWWTP.[108] This WSA estimates that one percent of flow into all non-industrial facilities (both residential and non-residential) for indoor use is "consumed" through incidental evaporation and human

[108] Personal Communication, June 17, 2022 Zoom meeting with City Staff.

consumption,[109] with the remaining 99 percent flowing to the GWWTP. Of the 4,008 acre-feet estimated to be demanded for indoor uses at build-out, 3,940 acre-feet would be conveyed as wastewater to the GWWTP. After 12 percent of this influent is lost to evaporation during treatment and infiltration process, 3,467 acre-feet of treated effluent will return to recharge the basin via the existing and future permitted percolation ponds (**Table 5-4**).

Table 5-4: Wastewater Produced and Returned to the Basin

Sector		Acre-Feet per Year at Full Buildout				
		Indoor Demand	Indoor Loss Factor	Wastewater Produced	Loss at WWTP	Returned to GW Basin
Vista Lucia	Residential	901	9	892	107	785
	Non-Residential	36	0	36	4	31
Existing City		1,167	12	1,155	139	1,017
Puente Del Monte	Residential	676	7	669	80	589
	Non-Residential	72	1	72	9	63
Rianda Cooler	Industrial	225	11	214	26	188
D'Arrigo	SOI	268	3	265	32	233
	Rincon	183	2	181	22	159
	Industrial	304	15	289	35	254
Franscioni	Industrial	176	9	167	20	147
Combined Total		**4,008**	**68**	**3,940**	**473**	**3,467**

5.2.3 Groundwater Balance Determination at Buildout

To ensure compliance with SGMA and consistency with the Sustainable Yield calculations presented in Section 5.2.1, the total combined demand at buildout, minus recharge, must be less than the sustainable yield of the Basin. In this calculation, total combined demand at buildout minus recharge is equivalent to Net Consumptive Use, or the net loss through evaporation and evapotranspiration from the Basin. Mathematically, this is expressed by the following formulas:

"Total Combined Demand" – "Recharge" < "Sustainable Yield"

or

"Net Consumptive Use" < "Sustainable Yield"

Where:

"Total Combined Demand" is 6,363 acre-feet per year, as shown in **Table 5-1**.

"Recharge" is water returned to the groundwater basin via system losses (see **Table 5-1**), and infiltration of treated effluent at the GWWTP (see **Table 5-4**). These values are 602 acre-feet and 3,467 acre-feet respectively, for a total recharge of 4,069 acre-feet per year.

[109] Data regarding this percentage is not readily available. However, this estimate would represent water that is consumed by residents and visitors – either in locally made foods or drink – and taken offsite. Using a larger percentage would just add to the estimated net consumptive use, but would not affect the gross withdrawal.

“Sustainable Yield” is 1.61 acre-feet/acre/year for all new land uses on land current supporting irrigated agriculture. Across the total area of 2,239 acres occupied by the Proposed Project and other Planned Developments, the total sustainable consumptive groundwater supply available to the Proposed Project and the City’s other planned developments is 3,604 acre-feet per year. The net consumptive use of the Existing City of Gonzales is calculated as 874 acre-feet per year. Together, the sustainable yield available to all uses to be served by the City of Gonzales at buildout is 4,478 acre-feet per year.

Using this WSA’s specific information, the equation becomes:

(6,363 acre-feet) – (4,069 acre-feet) < (4,478 acre-feet)

Which equates to

(2,294 acre-feet) < (4,478 acre-feet)

“Net Consumptive Use” is therefore 2,294 acre-feet per year, which is less than the available sustainable supply of 4,478 acre-feet. This demonstrates that the Proposed Project complies with SGMA and does not generate net consumptive demands which exceed the sustainable yield of the basin. **Figure 5-1** graphically presents a detailed flow diagram of the Proposed Project, Existing City, and other planned uses’ extraction and use of groundwater and associated return flows and other recharge elements that achieve groundwater balance. Each of the Specific Values presented in **Figure 5-1** is detailed here:

a) 6,363 acre-feet per year – This total pumping quantity represents the City’s gross production of groundwater from the Salinas Valley Groundwater Basin, as shown in **Table 5-1**.

b) 602 acre-feet per year – This represents the City Distribution System losses back to the basin through leaks, estimated at 10 percent of total metered deliveries, as detailed in Section 3.1.1 and Section 5.2.2.

c) 1,234 acre-feet per year – This represents the subtotal demand for the Proposed Project (Vista Lucia), excluding system losses, as shown in **Table 5-1**.

d) 937 acre-feet per year – This represents the total indoor water use (residential and nonresidential) of the Proposed Project (Vista Lucia), as shown in **Table 5-1**.

e) 9 acre-feet per year – This represents the one percent loss rate from indoor water use of the Proposed Project (Vista Lucia), as shown in **Table 5-4**.

f) 297 acre-feet per year – This represents the outdoor water use of the Proposed Project (Vista Lucia), as well as miscellaneous water use, as shown in **Table 5-1**.

g) 928 acre-feet per year – This represents the wastewater produced by the Proposed Project (Vista Lucia), as shown in **Table 5-4**.

h) 306 acre-feet per year – This represents the net consumptive use of the Proposed Project (Vista Lucia).

i) 2,051 acre-feet per year – This represents the subtotal demand for the Existing City of Gonzales, excluding system losses, as shown in **Table 5-1**.

j) 1,167 acre-feet per year – This represents the total indoor water use of the Existing City of Gonzales, as shown in **Table 5-1**.

k) 12 acre-feet per year – This represents the one percent loss rate from indoor water use of the Existing City, as shown in **Table 5-4**.

l) 885 acre-feet per year – This represents the outdoor water use of the Existing City of Gonzales, as shown in **Table 5-1**.

m) 1,155 acre-feet per year – This represents the wastewater produced by the Existing City of Gonzales, as shown in **Table 5-4**.

n) 897 acre-feet per year – This represents the net consumptive use of the Existing City of Gonzales.

o) 234 acre-feet per year – This represents the subtotal demand for the Rianda Cooler project, excluding system losses, as shown in **Table 5-1**.

p) 225 acre-feet per year – This represents the total indoor water use of the Rianda Cooler project, as shown in **Table 5-1**.

q) 11 acre-feet per year – This represents the five percent loss rate from indoor water use of the Rianda Cooler Project, as shown in **Table 5-4**.

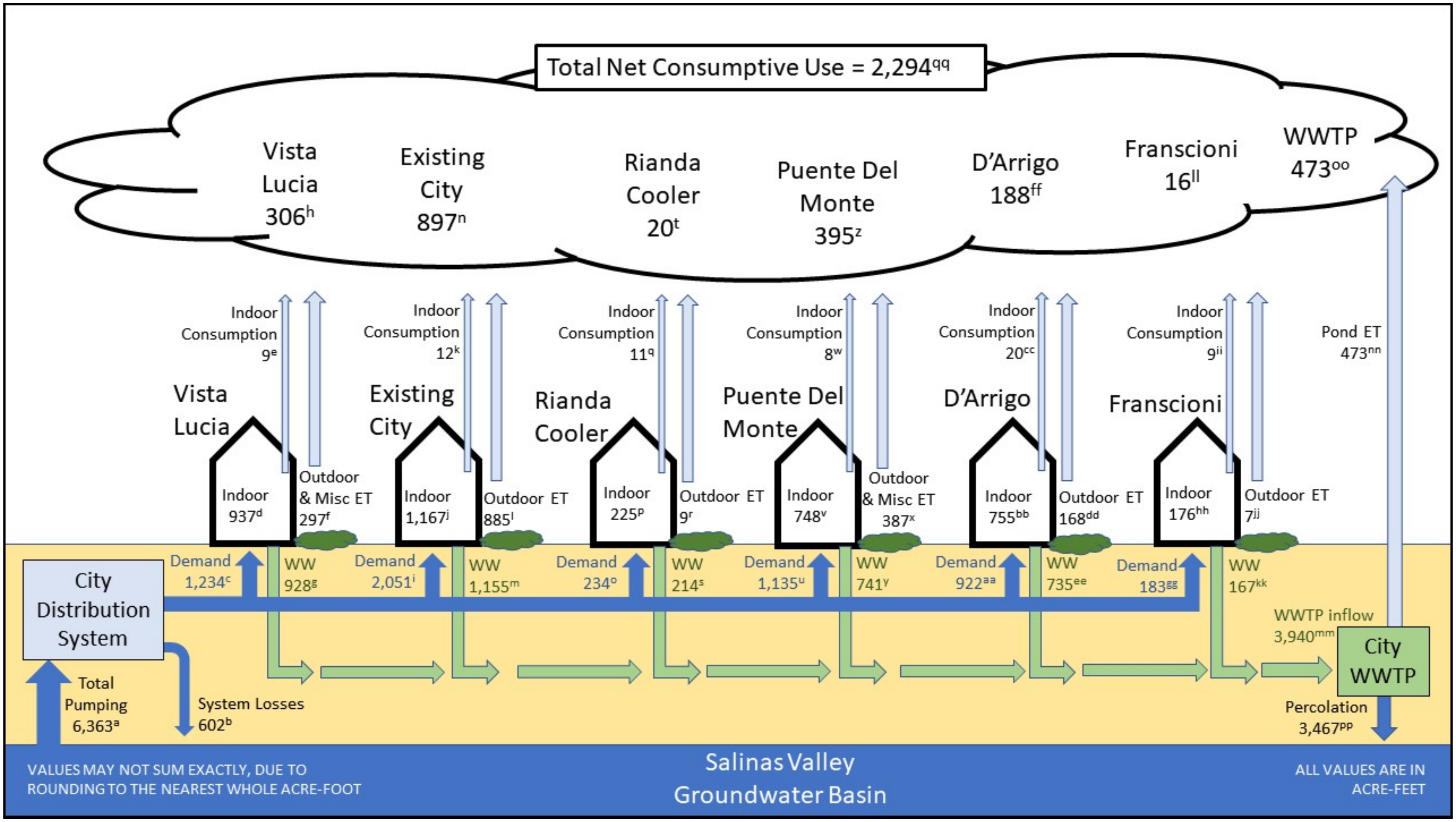
r) 9 acre-feet per year – This represents the outdoor water use of the Rianda Cooler project, as shown in **Table 5-1**.

s) 214 acre-feet per year – This represents the wastewater produced by Rianda Cooler project, as shown in **Table 5-4**.

t) 20 acre-feet per year – This represents the net consumptive use of the Rianda Cooler Project.

u) 1,135 acre-feet per year – This represents the subtotal demand for the Puente Del Monte project, excluding system losses, as shown in **Table 5-4**.

Figure 5-1: Water Use and Net Water Consumption at Full Buildout



v) 748 acre-feet per year – This represents the total indoor water use of the Puente Del Monte project, as shown in **Table 5-1.**

w) 8 acre-feet per year – This represents the one percent loss rate from indoor water use of the Puente Del Monte Project, as shown in **Table 5-4**.

x) 387 acre-feet per year – This represents the outdoor water use of the Puente Del Monte project, as well as miscellaneous water use, as shown in **Table 5-1**.

y) 387 acre-feet – This represents the outdoor water use of the Puente Del Monte Project, as shown in **Table 5-1.**

z) 741 acre-feet per year – This represents the wastewater produced by the Puente Del Monte project, as shown in **Table 5-4**.

aa) 395 acre-feet per year – This represents the net consumptive use for the Puente Del Monte project.

bb) 922 acre-feet per year – This represents the subtotal demand for the three D'Arrigo developments (SOI, Rincon, and Industrial), excluding system losses, as shown in **Table 5-1**.

cc) 755 acre-feet per year – This represents the total indoor water use of the D'Arrigo developments, as shown in **Table 5-1**.

dd) 20 acre-feet per year – This represents the five percent loss rate from the industrial indoor portion of D'Arrigo and the one percent loss rate from the other indoor water uses of the D'Arrigo developments, as shown in **Table 5-4**.

ee) 168 acre-feet per year – This represents the outdoor water use of the D'Arrigo developments, as shown in **Table 5-1**.

ff) 735 acre-feet per year – This represents the wastewater produced by the D'Arrigo developments, as shown in **Table 5-4**.

gg) 188 acre-feet per year – This represents the net consumptive use for the D'Arrigo developments.

hh) 183 acre-feet per year – This represents the subtotal demand for the Franscioni project, excluding system losses, as shown in **Table 5-1**.

ii) 176 acre-feet per year – This represents the total indoor water use of the Franscioni project, as shown in **Table 5-1**.

jj) 9 acre-foot per year – This represents the five percent loss rate from indoor industrial water use of the Franscioni project, as shown in **Table 5-4**.

kk) 7 acre-feet per year – This represents the outdoor water use of the Franscioni project, as shown in **Table 5-1**.

ll) 167 acre-feet per year – This represents the wastewater produced by the Franscioni project, as shown in **Table 5-4**.

mm) 16 acre-feet per year – This represents the net consumptive use of the Franscioni project.

nn) 3,940 acre-feet per year – This represents the total inflow to the Gonzales WWTP from all development at buildout, as shown in **Table 5-4**. This includes the Proposed Project (Vista Lucia), the Existing City, and the other planned developments.

oo) 473 acre-feet per year – This represents the evaporation from the GWWTP ponds during treatment and percolation of wastewater, as shown in **Table 5-4**.

pp) 473 acre-feet per year – This represents the net consumption of water by the GWWTP.

qq) 3,467 acre-feet per year – This represents the volume of treated wastewater returned to the Salinas Valley Groundwater Basin by percolation at the WWTP under the buildout condition, as shown in **Table 5-4**.

rr) 2,294 acre-feet per year – This represents the total net consumptive use of all development at buildout, including the Proposed Project (Vista Lucia), the Existing City, and the other planned developments.

As illustrated in **Figure 5-1**, the total net consumptive use of the Proposed Project, Existing City, and other planned developments is 2,294 acre-feet per year. The sustainable yield available to serve these uses is 4,478 acre-feet per year. Therefore, this WSA finds that there is sufficient groundwater available to sustainably supply the Proposed Project, Existing City, and other planned uses.

5.2.4 Existing Onsite Water Demand

As detailed in Section 2.3.2, currently approximately 768 acres of truck crops are growing on the Proposed Project site, irrigated with groundwater from multiple on-site deep wells. A conservative estimate places the existing consumptive demand of the applied irrigation water at approximately 1,100-1,280 acre-feet annually. More water could be extracted, depending on the efficiency of the irrigation system, and some of the crops' demands are met by effective rainfall. Upon construction of the Proposed Project, this water demand will cease.

5.3 Sufficiency Analysis Conclusions

As detailed in this WSA, sufficient groundwater resources exist to meet the forecast demand of the Proposed Project as described in Section 1. While approximately 6,363 acre-feet of groundwater pumping will be required to meet the combined total demand of the existing City, the Proposed Project, and other planned developments, the net consumptive use is only approximately 2,294 acre-feet. This value represents the amount of groundwater extracted that will primarily leave the basin through evapotranspiration and evaporation.

Also, during single and multiple dry years, the total combined demands are expected to increase extraction to as much as 6,681 acre-feet as a result of increased demand for irrigation water, but also decrease to as low as 5,727 acre-feet when temporary shortage provisions are instituted. Net consumptive use is expected to increase and decrease by equal proportions during single and multiple dry years, but will remain well below the available sustainable yield, as shown in **Table 5-5**.

Table 5-5: Net Consumptive Water Use and Sufficiency in Dry Years

Hydrologic Year Type		Total Combined Water Demand	Net Consumptive Use	Available Sustainable Yield	Sufficient Groundwater Available?
Normal		6,363	2,297	4,478	Yes
Single Dry		6,681	2,412	4,478	Yes
Multiple Dry	Year 1	6,681	2,412	4,478	Yes
	Year 2	6,363	2,297	4,478	Yes
	Year 3-5	5,727	2,067	4,478	Yes

Even absent the Proposed Project's efforts to achieve groundwater sustainability, the reduced consumption compared to the existing consumption from agricultural irrigation on the land proposed for development demonstrates that there is sufficient groundwater in the Basin to meet the estimated net consumptive demand of the Proposed Project and other planned uses. With the addition of the Proposed Project's efforts to achieve efficient use of water through drought-tolerant landscaping and efficient plumbing, the conclusion of sufficiency is further bolstered. The conclusion that sufficient water is available to meet the Project water demands rests on the following:

- The Proposed Project is constructed following the water-efficiency design and low-water use objectives articulated in the Vista Lucia Specific Plan.
- Actual groundwater conditions match the representations by DWR (see Section 4), including the freshwater base existing about 800 to 1,400 feet below the City and Proposed Project site, with freshwater occurring at about 60 to 90 feet below the project site. This offers at least 800 feet of usable aquifer depth.

- The City's wastewater treatment plants will direct all effluent to percolation basins, where the majority of water will recharge to the aquifer to offset the City and Proposed Projects groundwater use.
- The authorized GSAs will meet the long-term sustainability objectives articulated under SGMA such that current groundwater levels in the Basin are maintained or improved.[110]
- The three underlying GSP's Sustainable Yield values, interpolated on a per acre basis, are consistent with this WSA's assumed value of 1.64 acre-feet per acre per year. [111,112,113]
- The Proposed Project will use 310 acre-feet of consumptive water annually, which is far less than the 1,100-1,280 acre-feet consumed by the crops currently being irrigated on the Proposed Project site.
- When considering the combined total net consumptive use of the Proposed Project, the Existing City of Gonzales, and the other planned uses (Rianda Cooler, Puente Del Monte, D'Arrigo, and Franscioni), all uses to be served by the City of Gonzales at buildout will sum to 2,297 acre-feet per year of net consumptive use. This is less than the sustainable yield available for these uses estimated to be 4,546 acre-feet per year, as calculated by this WSA based on the underlying subbasins' GSPs. Therefore, the construction of the Proposed Project is consistent with the groundwater sustainability goals of SGMA and long-term groundwater sustainability.

[110] California Water Code Section 10727.2(b)(4) establishes that groundwater conditions as of January 1, 2015 become the baseline from which "undesirable results" will be assessed and objectives for improved sustainability will be measured. This essentially sets conditions as of January 2015 as being the point from which improvements will be made (although groundwater levels may fluctuate periodically below this baseline as may be determined in a GSP, but should not measurably continue downward from this point).
[111] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021).
[112] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).
[113] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

ATTACHMENT A – PUENTE DEL MONTE WATER USE DEMAND FACTORS

In earlier drafts of this WSA, the Puente Del Monte (PDM) Specific Plan[1] community was considered part of the Proposed Project, and detailed analysis of its expected water demands was performed by Zanjero. Ultimately, the Proposed Project description was revised to include only the Vista Lucia Community, with the Puente Del Monte Community analyzed as one of the Other Planned Uses to be served by the City of Gonzales. The detailed analysis of Puente Del Monte's future water demands is included in this WSA as Attachment A.

The Puente Del Monte community will be developed on 585 acres located partly within the City of Gonzales and partly within the City's Sphere of Influence in Monterey County. The developable areas will contain low to high density housing, open space, commercial, light industrial and school uses. An agriculture buffer bounds a majority of the Specific Plan area providing transition from farmlands to the built environment. The remainder of this attachment described the methodology used to calculate the indoor and outdoor residential and non-residential water demand associated with the PDMSP community.

A.1 LAND USE AND CONSTRUCTION PHASING

The PDM community includes several residential and non-residential land-use classifications including market rate housing, mixed use commercial and residential elements, public facilities such as schools, parks (including trails and plazas), and open space (including storm water retention and agricultural buffers). The construction of the PDM community will be conducted in phases, as depicted in **Table A-1**. The land use of the PDM community at full buildout is represented as the condition in 2050.

[1] WHA, Land Concern, Ruggeri-Jensen-Azar (2021) *Puente Del Monte Specific Plan August 2021*.

Table A-1 – Puente Del Monte Construction Phasing.

Category	2025	2030	2035	2040	2045	2050
Residential (dwelling units)						
Low Density	0	80	163	163	596	596
Medium Density	281	444	519	619	619	619
Medium-High Density	108	285	524	794	794	794
High Density	0	0	292	292	569	569
Mixed Use Residential	0	21	45	45	45	45
Non-Residential (acres)						
Elementary Schools	0	0	10	20	20	20
Light Industrial	0	0	0	0	21	21
Highway Commercial	0	0	0	0	0	38
Parks	3	4	9	23	23	23
Central Drainage Trail	0	0	0	19	19	19
Streetscape Landscaping	0	0	0	0	63	66
Other Miscellaneous Uses (acres)						
Agricultural Buffer	8	13	13	13	63	75

A.2 Residential Water Use Demand Factors

The PDMSP community anticipates five general residential land use designations. The size of the lot generally has the greatest impact on the annual per-lot demand for water as the irrigation needs for landscaping generally increase with larger landscaped areas. However, as discussed previously, the PDMSP includes defined plant material selection and design that significantly reduces the outdoor component of the forecast residential water demands compared to more conventional landscape designs, thus limiting, but not eliminating, this traditional lot-size effect. In contrast, indoor water demands remain relatively consistent regardless of lot size, but do vary slightly based on the number of people per dwelling unit. Distinct demand factors are provided for the following residential uses:

- Indoor Residential Use – this category identifies the generally anticipated water use for the varied residential housing types.
- Outdoor Residential Use – this category addresses the landscape water demands for the various planned lot sizes.

For purposes of this WSA, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or acre-feet/dwelling unit ("af/du"). Both indoor and outdoor residential water demands will be met with potable water supplied by the City.

A.2.1 Indoor Residential Water Use Factors

The PDM residential elements would be built in accordance with all applicable building codes including the Cal Green Code discussed previously, as it may be further modified prior to Proposed Project implementation.

The indoor demands are estimated using an assumed value of 55 gallons-per person per day, multiplied by the assumed occupancy rates for conventional and high-density residential classifications.

For purposes of this WSA, conventional housing assumes an average occupancy rate of 4.4 people per house, while the high-density and mixed-use classifications assume 3.4 persons per house.[2] The assumed per-person rate of 55 gallons per day is derived from California Water Code Section 10608.20(b)(2)(A), which states a value of 55 gallons per capita (i.e., per person) per day ("gpcd") be used for estimating indoor residential use targets. When multiplied, the per-person use results in a per-dwelling unit demand of 0.27 acre-feet per year for conventional and mixed-used housing and 0.21 for high-density housing.

The 55 gpcd indoor use value has been confirmed through analyses of residential water meter data and is reflective of new suburban single-family dwelling units and older homes retrofitted with new water efficient fixtures and appliances.[3]

A.2.2 Outdoor Residential Water Use Factors

Outdoor water use is primarily a factor of lot size and the type and extent of landscaped area. The PDM community includes up to 2,623 residential lots with five average lot sizes for the single-family classifications: 9,163 sf for LDR; 5,483 sf for MDR; 3,769 sf for MHDR; and 1,389 for HDR.[4] Outdoor demands for the multi-family classification are calculated using net acreage values, which accounts for a street allowance as detailed below.

Outdoor demands for PDM are calculated based on a number of factors including the regulations and calculation methodologies contained in MWELO. The MWELO provides for determining the Maximum Applied Water Allowance ("MAWA") where the maximum is determined as 55 percent of the reference evapotranspiration for the area, resulting in the following equation:[5]

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[2] City of Gonzles 2015 Housing Element indicates an average occupancy of 4.4 people per household for conventional housing (low – medium-high densities). 3.4 persons per household is assumed for high density and mixed-use housing.

[3] With the increasingly stringent requirements of building codes as well as water and energy efficiency codes, it is likely that the actual indoor demand of the Proposed Project may be below the stated 0.23 af/yr. Recently, the Governor issued Executive Order B-37-16 that, among other orders, directed state agencies to develop new urban water use targets including a standard for indoor residential per-capita water use. These new targets are to "build upon the existing state law" that requires a 20% reduction in urban water use by 2020 – which already includes the suggested 55 gallons-per-person per day planning guidance.

[4] Certain lots may be slightly larger or smaller, depending on the grading and final layout of the Proposed Project. However, those variations will be nominal and will not materially affect the Proposed Project's total demand.

[5] This formula reflects the latest revision to the MAWA that became mandatory as of December 1, 2015.

MAWA = (ETo) (0.62) (0.55 x LA), where ETo is the reference evapotranspiration in inches per year, and LA is the landscape area in square feet. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year"

A primary factor in this calculation is evapotranspiration ("ET"). The methodology directs the use of ET from a reference crop, such as maintained grass – a value referred to as ETo. For PDM, the average ETo is 52.50 inches per year (or over 4.4 feet per year).[6]

Besides the ETo value, the primary factor driving outdoor water use on a per-lot basis is the square footage of landscape area. In addition to MWELO, the PDMSP relies on landscaping restrictions that exceed the MWELO maximums. Specifically, the PDMSP restricts turf to 25 percent of the landscaped area, and restricts plant choices to a majority of low and very-low water use species. More information about these restrictions is discussed in **Section 2.1.1** of the main WSA document.

The calculations for water use are based on specific restrictions and the water efficient character as presented in the PDMSP. This WSA utilizes individual calculations for each parcel type based on typical landscape areas, plant types, and average plant water use factors defined in the PDMSP. The following assumptions form the basis of the residential landscape unit demand factors:

- Plant Factors (PF) – based upon the plant palette of the PDMSP, the following factors are assumed:
    - Turf = 0.6 (assumes use of certain Fescues, Bermuda Grass, and some other turf varieties with relatively low irrigation requirements. Some grass varieties, such as St Augustine, Zoysia, and Buffalo grass, may have factors less than 0.6.)
    - Shrubs and Trees = 0.3
- Because much of the landscape area will be trees and shrubs, the landscape area is reduced by 3 percent to reflect the "open/non-irrigated" space between plants. This area does not receive irrigation when using drip irrigation systems, which will be used for irrigating the trees and shrubs. This small deduction is reflected in the demand calculations for each residential lot category.

Using the plant factors and the MAWA equation, demand factors for each residential lot category are presented here:

[6] ETo is consistent with California Irrigation Management Information System data available for the region.

- **Low Density –** The proposed 596 single-family dwellings will be built on lots with an average gross size of 10,181 sf, minus a 10 percent street allowance. For purposes of this WSA, an average of 6,163 sf of the lot is assumed to be landscaped[7]. Based on the MAWA equation, the resulting outdoor demand factor is forecast to be 0.23 acre-feet per dwelling unit.

- **Medium Density –** The proposed 619 attached and detached single-family dwelling units in this classification will be constructed on lots with an average gross size of 5,960 sf minus an 8 percent street allowance. Other configurations within this classification, as described in the PDMSP, may include conventional small lot homes, alley, duplex, triplex, or townhomes. For purposes of this WSA, an average of 3,183 sf of the lot is assumed to be landscaped,[8]. The resulting outdoor demand factor is forecast to be 0.12 acre-feet per dwelling unit.

- **Medium-High Density –** The proposed 794 multifamily and single-family attached dwelling units in this classification will be constructed on lots with an average gross size of 4,010 sf minus a 6 percent street allowance. Other configurations within this classification, as described in the PDMSP, may include duplexes, triplexes, townhomes, or flats. For purposes of this WSA, an average of 1,819 sf of the lot is assumed to be landscaped,[9]. The resulting outdoor demand factor is forecast to be 0.07 acre-feet per dwelling unit.

- **High Density –** The proposed 569 units will include a variety of attached and multi-family dwellings on lots with an average gross size of 1,462 sf minus a 5 percent street allowance. Buildings can be configured as townhomes or flats. This dwelling unit type is typically associated with community controlled outdoor spaces so the average outdoor demands are quite low per unit. For purposes of this WSA, an average of 139 sf of the lot is assumed to be landscaped[10]. The resulting outdoor demand factor is forecast to be 0.01 acre-feet per dwelling unit.

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[7] Assumes net lot is 9,163 sf with 2,500 sf building footprint with 500 sf hardscape including driveway and patio.
[8] Assumes net lot of 5,483 sf with 1,800 sf building footprint with 500 sf hardscape including driveway and patio.
[9] Assumes net lot of 3,769 sf with 1,700 sf building footprint with 250 sf hardscape including driveway and patio.
[10] Assumes net lot of 1,389 sf with 1,000 sf building footprint with 250 sf hardscape including driveway and patio.

- **Mixed Use Residential.** – The proposed Mixed-Use Area is primarily residential in character, with some homes also containing neighborhood commercial uses, as discussed below in section A.2.1. The entire Mixed-Use Area will be designed with the same specifications as the Medium Density residential area described above, including outdoor landscaping. It is forecast that the Mixed-Use area will have an outdoor demand factor of 0.12 acre-feet per dwelling unit for its 45 dwelling units, using the same calculation methodology as was used to calculate the Medium-Density outdoor residential demands.

A.2.3 Summary of Residential Water Use Demand Factors

Table A-2 provides a summary of the unit water demand factor used to estimate the PDM water use.

Table A-2 – Summary of Residential Demand Factors for PDMSP

Water Demand Category by Dwelling Unit (du) Type	Average Density (du/ac)	Indoor Factor	Outdoor Factor	Total Demand Factor (af/du)
Low Density	5.0	0.27	0.23	0.50
Medium Density	7.0	0.27	0.12	0.39
Medium-High Density	12.0	0.27	0.07	0.34
High Density	20.0	0.21	0.01	0.21
Mixed Use	7.0	0.27	0.12	0.39

A.3 Non-Residential Water Use Demand Factors

The PDM community has several non-residential features ranging from a mixed-use neighborhood center, two schools, landscaped promenades, community gardens, and storm detention facilities. Many of these proposed land-uses are unique, requiring specific demand forecasts for each component.

For purposes of this WSA, the demand for non-residential classifications is described as either "the acre-feet of water use annually per acre of land," acre-feet/acre (af/ac), or as a single demand projection for a demand category such as the indoor uses for the elementary schools, acre-feet/unit (af/unit). These values reflect indoor or outdoor water needs expected for typical non-residential use for each of the following classifications:

- Mixed-Use Overlay Indoor
- Elementary School Indoor
- Light Industrial Indoor
- Highway Commercial Indoor
- Non-residential Outdoor

  - Parks and Open Space
  - Agricultural Buffer
  - Elementary School
  - Streetscape Landscaping

- Other miscellaneous uses, including temporary irrigation to establish open space landscaping, and temporary construction water.

The method and basis for determining the unit water demand factor for each of these classifications is detailed in the following subsections.

A.3.1 Mixed-Use Overlay Commercial Indoor

The proposed Mixed-use area is anticipated to include up to 10,000 square feet (sf.) of commercial space spread across approximately 6 acres. The Mixed-Use area is expected to be primarily residential, but will allow for live/work arrangements within homes, such as salons, tax accountants, florists, and real estate agents, etc. These commercial activities will primarily include service, professional, and office uses, with some retail also possible. Commercial activities will occupy approximately 0.23 acres of the 6-acre zone. Based upon meter studies conducted on existing neighborhood commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.[11] The majority of the Mixed-Use area's land and water use will be residential, as discussed above in section A.2.

A.3.2 Elementary School Indoor

The PDMSP community includes two 10-acre elementary schools, totaling 20 acres. Based upon meter studies for existing elementary schools, total school use – indoor and outdoor – ranges from 20 to 30 gallons per day per student. Depending on the schools' landscape design and operation, 60 to 70 percent of this demand is used to meet outdoor needs.[12] Therefore, for purposes of this WSA, indoor demands are based upon an assumed use of 10 gallons per day per student. The total number of students per dwelling unit is estimated to be 0.4331 students/DU for elementary school (grades K-6).[13] With a total of up to 2,623 dwelling units in the Puente Del Monte community, the estimated total elementary school student body is 1,136. This unit demand factor would reflect all administrative, teacher, student, cafeteria, and janitorial uses for the school, averaged on a per-student basis. The result is a forecast indoor demand of 12.7 acre-feet/year for the two proposed elementary schools, rounded up to 13 acre-feet/year for purposes of this WSA.

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[11] Zanjero, Inc. has performed several meter studies in California's Central Valley. Specific small and large mixed-use commercial developments were analyzed and found to range from 0.78 af/ac/yr to 1.22 af/ac/yr for the total indoor and outdoor area (hard space such as parking and sidewalks). The majority of this use is from indoor needs, which do not significantly vary regionally between the Central Valley and the Salinas Valley.
[12] This is an estimate of indoor use per acre derived from a 2015 study of school demand in Folsom, California. A 2016 review of school demands in El Dorado Hills, California confirmed these numbers for newer schools.
[13] Based upon values from the Gonzales Unified School District Facilities Management Plan.

A.3.3 Light Industrial Indoor

The PDM community's proposed Light Industrial area consists of 21 acres. Examples of permitted uses in this area include retail, appliance repair, laundromat, professional services/ office space, medical, laboratory, wholesale, and light industry uses such as contracting, limited manufacturing, paint supplies, janitorial services. The exact level of indoor water use in this portion of the community will depend on the specific businesses that occupy each parcel. For the purposes of this WSA, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre.

A.3.4 Highway Commercial Indoor

The PDMSP proposed 39 acres of Highway Commercial area which entails "commercial areas that cater to highway travelers and/or regional markets, including gas stations, big-box retail, fast-food restaurants, lumber yards, motels, auto malls, building contractor storage yards, and other uses that serve local and regional needs for goods and services."[14] This area is subject to a maximum Floor Area Ratio (FAR) of 0.5. Based upon meter studies conducted on existing highway commercial facilities elsewhere in California, coupled with the on-going commitment toward more efficient water use, the indoor unit demand factor for this classification is estimated at 1 acre-foot/acre for the purposes of this WSA.

A.3.5 Elementary School Outdoor

Quantifying outdoor water demands for schools depends on many factors including campus landscaping, size and type of play fields, student population, and other factors. Puente Del Monte's proposed two 10-acre elementary schools are assumed to follow designs typical in the Salinas Valley. Turf play fields are expected to occupy 12.96 percent of the total schools' area, or approximately 130,500 sf (2.99 acres) for both elementary schools combined. The remaining landscape area at each school will be trees and shrubs with lower water demands maintained by drip irrigation. The low water use landscaping is expected to occupy approximately 26 percent of the total schools' area, or approximately 263,070 sf (6.03 acres). Using the MWELO formula, the total landscaping outdoor demand from the two elementary schools is estimated to be a total of 20.9 af/year. On average, the school sites are estimated to use 1.05 af/acre of total site area.

A.3.6 Parks and Open Space Outdoor

The PDM community includes several distinct outdoor landscaping areas including traditional parks and open space, a central drainage trail (greenway), and an agricultural buffer.[15] The landscape architect for Puente Del Monte has provided estimates regarding the percentage of each acre that is hardscape, unirrigated drainage basins, or irrigated landscaping, and the percentage of irrigated area that is turf versus shrubs and trees.[16] Appendix A of the PDMSP provides details on PDM's landscaping direction and plant selection.

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[14] WHA et al. (2021) *Puente Del Monte Specific Plan*, page 2-6
[15] More information on the agricultural buffer is presented in section A.4.
[16] Personal communication, 4/14/22 email from Garett Bustos, Landscape Architect at Land Concern.

The primary assumptions used to estimate the outdoor demand for these features include:

- The assumed reference evapotranspiration (ETo) – as discussed previously, an ETo of 52.5 inches per year is assumed.
- Plant Factors (PF) – The evapotranspiration adjustment factor (ETAF) of 0.6 was used for turf play areas, and 0.3 for all other irrigated landscaping, which will be planted with low water use plants.
- The estimated square footage of each type of planting within each land-use category (LA)

These assumptions are combined in the following formula:

Demand = (ETo) (0.62) (PF x LA), where ETo is the reference evapotranspiration in inches per year, PF is the plant factor, LA is the landscape area, and IE is the irrigation efficiency for each planting type by land classification. 0.62 is a conversion factor to gallons. The resulting value is in "gallons per year," which is converted to acre-feet per year

Table A-3 presents the assumed percentages of irrigated land per each planting designation.

Table A-3 – Parks and Open Space Outdoor Water Use

Open Space Type	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	Max Allowable Plant Factor	Turf Area (acres)	Low Water Use Landscaping Area (acres)	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Neighborhood & Community Parks	23	76%	17.8	0.6 for turf, else 0.3	7.1	10.63	32.5	1.40
Central Drainage Trail	19	95%	18.1	0.3	-	18.11	23.6	1.24
Agricultural Buffer	75	3%	2.5*	0.3	-	2.49	3.3	0.04

*The agricultural buffer includes 2.5 acres of landscaping that will receive irrigation on an ongoing basis, called "enhanced pedestrian nodes". An additional 63 acres will be landscaped with drought tolerant plants that require irrigation during establishment only, which is expected to require 82 acre-feet/year for the first five years and zero applied water thereafter.

A.3.7 Other Non-Residential Outdoor (Landscaped Areas)

Other features include the landscaping for the elementary school, highway commercial and light industrial areas, and streetscape landscaping along the 66 acres of roads. The primary assumptions used to estimate the outdoor demand for these features are the same as those used to calculate outdoor demand for Parks and Open Space as described above in **Section A.3.6**.

Table A-4 presents the assumed percentages of irrigated land per each planting designation.

Table A-4 – Other Non-Residential Landscape Demand Factors[17]

Public Use Element	Total Open Area (acres)	% of Total Open Area Irrigated	Total Irrigated Area (acres)	Max Allowable Plant Factor	Average Demand Factor (AF/yr)	Average Demand Factor (AF/acre)
Schools	20	45%	9.0	1.0 for SLA, else 0.30	20.9	1.05
Neighborhood Mixed Use Commercial	6	10%	0.6	0.30	0.8	0.13
Light Industrial	21	10%	2.1	0.45	4.1	0.20
Highway Commercial	39	10%	3.9	0.45	7.6	0.20
Streetscape Landscaping	66	10%	6.7	0.45	13.1	0.20

A.3.8 Summary of Non-Residential Water Use Demand Factors

Table A-5 provides a summary of the non-residential unit water demand factor used to estimate the PDM community's water use.

Table A-5 – Summary of Non-Residential Demand Factors for PDMSP

Water Demand Category	Acres	Indoor Use (acre-feet per year)	Outdoor Use (acre-feet per acre)	Total Demand (acre-feet per year)
Neighborhood Center Mixed Use	0.23	0.23	0.00	0.23
Elementary Schools	20	13	1.05	34
Light Industrial	21	21	0.20	4
Highway Commercial	39	39	0.20	8
Neighborhood Parks & Open Space	23	-	1.40	33
Street Landscaping	67	-	0.20	13
Central Drainage Trail	19	-	1.24	24
Agricultural Buffer*	75.0	-	0.04	3

*Agricultural Buffer includes 75 acres total, of which 63 acres will require applied water for establishment only. Only 2.49 acres will require irrigation on an ongoing basis. Most of the remainder is hardscape or drainage basins.

A.4 Other Miscellaneous Uses

The PDM community has additional miscellaneous land uses with water demands, albeit only temporary demands. These uses have minimal impacts to the overall forecast water use due to their limited duration.

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[17] Irrigated area and turf area percentages are further discussed and detailed in the Puente Del Monte Specific Plan.

Construction Water

The PDM site would include site grading and infrastructure installation during early phases of construction that will require dust suppression and other incidental water uses. These would not continue beyond the construction phases of the PDM community. For purposes of identifying incremental water demands, construction water is conservatively assumed for purposes of this WSA to be 3 acre-feet per year (this is about 900,000 gallons – or about 225 fill-ups of a 4,000-gallon water truck per year).

Agricultural Buffer Establishment

The PDM Specific Plan includes “agricultural buffers” consisting of roadways, passive open space including trails, community gardens, stormwater quality basins, drainage features, and solar panel installations. The buffers are intended to provide a softer transition from the surrounding land uses into Puente Del Monte. Of the 63 acres in this land use category, 75 percent (47.25 acres) will be landscaped. These areas will be seeded with native or drought-tolerant water use plants, with the majority of landscaping requiring irrigation during establishment only. A small subset of the Agricultural Buffer, called “enhance pedestrian nodes”, would have low water use plants using drip irrigation on an ongoing basis. The enhanced pedestrian nodes would be spread throughout the agricultural buffer, totaling 2.49 acres. The agricultural buffer is expected to require 1.31 acre-feet per acre during the first five years of establishment, then only 0.04 acre-feet/acre to irrigate the enhance pedestrian nodes every year thereafter. Note that the development of the agricultural buffer is phased, as shown below in Table A-6.

A.4 SUMMARY OF PUENTE DEL MONTE WATER DEMANDS

Combining the Puente Del Monte Specific Plan’s land use details and phasing with the demand factors presented in Table A-1 through Table A-5, the water demands for the PDM community from implementation to build-out can be estimated. Upon completion of buildout, the demands are conservatively estimated at 1,135 acre-feet of water annually, excluding considerations of non-revenue water (see below), and up to approximately 1,262 acre-feet of water annually when considering of non-revenue water (see Table A-6).

Table A-6 – Puente del Monte Forecast Water Demands

Category	2025	2030	2035	2040	2045	2050	Demand Factor (af/du or af/ac)	2025	2030	2035	2040	2045	2050
Residential													
Low Density	0	80	163	163	596	596	0.27	0	22	44	44	162	162
Medium Density	281	444	519	619	619	619	0.27	76	120	141	168	168	168
Medium-High Density	108	285	524	794	794	794	0.27	29	77	142	215	215	215
High Density	0	0	292	292	569	569	0.21	0	0	61	61	119	119
Mixed Use Residential	0	21	45	45	45	45	0.27	0	6	12	12	12	12
							Indoor Subtotal	105	225	400	501	676	676
Low Density	0	80	163	163	596	596	0.23	0	18	37	37	134	134
Medium Density	281	444	519	619	619	619	0.12	33	52	60	72	72	72
Medium-High Density	108	285	524	794	794	794	0.07	7	19	35	53	53	53
High Density	0	0	292	292	569	569	0.01	0	0	1	1	3	3
Mixed Use Residential	0	21	45	45	45	45	0.12	0	3	5	5	5	5
							Outdoor Subtotal	40	91	139	168	267	267
Non-Residential													
Mixed Use Overlay	0	0.1	0.2	0.2	0.2	0.2	1.00	0.0	0.1	0.2	0.2	0.2	0.2
Elementary Schools	0	0	10	20	20	20	N/A	0	0	7	13	13	13
Light Industrial	0	0	0	0	21	21	1.00	0	0	0	0	21	21
Highway Commercial	0	0	0	0	0	38	1.00	0	0	0	0	0	38
							Indoor Subtotal	0	0	7	13	34	72
Neighborhood Center (Mixed Use)	0.0	0.1	0.2	0.2	0.2	0.2	1.24	0.0	0.1	0.3	0.3	0.3	0.3
Elementary Schools	0	0	10	20	20	20	1.05	0	0	10	21	21	21
Light Industrial	0	0	0	0	21	21	0.04	0	0	0	0	1	1
Highway Commercial	0	0	0	0	0	38	0.20	0	0	0	0	0	7
Parks	3	4	9	23	23	23	1.40	4	6	12	32	32	32
Central Drainage Trail	0	0	0	19	19	19	1.24	0	0	0	24	24	24
Agricultural Buffer (ongoing)	8	13	13	13	63	75	0.04	0	1	1	1	3	3
Streetscape Landscaping	0	0	0	0	63	66	0.20	0	0	0	0	12	13
							Outdoor Subtotal	5	7	24	78	93	102
Other Miscellaneous Uses													
Agricultural Buffer (establishment)	8	13	13	13	63	75	1.31	11.0	6.2	0.0	0.0	65.8	15.2
Construction Water	1	1	1	1	1	1	3	3	3	3	3	3	3
							Outdoor Subtotal	14	9	3	3	69	18
							Indoor Total	105	225	408	514	710	748
							Outdoor Total	59	107	165	249	429	387
							Total	164	332	573	763	1,140	1,135
							Non-revenue water at 10%	18	37	64	85	127	126
							Total Puente Del Monte Demand	**182**	**369**	**637**	**848**	**1,266**	**1,262**

ATTACHMENT B – GROUNDWATER BASIN AND SUBBASIN DESCRIPTIONS

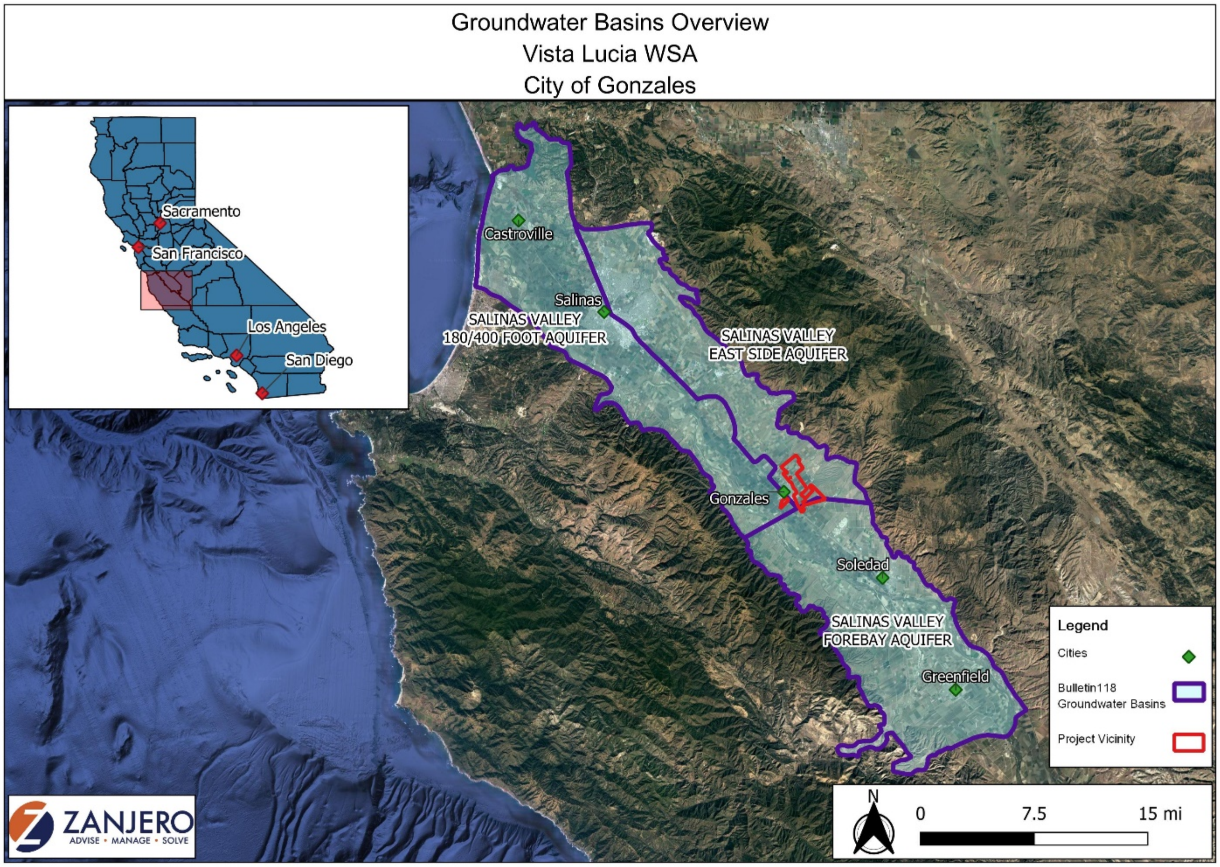
This attachment provides detailed descriptions of the Salinas Valley Groundwater Basin and its subbasins that underlie the Proposed Project, which are summarized in Section 4 of the WSA. If a project's water supply includes the use of groundwater, the WSA must include: a description of any groundwater basin or basins from which the proposed project will be supplied, a detailed description and analysis of historical and projected groundwater pumping, and an analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project.

The Proposed Project is located in the Salinas Valley Groundwater Basin, near the intersection of three subbasins: the 180/400-Foot Aquifer Subbasin (Basin No. 3-004.01), the Eastside Subbasin (Basin No. 3-004.02), and the Forebay Subbasin (Basin No. 3-004.04), as defined by DWR Bulletin 118.[1] The subbasins cover areas of of 140 square miles, 90 square miles, and 147 square miles respectively. In the area around the City of Gonzales, the subbasins are general bounded by the Gabilan Range to the east and the Sierra de Salinas to the west. The 180/400-Foot Aquifer Subbasin and Eastside Subbasin are both characterized as high-priority basins under the Sustainable Groundwater Management Act (SGMA), while the Forebay Subbasin is characterized as medium-priority. [2] All three subbasins have produced Groundwater Sustainability Plans, which were used by this WSA to evaluate the long-term reliability of groundwater supplies for the Proposed Project and the City of Gonzales. The Salinas Valley-Wide Integrated Groundwater Sustainability Plan was also used to evaluate conditions across subbasin boundaries.

While current supply wells for the City of Gonzales are located only in the 180/400-Foot Aquifer and Eastside Subbasins, a portion of the City and the Proposed Project also overlies the Forebay subbasin. It is possible that water from any of the three subbasins would ultimately be used to serve the Proposed Project. Therefore, each of the three subbasins is described in turn below. See **Figure B-1** for DWR's representation of the Groundwater Basins in the Salinas Valley near Gonzales.

[1] California Department of Water Resources, *California's Groundwater Update 2020 Highlights* (2020).
[2] CA Department of Water Resources. (2022). *Basin Prioritization*. water.ca.gov. Retrieved from https://water.ca.gov/programs/groundwater-management/basin-prioritization

Figure B-1 – Location of Salinas Valley Subbasins



B.1 180/400-Foot Aquifer Subbasin Geology[3]

The 180/400-Foot Aquifer Subbasin lies in northwestern Monterey County and includes the northern end of the Salinas River Valley. The Subbasin covers an area of 89,700 acres, or 140 square miles (DWR, 2004). It is bounded by the Eastside Aquifer and Langley Area Subbasins to the east, the Forebay Aquifer Subbasin to the south, the Monterey Subbasin to the west, and the Monterey Bay to the north. The 180/400-Foot Aquifer subbasin is located at the northern, down-gradient end of the larger Salinas Valley Basin. Land surface elevations in the Subbasin range from approximately 500 feet above sea level along its border with the Sierra de Salinas to sea level at Monterey Bay.[4] The geology of the 180/400-Foot Aquifer Subbasin is characterized by alluvium, terrace deposits, the Paso Robles Formation, and the Aromas Red Sands Formation. The geology is a result of both fluvial sedimentary deposits from the Salinas River and its

[3] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (2021)
[4] 180/400-Foot Aquifer Subbasin GSP (2021), Chapter 4.

tributaries and marine deposits from the Pacific Ocean. The majority of the sediments in this subbasin are a mix of sands, gravels, and clays.[5]

The stratigraphic succession of geologic formations in the 180/400-Foot Aquifer Subbasin include, from oldest to youngest: Cretaceous basement rock; Tertiary Deposits including the Purisima Formation, Santa Margarita Sandstone, and Monterey Formation; Quaternary-Tertiary Deposits including the Paso Robles Formation; and Quaternary Deposits including terrace deposits, alluvial fans, Aromas Red Sands and similar, and alluvium form streams and small drainages.

The shallowest water-bearing sediments are thin, laterally discontinuous, and do not constitute a significant source of water for the Subbasin. These shallow sediments are therefore not considered a principal aquifer. These sediments are generally within 30 feet of the ground surface and are part of the Holocene Alluvium unit. Beneath the shallow sediments, the following series of aquitards and principal aquifers have long been recognized in a multitude of studies and reports. They are the distinguishing hydrostratigraphic features of this Subbasin:

- Salinas Valley Aquitard
- 180-Foot Aquifer
- 180/400-Foot Aquifer
- 400-Foot Aquifer
- 400-Foot/Deep Aquitard
- Deep Aquifers

Salinas Valley Aquitard

The Salinas Valley Aquitard is the shallowest, relatively continuous hydrogeologic feature in the Subbasin. The aquitard is composed of blue or yellow sandy clay layers with minor interbedded sand layers (DWR, 2003). The Salinas Valley Aquitard correlates to the Pleistocene Older Alluvium stratigraphic unit and was deposited in a shallow sea during a period of relatively high sea level. Most of the Salinas Valley Aquitard is generally encountered at depths of less than 30 feet. The Salinas Valley Aquitard overlies and confines the 180-Foot Aquifer.

180-Foot Aquifer

The 180-Foot Aquifer is the shallowest laterally extensive principal aquifer in the 180/400-Foot Aquifer Subbasin. This aquifer consists of interconnected sand and gravel beds that are from 50 to 150 feet thick. The sand and gravel layers are interlayered with clay lenses. This aquifer is correlated to the Older Alluvium or upper Aromas Sand formations.

180/400-Foot Aquitard

The base of the 180-Foot Aquifer is an aquitard consisting of interlayered clay and sand layers, including a marine blue clay layer similar to the Salinas Valley Aquitard, known as the 180/400-

[5] 180/400-Foot Aquifer Subbasin GSP (2021), Section 4.2

Foot Aquitard. It is widespread in the Subbasin but varies in thickness and quality, and areas of hydrologic connection between the 400-Foot and 180-Foot Aquifers are known to exist. In areas where the 180/400-Foot Aquitard is thin or discontinuous, seawater in the 180-Foot Aquifer can migrate downward into the 400-Foot Aquifer in response to pumping. The 180/400-Foot Aquitard overlies and confines the 400-Foot Aquifer.

400-Foot Aquifer

The 400-Foot Aquifer is a hydrostratigraphic layer of sand and gravel with varying degrees of interbedded clay layers. It is usually encountered between 270 and 470 feet below ground surface. This hydrogeologic unit correlates to the Aromas Red Sands and the upper part of the Paso Robles Formation. Near the City of Salinas, the 400-Foot Aquifer is a single permeable bed approximately 200 feet thick; but in other areas the aquifer is split into multiple permeable zones by clay layers. The base of the 400-Foot Aquifer is the 400-Foot/Deep Aquitard.

400-Foot/Deep Aquitard

The 400-Foot/Deep Aquitard is primarily comprised of several blue marine clay layers. This aquitard can be several hundred feet thick (Kennedy-Jenks, 2004; Brown and Caldwell, 2015), consisting of mostly clay with sand and gravel lenses. The heterogeneous nature of the aquitard indicates there may be potential pathways for downward migration of water from the 400-Foot Aquifer to the Deep Aquifers. The 400-Foot/Deep Aquitard overlies and confines the Deep Aquifers.

Deep Aquifers

The Deep Aquifers, also referred to as the 900-Foot and 1500-Foot Aquifers, are up to 900 feet thick and have alternating sandy-gravel layers and clay layers which do not differentiate into distinct aquifer and aquitard units (DWR, 2003). The Deep Aquifers correlate to the lower Paso Robles, Purisima, and Santa Margarita formations where they exist. The Deep Aquifers overlie the low permeability Monterey Formation. While the Deep Aquifers are relatively poorly studied, some well owners have indicated that there are different portions of the Deep Aquifers with different water qualities. No public data exists to substantiate these statements.

B.2 EASTSIDE SUBBASIN GEOLOGY[6]

The Eastside Subbasin lies in northeastern Monterey County. The Subbasin covers an area of approximately 57,500 acres, or 90 square miles. The Eastside Subbasin lies along the east side of the Salinas Valley Groundwater Basin. It is bounded by the Gabilan Range to the east, the Forebay Subbasin to the south, the 180/400-Foot Aquifer Subbasin to the west, and the Langley Area Subbasin to the north. Land surface elevations in the Subbasin range from approximately 900 feet above sea level along its border with the Gabilan Range to approximately 20 feet above sea level where it meets the 180/400-Foot Aquifer Subbasin along State Highway 101 near the

[6] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Eastside Subbasin Groundwater Sustainability Plan (2021).

City of Salinas. The geology of the Eastside Subbasin is dominated by alluvial fan deposits. Surface-water drainages originating in the Gabilan Range deposited a series of interconnected alluvial fans that extend from the Gabilan Range in the northeast to the fluvial deposits that define the 180/400-Foot Aquifer Subbasin in the southwest. There are no known structural features that restrict groundwater flow within the Eastside Subbasin, such as geologic folds or faults. However, groundwater flow from the Eastside Subbasin to various other subbasins may be restricted due to lack of continuous sediments. Usually, groundwater flow follows the topography of the valley northwest toward Monterey Bay.

Major geologic units present in the Eastside Subbasin are described below, starting at the surface and moving down through the geologic layers from youngest to oldest:

- Quaternary Deposits
- Older Igneous and Metamorphic Rocks

Quaternary Deposits

The Quaternary Deposits are made of alluvium in streambeds and small drainages, hillslope deposits, alluvial fans, Aromas Red Sands and similar, and terrace deposits. Poorly to moderately sorted gravel, sand, and silt with discontinuous lenses of clay in some areas generally characterize these deposits. The Eastside Subbasin lacks the confining aquitards found in the adjacent 180/400-Foot Aquifer Subbasin.

Older Igneous and Metamorphic Rocks

The eastern border of the Subbasin is defined by the contact between the Quaternary sedimentary units described above and the Cretaceous igneous and pre-Cretaceous metamorphic rocks of the Gabilan Range. Hard rocks like these also form the basement below the aquifer.

B.3 FOREBAY SUBBASIN GEOLOGY[7]

The Forebay Subbasin lies in the middle of Monterey County, and the middle of the Salinas Valley Groundwater Basin. The Forebay Subbasin is bounded by the Gabilan Range to the east, the 180/400-Foot Aquifer and Eastside Subbasins to the north, the Sierra de Salinas to the west, and the Upper Valley Subbasin to the south. Land surface elevations in the Subbasin range from approximately 1,800 feet along the Sierra de Salinas alluvial fans to less than 200 feet at the boundary with the 180/400-foot Aquifer Subbasin. The geology of the Forebay Subbasin is characterized by 2 intersecting geologic facies: the fluvial and marine dominated deposits of the main Salinas Valley; and the Arroyo Seco alluvial fan originating in the Sierra de Salinas on the west side of the Subbasin. In general, the alluvial sediments encountered in the Arroyo Seco Cone are more coarse-grained than those found in the main valley's fluvial and marine deposits.

[7] Salinas Valley Basin Groundwater Sustainability Agency, Salinas Valley: Forebay Subbasin Groundwater Sustainability Plan (2021).

Major geologic units present in the Forebay Subbasin are described below, starting at the surface and moving down through the geologic layers from youngest to oldest:

- Quaternary Deposits
- Quaternary-Tertiary Deposits
- Tertiary Deposits
- Cretaceous Rocks

Quaternary Deposits

The Quaternary Deposits consist of flood plains and stream channel deposits, alluvial fans, and landslide and terrace deposits. The flood plains and stream channel deposits consist of unconsolidated, relatively fine grained, mixed deposits of sand and silt. There are thin, discontinuous layers of clay present. The thicknesses of the youngest deposits are generally less than 20 ft. The alluvial fan sediments consist of weakly to moderately consolidated, moderately to poorly sorted sand, silt, and gravel deposits. Gravel content increases toward the head of the alluvial fans, particularly the Arroyo Seco Cone which is the most prominent alluvial fan in this subbasin. Finer sediments such as clay and silt increase towards the furthest extents of the Cone, interfingering with the silts and clays often found in floodplain and stream-channel deposits. The landslide and terrace features occur as erosional remnants of former stream channels of the Arroyo Seco and consist of weakly consolidated to semi-consolidated, moderately to poorly sorted, fine- to coarse-grained silty sand with gravels and cobbles. Their thickness is highly variable. These quaternary deposits are sometimes grouped together in other reports as Alluvium or Valley Fill Deposits.

Quaternary-Tertiary Deposits

The Quaternary-Tertiary Deposits consist of the Paso Robles Formation. This Pliocene to lower Pleistocene (1.6 million to 5 million years ago) unit is composed of lenticular beds of sand, gravel, silt, and clay from terrestrial. The depositional environment is largely fluvial but also includes alluvial fan, lake, and floodplain deposition. The alternating beds of fine and coarse materials typically have bed thicknesses of 20 to 60 feet.

Tertiary Deposits

The Tertiary Deposits consist of the Pancho Rico Formation and the Monterey Formation. The Poncho Rico Formation is a Pliocene (1.6 million to 5 million years ago) unit consisting of sandy marine strata and interbedded finer grained rocks. This unit conformably underlies the Paso Robles formation and conformably overlies the Monterey Shale, or non-comformably overlies the basement rocks northeast of King City. The Monterey Formation is a Miocene (5 million to 24 million years ago) unit consisting of shale and mudstone, with lower deposits being slightly sandier and deposited in a shallow marine environment.

Cretaceous Rocks

The Gabilan Range, which borders the Subbasin to the northeast, is composed of Mesozoic intrusive rocks and is important as a geologic boundary in the Subbasin and greater Salinas

Valley Groundwater Basin. The Sierra de Salinas, which borders the Subbasin to the southwest, is composed of metamorphic and sedimentary rocks and is important as a geologic boundary in the Subbasin and greater Salinas Valley Groundwater Basin as well.

Noise Assessment

F

APPENDIX

ENVIRONMENTAL NOISE ASSESSMENT

GONZALES COOLER DEVELOPMENT
GONZALES, CALIFORNIA

WJVA Report No. 22-60

PREPARED FOR

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WJV ACOUSTICS, INC.
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MARCH 7, 2023

1. INTRODUCTION

Project Description

The proposed Project is the construction and operation of an agricultural processing facility north of Gloria Road, in Gonzales California. The facility will receive agricultural crops (“product”) from nearby fields for cooling and processing and then shipping to customers. This proposed facility will replace the Applicant’s existing Salinas-based facility to be more centrally located within its growing area.

The 313,800 square foot facility (243,800 s.f. in base configuration with a 70,000 s.f. future expansion) will be planned on 44.8 acres of a 107.15-acre parcel, 26.7 acres of which are within the city limits of Gonzales and zoned Highway Commercial, with the remaining 84 acres within the City’s Sphere of Influence (SOI) in the County of Monterey and zoned Farmland (F). No other entitlements for development are planned on other portions of the parcel under this application. The 32 acres outside of the proposed development will remain in agricultural row-crop use. All neighboring parcels immediately adjacent to the project are currently being farmed. The facility will consist of approximately 210,000 square feet of raw product cold storage and processing lines where the produce will be cleaned, sized, packaged and shipped, as well as approximately 33,800 square feet of office administration space and miscellaneous mechanical and storage rooms and shop areas. A site plan is provided as Figure 1.

As a necessary part of the packaging of the finished product, exterior storage of cardboard cartons will be required as part of the operation. The facility will utilize forklifts to move product in and around the facility on pallets. Ancillary improvements required as part of the facility shall include a check-in area when entering the site and fencing enclosing the entire perimeter of the facility as required by current food safety measures. Refrigeration equipment including ammonia engine rooms, condensing towers, and vacuum tubes will be utilized. Paved surfaces are required for truck traffic as well as fire department access and onsite parking for employees and visitors. Utility connections, landscaping, signage, lighting, trash enclosures and a storm water detention basin are all planned for this site to adhere to local and state requirements.

Environmental Noise Assessment

This environmental noise assessment has been prepared to determine if significant noise impacts would be produced by the project and to describe mitigation measures for noise if significant impacts are determined. The environmental noise assessment, prepared by WJV Acoustics, Inc. (WJVA), is based upon the project site plan prepared by Peartree+Belli Architects (dated 10/18/22), project-related equipment information provided by the applicant, reference noise level measurements and on-site ambient noise level measurements conducted by WJVA. Revisions to the site plan, project-related equipment and noise level data or other project-related information available to WJVA at the time the analysis was prepared may require a reevaluation of the findings and/or recommendations of the report.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise. Appendix B provides typical A-weighted sound levels for common noise sources.

In terms of human perception, a 5 dB increase or decrease is considered to be a noticeable change in noise levels. Additionally, a 10 dB increase or decrease is perceived by the human ear as half as loud or twice as loud. In terms of perception, generally speaking the human ear cannot perceive an increase (or decrease) in noise levels less than 3 dB.

2. THRESHOLDS OF SIGNIFICANCE

The CEQA Guidelines apply the following questions for the assessment of significant noise impacts for a project:

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?

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

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

a. Noise Level Standards

CITY OF GONZALES

General Plan

Chapter V (Community Health and Safety) of the Gonzales 2010 General Plan (adopted 2011) establishes land use compatibility noise level criteria in terms of the Day-Night Average Level (L_{dn}/DNL) for transportation noise sources. The L_{dn} is the time-weighted energy average noise level for a 24-hour day, with a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m. to 7:00 a.m.). The L_{dn} represents cumulative exposure to noise over an extended period of time and is therefore calculated based upon *annual average* conditions.

Policy 8.1 (Transportation Noise Sources), states the following:

Maintain a citywide noise environment that achieves noise goals by minimizing to the degree practicable the impact of transportation-related noise.

> Implementing Action HS-8.1.1- Noise-Sensitive Land Uses. *New development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future noise levels from transportation noise sources exceeding 60 dB DNL within outdoor activity areas (65 dB DNL is allowable for residential uses in the Downtown Mixed-Use District) unless appropriate noise mitigation measures have been incorporated into the final project design. An exterior exposure of up to 65 dB DNL within outdoor activity areas may be allowed if a good-faith effort has been made to mitigate exterior noise exposure using a practical application of available noise mitigation measures and interior noise exposure due to exterior sources will not exceed 45 dB DNL.*

Implementing Action HS-8.1.2 - New Transportation Noise. *Noise created by new transportation noise sources, including roadway improvement projects, shall be mitigated so as not to exceed 60 dB DNL within outdoor activity areas {65 dB DNL is allowable for residential uses in the Downtown Mixed-Use District) and 45 dB DNL within interior living spaces of existing noise-sensitive land uses.*

The General Plan describes noise-sensitive land uses as:

- Residential Development
- Schools
- Hospitals, Nursing Homes
- Churches
- Libraries

Policy 8.2 of the Gonzales 2010 General Plan establishes land use compatibility criteria in terms of the equivalent sound level (L_{eq}) and maximum (L_{max}) for stationary (non-transportation) noise sources.

Policy 8.2 (Stationary Noise Sources), states the following:

Maintain a citywide noise environment that achieves noise goals by minimizing to the degree practicable the impact of stationary noise sources.

Implementing Action HS-8.2.1- Noise-Sensitive Land Uses. The new development of noise-sensitive land uses shall not be permitted in areas where noise levels from existing stationary noises sources may exceed the noise level standards summarized in Table V-3 (provided as Table I below).

Implementing Action HS-8.2. 2 - New Stationary Noise Sources. Noise created by proposed stationary noise sources, or existing stationary noise sources which undergo modifications that may increase noise levels, shall be mitigated so as not to exceed the noise level standards of Table V-3 within outdoor activity areas of existing or planned noise- sensitive land uses.

TABLE I

NON-TRANSPORTATION NOISE LEVEL STANDARDS, dBA
CITY OF GONZALES

Daytime (7 a.m.-10 p.m.)		Nighttime (10 p.m.-7 a.m.)	
L_{eq}	L_{max}	L_{eq}	L_{max}
55	70	50	65

Source: City of Gonzales 2010 General Plan

Municipal Code

Section 12.112.010 (Commercial and Industrial Performance Standards) of the Gonzales City Code[4] states the following:

> *At the lot line of all uses specified in chapters 12.76 (Highway Commercial), 12.80 (Neighborhood Commercial), 12.84 (Downtown Mixed Use) and 12.88 (Industrial) of this title, the maximum sound generated by any user shall not exceed seventy five (75) dBA when adjacent users are industrial or wholesale users. When adjacent to offices or retail, the sound level shall be limited to seventy (70) dBA. When users are adjacent or contiguous to residential, park or institutional uses, the maximum sound level shall not exceed sixty (60) dBA. Excluded from these standards are occasional sounds generated by temporary construction activities or warning devices.*

State of California

There are no state noise standards that are applicable to the project.

Federal Noise Standards

There are no federal noise standards that are applicable to the project.

b. Construction Noise and Vibration

Section 11.04.050 (Restricted Hours for Construction) of the City of Gonzales Municipal Code provides limitations on hours of construction.

> *Unless specifically exempted by the building official, construction will be restricted to the hours between seven o'clock (7:00) A.M. and seven o'clock (7:00) P.M. The building official may grant an exemption upon his/her determination of an emergency.*

Additional guidance can be provided by section 14-8.02A of the California Department of Transportation (Caltrans) Standard Specifications document which suggests that construction equipment should *not exceed 86 dBA* L_{max} *at a distance of 50 feet from job site activities from 9 p.m. to 6 a.m.*

Section 12.112.010 (Commercial and Industrial Performance) of the Gonzales City Code states the following in regards to vibration,

Vibration: No vibration shall be permitted which is discernible without instruments at the lot line of the establishment or use.

There are no state or federal standards that specifically address construction vibration. Some guidance is provided by the Caltrans Transportation and Construction Vibration Guidance Manual[5]. The Manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in Table II and Table III, and are presented in terms of peak particle velocity (PPV) in inches per second (in/sec).

TABLE II

GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans

TABLE III

GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Caltrans

3. SETTING

The proposed Project will be located on 44.8 acres of a 107.15-acre parcel, in Gonzales, California. The project site is located west of US Route 101 (US 101) and north of Gloria Road. The existing project site and surrounding areas are currently in agricultural production. There are two existing single-family residential land uses located near the project site.

a. Background Noise Level Measurements

Existing noise levels in the project vicinity are dominated by noise associated with vehicle traffic on US 101 and Gloria Road. Additional sources in the project vicinity include noise associated with agricultural activities as well as occasional aircraft overflights.

WJVA staff previously conducted ambient noise level measurements within and adjacent to the project site area in 2020. Measurements of existing ambient noise levels in the project vicinity were conducted between April 22, 2020 and April 23, 2020. Long-term (24-hour) ambient noise level measurements were conducted at two (2) locations (sites LT-1 and LT-2). Ambient noise levels were measured for a period of 48 continuous hours at each of the two long-term ambient noise measurement locations. Site LT-1 was located within the southwest portion of the project site, along Gloria Road approximately 500 feet east of the centerline of US 101. Site LT-2 was located along Gloria Road, near the approximate midpoint between US 101 and Iverson Road. Both sites were exposed to noise associated with vehicle traffic on roadways as well as agricultural activities. The locations of the long-term ambient noise measurement sites are provided as Figure 3.

Noise monitoring equipment consisted of a Larson-Davis Laboratories Model LDL-820 sound level analyzer equipped with a B&K Type 4176 1/2” microphone. The equipment complies with the specifications of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. The meter was calibrated with a B&K Type 4230 acoustic calibrator to ensure the accuracy of the measurements.

Measured hourly energy average noise levels (L_{eq}) at site LT-1 ranged from a low of 57.2 dB between midnight and 1:00 a.m. on April 23rd to a high of 71.5 dBA between 3:00 p.m. and 4:00 p.m. on April 23rd. Hourly maximum (L_{max}) noise levels at site LT-1 ranged from 77.1 to 92.0 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 44.4 to 61.4 dBA. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources. The measured L_{dn} value at site LT-1 for April 22nd and April 23rd was 69.4 dB L_{dn} and 69.6 dB L_{dn}, respectively. Figure 4 graphically depicts hourly variations in ambient noise levels at site LT-1 for each of the two monitoring days. Figure 5 provides a photograph of measurement site LT-1.

Measured hourly energy average noise levels (L_{eq}) at site LT-2 ranged from a low of 53.8 dB between 10:00 p.m. and 11:00 p.m. on April 23rd to a high of 68.6 dBA between 3:00 p.m. and 4:00 p.m. on April 22nd. Hourly maximum (L_{max}) noise levels at site LT-2 ranged from 80.8 to 94.9 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 31.9 to 47.9 dBA. The measured L_{dn} value at site LT-2 for April 22nd and April 23rd was 69.8 dB L_{dn} and 69.3 dB L_{dn}, respectively. Figure 6 graphically depicts hourly variations in ambient noise levels at site LT-2 for each of the two monitoring days. Figure 7 provides a photograph of measurement site LT-2.

Additionally, short-term (15-minute) ambient noise level measurements were conducted at three (3) locations (Sites ST-1, ST-2 and ST-3). Two (2) individual measurements were taken at each of the three short-term sites to quantify ambient noise levels in the morning and afternoon hours. The locations of the long-term and short-term noise monitoring sites are provided on Figure 3.

Table IV summarizes short-term noise measurement results. The noise measurement data included energy average (L_{eq}) maximum (L_{max}) as well as five individual statistical parameters. Observations were made of the dominant noise sources affecting the measurements. The statistical parameters describe the percent of time a noise level was exceeded during the measurement period. For instance, the L_{90} describes the noise level exceeded 90 percent of the time during the measurement period, and is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic, aircraft and other local noise sources.

Short-term ambient noise measurements were conducted for 15-minute periods at each of the three sites. Sites ST-1, ST-2 and ST-3 were located along Gloria Road, the latter two being located in the vicinity of residential land uses. The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic and noise associated with agricultural activities.

TABLE IV

SUMMARY OF SHORT-TERM NOISE MEASUREMENT DATA
GONZALES COOLER DEVELOPMENT
APRIL 22 & 23, 2020

Site	Time	A-Weighted Decibels, dBA							Sources
		L_{eq}	L_{max}	L_2	L_8	L_{25}	L_{50}	L_{90}	
ST-1	8:32 a.m.	64.0	80.1	76.2	68.3	58.0	52.7	47.5	TR, AG
ST-1	3:10 p.m.	63.1	78.5	75.5	66.4	55.1	50.5	47.3	TR, AC
ST-2	8:55 a.m.	62.4	81.0	73.1	66.5	58.2	55.9	52.0	TR, AG
ST-2	3:30 p.m.	61.3	80.9	70.8	64.0	56.1	53.2	49.6	TR, AC
ST-3	9:16 a.m.	67.7	83.9	86.1	67.4	53.6	51.1	46.2	TR, D, B
ST-3	3:53 p.m.	67.5	84.4	86.0	67.6	51.1	47.7	45.3	TR

TR: Traffic AC: Aircraft AG: Agricultural Activities V: Voices B: Birds D: Barking Dogs
Source: WJV Acoustics, Inc.

4. PROJECT IMPACT ASSESSMENT

a. Noise Impacts from On-Site Noise Sources (Less Than Significant)

The 313,800 square foot facility (243,800 s.f. in base configuration with a 70,000 s.f. future expansion) will be planned on 44.8 acres of a 107.15-acre parcel, 26.7 acres of which are within the city limits of Gonzales and zoned Highway Commercial, with the remaining 84 acres within the City's Sphere of Influence (SOI) in the County of Monterey and zoned Farmland (F). The 32 acres outside of the proposed development will remain in agricultural row-crop use. All neighboring parcels immediately adjacent to the project are currently being farmed. The facility will consist of approximately 210,000 square feet of raw product cold storage and processing lines where the produce will be cleaned, sized, packaged and shipped, as well as approximately 33,800 square feet of office administration space and miscellaneous mechanical and storage rooms and shop areas.

The facility will utilize forklifts to move product in and around the facility on pallets. Refrigeration equipment including ammonia engine rooms, condensing towers, and vacuum tubes will be utilized. Paved surfaces are required for truck traffic as well as fire department access and onsite parking for employees and visitors. Utility connections, landscaping, signage, lighting, trash enclosures and a storm water detention basin are all planned for this site to adhere to local and state requirements.

Noise generated on the site will be primarily from activities occurring in and around the processing area of the facility and truck traffic entering the leaving the site. This processing area is located an average of 600 feet from the northern property line, approximately 300 feet from Gloria Road on the south, with large expanses of land between the facility and the eastern and western property lines.

The proposed facility has two distinct operating seasons, the peak season (April-November) and the off-season (December-March). During the Peak Season, the facility will employ 436 employees and will see approximately 218 non-employee truck visits every 24 hours. During the Off-Season, the facility will employ approximately 80 employees per day and will see approximately 3 non-employee truck visits per week. It is anticipated that during peak season the facility would operate 24 hours per day, seven (7) days per week.

Operational Noise/Outdoor Equipment

The project will include the operation of numerous noise-producing components and equipment that will be located outdoors. These include four (4) refrigeration trailers, two (2) in-house refrigeration compressors, five (5) vacuum tubes and two (2) ice generators. Additional sources of noise associated with project operations include forklift movements (including backup alarms) and truck movements. These various noise-producing components generally operate simultaneously and in close proximity to each other.

In order to quantify noise levels associated with these noise-producing equipment components, WJVA conducted reference noise level measurements at an existing facility (operated by the project applicant) in Yuma, Arizona on December 1 & 2, 2022. According to the project applicant, the Yuma facility utilizes the exact equipment that currently operates at the existing Salinas facility during summer harvest season. These equipment components are transported between the two locations based upon seasonality operations and requirements. This equipment will operate at the proposed Gonzales facility during the summer months (currently operating at the existing Salinas facility during summer months) and are transported to the Yuma facility for operations during the Fall/Winter months.

It should be noted, the Yuma facility is located in close proximity to the Yuma International Airport, a joint use airport for both civilian and military aircraft. The US Marine Corps Air Station utilizes the airport for training purposes, and as such the Yuma facility is exposed to frequent military aircraft flyovers during daytime hours. The measured noise levels (specifically the measured hourly maximum (L_{max}) and hourly energy average (L_{eq}) noise levels) are impacted by these aircraft flyovers.

As the above-described operational equipment components generally operate simultaneously and in conjunction with each other, based upon product demand requirements, WJVA conducted numerous noise level measurements while all equipment was fully operational. According to staff at the Yuma facility, the facility was operating and peak capacity during the December reference noise level measurements conducted at the Yuma cooling facility.

According to Yuma staff, the facility operates 24 hours per day, however, levels of operational activity vary throughout the 24-hour day, with peak levels of activity generally occurring between the hours of approximately 1 pm to 8 pm. While cooling equipment (refrigeration trailers, compressors, vacuum tubes, ice generators, etc.) do operate, as needed, on varying levels throughout the day, the overall usage peaks as produce is brought from the fields to the site for processing, in the early afternoon hours and begins to subside around 8 pm. According to the project applicant, the Gonzales facility would operate in a similar daily manner.

Continuous long-term noise level measurements were conducted at three (3) locations (RL-1, RL-2 and RL-3) on December 1 & 2, 2022 at the Yuma facility. Figure 8 provides the location of the long-term reference noise level measurement sites at the Yuma cooling facility.

As described above, the Yuma facility is exposed to frequent military aircraft flyovers during daytime hours. The noise levels associated with the operational activities at the Yuma facility are best quantified by applying the measured hourly L_{90} statistical noise levels. The L_{90} is a statistical descriptor that defines the noise level exceeded 90% of the time during each hour of the sample period. The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable single noise events from traffic and aircraft.

Long-term measurement site RL-1 was located at ground level, at a general setback distance of approximately 100 feet from the noise producing equipment. Measured hourly energy average noise levels (L_{eq}) at site RL-1 ranged from a low of 67.9 dB between 1:00 a.m. and 2:00 a.m. to a high of 77.3 dBA between 8:00 a.m. and 9:00 a.m. Hourly maximum (L_{max}) noise levels at site RL-

1 ranged from 70.2 to 95.6 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 65.5 to 74.4 dBA. Figure 9 graphically depicts hourly variations in measured noise levels at site RL-1 for the 24-hour measurement period, and provides a photograph of measurement site RL-1.

Long-term measurement site RL-2 was located at ground level, at a general setback distance of approximately 70 feet from the noise producing equipment. Measured hourly energy average noise levels (L_{eq}) at site RL-2 ranged from a low of 65.9 dB between 2:00 a.m. and 3:00 a.m. as well as between 3:00 a.m. and 4:00 a.m. to a high of 77.1 dBA between noon and 1:00 p.m. Hourly maximum (L_{max}) noise levels at site RL-2 ranged from 68.3 to 97.4 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 63.3 to 73.5 dBA. Figure 10 graphically depicts hourly variations in measured noise levels at site RL-2 for the 24-hour measurement period, and provides a photograph of measurement site RL-2.

Long-term measurement site RL-3 was located at rooftop level (approximately 20 feet above ground level), at a general setback distance of approximately 115 feet from the noise producing equipment. Measured hourly energy average noise levels (L_{eq}) at site RL-3 ranged from a low of 66.7 dB between 5:00 a.m. and 6:00 a.m. to a high of 77.8 dBA between 3:00 p.m. and 4:00 p.m. Hourly maximum (L_{max}) noise levels at site RL-3 ranged from 70.2 to 95.6 dBA. Residual noise levels at the monitoring site, as defined by the L_{90}, ranged from 65.5 to 74.4 dBA. Figure 11 graphically depicts hourly variations in measured noise levels at site RL-3 for the 24-hour measurement period, and provides a photograph of measurement site RL-3.

Table V provides a summary of the hourly average noise measurement data from the three long-term noise measurement sites during daytime (7 am to 10 pm) hours and Table VI provides a summary of the hourly average noise measurement data from the three long-term noise measurement sites during nighttime (10 pm to 7 am) hours. Noise levels in Table V and Table VI are normalized to a reference setback distance of 100 feet from the noise producing equipment area.

TABLE V

SUMMARY OF LONG-TERM REFERENCE NOISE MEASUREMENT DATA
YUMA COOLING FACILITY, DAYTIME (7 AM TO 10 PM) NOISE LEVELS
DECEMBER 1 & 2, 2022

Site	A-Weighted Decibels, dBA Hourly Average Noise Levels @ 100 Feet		
	L_{eq}	L_{max}	L_{90}
RL-1	74	87	70
RL-2	71	87	67
RL-3	75	86	71

Source: WJV Acoustics, Inc.

TABLE VI SUMMARY OF LONG-TERM REFERENCE NOISE MEASUREMENT DATA YUMA COOLING FACILITY, NIGHTTIME (10 PM TO 7 AM) NOISE LEVELS DECEMBER 1 & 2, 2022			
Site	A-Weighted Decibels, dBA		
	Hourly Average Noise Levels @ 100 Feet		
	L_{eq}	L_{max}	L_{90}
RL-1	68	77	67
RL-2	66	81	62
RL-3	69	79	67

Source: WJV Acoustics, Inc.

The land surrounding the project site is generally zoned as agricultural to the north, east and south. The land to the west of the project site is undeveloped land zoned Highway Commercial. As described above, the L_{90} statistical noise descriptor represents the most accurate representation of project-related noise levels, and does not include noise associated with individual events such as the above-described frequent military aircraft flyovers. Therefore, the measured L_{90} noise data is representative of the hourly energy average (L_{eq}) project-related noise levels.

Table VII provides project-related noise levels in terms of the applicable City of Gonzales stationary (non-transportation) noise level standards (provided above as Table I) at various setback distances from the exterior noise-producing equipment associated with the project. The noise levels in Table VII are provided for both daytime (7 am to 10 pm) and nighttime (10 pm to 7 am) operations, based upon the noise levels measured at the Yuma cooling facility (described and summarized above). Additionally, the setback distances provided in Table VII represent those associated with noise-producing equipment located along the east side of the processing/cooler building (refrigeration trailers, refrigeration compressors, vacuum tubes and ice generators). These noise sources would be acoustically shielded at areas west of the processing/cooler building.

The noise levels provided in Table VII apply the highest measured noise levels summarized above in Table V and Table VI and do not take into account any localized acoustic shielding, ground absorption or atmospheric absorption, and should therefore be considered a worst-case assessment of project-related noise levels at these setback distances. For reference, the applicable daytime and nighttime City of Gonzales stationary noise level standards are also provided in Table VII (in parenthesis).

It should be noted, the distances (and associated noise levels) provided below in Table VII represent the distance from a centralized point within the overall exterior processing area, where the noise-producing equipment (refrigeration trailers, refrigeration compressors, vacuum tubes and ice generators) will be located. The project would not be expected to exceed the applicable City of Gonzales daytime or nighttime stationary noise level standards at setback distances of 750 feet or greater from the center point of this area (east side of cooler/processing building).

TABLE VII

SUMMARY OF PROJECT-RELATED NOISE LEVELS AT SETBACK DISTANCES DECEMBER 1 & 2, 2022

Setback Distance	A-Weighted Decibels, dBA			
	L_{EQ}		L_{MAX}	
	Daytime (55 dB)	Nighttime (50 dB)	Daytime (70 dB)	Nighttime (65 dB)
500	57	53	73	67
750	54	50	70	64
1,000	51	47	67	61
1,250	49	45	65	59
1,500	48	44	64	58
1,750	46	42	62	56
2,000	45	41	61	55

Source: WJV Acoustics, Inc.

The eastern facility fence line is approximately 400 feet from the center of the noise-producing equipment located along the east side of the processing/cooler building (refrigeration trailers, refrigeration compressors, vacuum tubes and ice generators). Noise levels would exceed City standards at a distance of approximately 750 feet from this area, as indicated above in Table VII, or approximately 350 feet beyond the eastern facility fence line.

There is potential that if noise sensitive uses are planned within approximately 350 feet of the eastern facility fence line, they could be exposed to noise levels that exceed City standards. This would be a significant impact. The following mitigation measures provide options that could reduce this potential impact to less than significant by requiring that the applicant implement one or more site design, noise source attenuation, facility boundary noise barrier, or other measure(s) to reduce noise levels to City standards at the eastern/northeastern facility fence line.

- A sound wall constructed to a minimum height of 8.5-feet above receiver site elevation would reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation throughout the entire 350-foot “buffer area”. Suitable construction materials include concrete blocks, masonry or stucco on both sides of a wood or steel stud wall.

- Incorporate industrial types of sound attenuating enclosures, sound absorbing materials, or other appropriate localized sound attenuation measures to reduce noise levels at/near the sources.

- Alternatively, reconfiguration of project site plan, as to locate the noise-producing equipment (currently located along the east side of the processing/cooler building (refrigeration trailers, refrigeration compressors, vacuum tubes and ice generators)) along the south side of the facility, adjacent to Gloria Road.

Slowly Moving Trucks

Truck movements would occur on site throughout the day, exact times will vary by season. According to the project applicant, up to 218 trucks are anticipated per day during peak season. Truck movements would generally occur along the west and east sides of the facility.

WJVA has conducted measurements of the noise levels produced by slowly moving trucks for a number of studies. Such truck movements would be expected to produce noise levels in the range of 71-77 dBA at a distance of 50 feet. The range in measured truck noise levels is due to differences in the size of trucks, their speed of movement and whether they have refrigeration units in operation during the pass-by. Noise levels associated with on-site movements would not be expected to exceed any applicable noise level standards at off-site locations.

Loading Dock Activities

According to the project site plan, the loading dock area would include 26 individual truck loading dock slots, along the west side of the facility. WJVA conducted reference noise level measurements at the loading dock operations at the above-described Yuma cooling facility. Noise level measurements were conducted during peak hours of trucking loading activities, and the docks were full the entire measurement period, with trucks waiting to access the loading docks as well. Noise levels were measured at two locations. These locations (LD-1 and LD-2) are provided as Figure 12. A photograph of measured site LD-1 is provided as Figure 13.

Loading dock reference noise measurements were conducted for a period of one-hour at each location, between the approximate hours of 4 pm to 5 pm. Measured noise levels at the two sites are as follows:

- LD-1: L_{eq} 73 dB, L_{Max} 82 dB
- LD-2: L_{eq} 67 dB, L_{Max} 86 dB

Forklift Backup Alarms

The project will include the use of multiple forklifts to move agricultural products to their required locations around the project site. WJVA conducted reference noise level measurements of multiple forklift backup alarms at the Yuma cooling facility. Noise levels were measured to be in the range of 74 to 86 dB at a setback distance of 10 feet from the forklifts.

Operational Sources at Various Setback Distances

Table VIII provides noise sources associated with the above-described ancillary operational equipment, at various setback distances from the respective sources. Loading dock noise levels summarized in Table VIII apply the highest measured noise levels of the two loading dock measurement sites. It should be noted, the distances (and corresponding noise levels) described for loading dock activities represent the distance from a centralized point of the overall loading docks areas, located along the western side of the cooler/processing building.

TABLE VIII SUMMARY OF OPERATIONAL ANCILLARY EQUIPMENT NOISE LEVELS				
	A-WEIGHTED DECIBELS, dBA			
	LOADING DOCK		TRUCK MOVEMENTS, L_{MAX}	FORKLIFT BACK UP ALARM, L_{MAX}
	L_{EQ}	L_{MAX}		
500	53	62	57	52
750	50	59	54	49
1,000	47	56	51	46
1,250	45	54	49	44
1,500	44	53	48	43
1,750	42	51	46	41
2,000	41	50	45	40

Source: WJV Acoustics, Inc.

The northern facility fence line is approximately 450 feet from the center of the loading dock area. Noise levels would not exceed City's daytime standards within the project fence line. However, if loading dock activities are to occur during the nighttime hours (10:00 p.m. to 7:00 a.m.) noise levels associated with loading dock activities would exceed the City's nighttime noise level standard, and mitigation measures must be incorporated into project design.

There is potential that if noise sensitive uses are planned within approximately 300 feet of the northern facility fence line (north of the loading dock area), they could be exposed to noise levels that exceed City's nighttime noise level standards. This would be a significant impact. The following mitigation measure would reduce this potential impact to less than significant by requiring that the applicant implement one or more operational policies, noise source attenuation, facility boundary noise barrier, or other measure(s) to reduce noise levels to City standards at the eastern/northeastern facility fence line.

- A sound wall constructed to a minimum height of 8.5-feet above receiver site elevation would reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation throughout the entire 300-foot "buffer area". Suitable construction materials include concrete blocks, masonry or stucco on both sides of a wood or steel stud wall.

- Restrict all loading docks activities to within daytime hours only (7:00 a.m. to 10:00 p.m.).

Project-Related Increases in Traffic Noise

WJVA utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure along analyzed roadway segments (with existing or potential sensitive receptors) in the project vicinity. Traffic noise exposure levels for Existing, Existing Plus Project, 2035 Cumulative and 2035 Cumulative Plus Project traffic conditions were calculated based upon the FHWA Model and traffic volumes provided by Hexagon Transportation Consultants.

Cumulative traffic volumes reflect projected traffic volumes on the planned roadway network with completion of the pending developments in the area as well as the proposed project and approved developments. The day/night distribution of traffic and the percentages of trucks on the roadways used for modeling were estimated based on previous studies WJVA has conducted in the project area. The Noise modeling assumptions used to calculate project traffic noise are provided as Appendix C.

Traffic noise exposure levels for specific scenarios were calculated based upon the FHWA Model and the above-described model inputs and assumptions. Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors. The City's exterior noise level standard for residential land uses is 60 dB L_{dn} (65 dB L_{dn} is allowable for residential uses in the Downtown Mixed-Use District). For the purpose of this analysis a significant impact was also assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the project), as 3 dB generally represents the threshold of perception in change for the human ear.

Table IX provides a comparison of traffic noise levels along five (5) analyzed roadway segments for Existing, Existing Plus Project, 2035 Cumulative and 2035 Cumulative Plus Project traffic conditions. Noise levels described in Table IX do not take into account any localized acoustic shielding that may result from intervening topography, existing buildings or existing sound walls, and should be considered a worst-case assessment of traffic noise exposure levels.

TABLE IX

PROJECT-RELATED INCREASES IN TRAFFIC NOISE[1], dB, L_{dn}
GONZALES COOLER PROJECT

Roadway Segment	Existing	Existing Plus Project	Cumulative	Cumulative Plus Project	Change (Maximum)	Significant Impact?
Gloria Rd (e/o 101)	56	59	68	69	+3	No
Alta St (n/o Gloria Rd)	57	57	60	60	0	No
Gonzales River Rd (w/o Alta Rd)	59	59	60	60	0	No
Alta St (s/o Gonzales River Rd)	66	66	68	68	0	No
Alta St (n/o Gonzales River Rd)	58	59	61	61	+1	No

Source: WJV Acoustics, Inc.
Hexagon Transportation Consultants
[1]Noise Levels reported at representative setback distance of 150 feet from roadway centerline.

As described in Table IX, project-related traffic is not expected to result in noise levels at any sensitive receptors to exceed the City's noise level standard, nor result in an increase of 3 dB in any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project. Therefore, project-related increases in traffic noise exposure are considered to be less than significant.

In regards to the sensitive receptor (single-family residence) located at the corner of Gloria Road and Tavernetti Road (in the vicinity of ambient noise measurement site LT-1), ambient noise levels (as measured at site LT-1) indicate that existing noise levels in the vicinity of this residence are approximately 70 dB L_{dn}. These elevated existing noise levels at the residence are the result of the residences proximity to US 101. Such levels not only exceed those calculated along Gloria Road for existing conditions (Table IX), but also exceed those calculated for Cumulative Plus Project traffic conditions. The noise levels provided above in Table IX only account for vehicle traffic on Gloria Road and do not consider any contribution from traffic on US 101. Any project-related increases in traffic noise would not be realized at this sensitive receptor location, and noise levels along Gloria Road (with and without project contribution) would not result in any significant increase in traffic noise at this residence (corner of Gloria Road and Tavernetti Road), over those resulting from US 101 traffic.

b. Noise From Construction (Less Than Significant)

Construction noise would occur at various locations within and near the project site through the build-out period. Table X provides typical construction-related noise levels at distances of 500 feet, 1,000 feet,2,000 and 3,000 feet. Construction noise is not considered to be a significant impact if construction is limited to the allowed hours and construction equipment is adequately maintained and muffled. The City of Gonzales limits hours of construction to occur only between the hours of 7:00 a.m. to 7:00 p.m.

TABLE X TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, dBA				
Type of Equipment	500 Ft.	1,000 Ft.	2,000 Ft.	3,000 Ft.
Backhoe	58	52	46	42
Concrete Saw	70	64	58	54
Crane	61	55	49	45
Excavator	61	55	49	45
Front End Loader	59	53	47	43
Jackhammer	69	63	57	53
Paver	57	51	45	41
Pneumatic Tools	65	59	53	49
Dozer	62	56	50	46
Rollers	60	54	48	44
Trucks	66	60	54	50
Pumps	60	54	48	44
Scrapers	67	61	55	51
Portable Generators	60	54	48	44
Grader	66	60	54	50
Pile Driver	90	84	78	74

Source: FHWA
Noise Control for Buildings and Manufacturing Plants, Bolt, Beranek & Newman, 1987

c. Vibration (No Impact)

The dominant sources of man-made vibration are sonic booms, blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. Due to the distances between the project site and the closest sensitive receptor locations, vibration from construction activities would not be expected to be detected at the closest sensitive land uses during any period of project construction. As a point of reference, typical vibration levels at a distance of 300 feet are summarized in Table XI. After full project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses.

TABLE XI TYPICAL VIBRATION LEVELS DURING CONSTRUCTION	
	PPV (in/sec)
Equipment	@ 300´
Bulldozer (Large)	0.006
Bulldozer (Small)	0.00019
Loaded Truck	0.005
Jackhammer	0.002
Vibratory Roller	0.013
Caisson Drilling	0.006
Vibratory Pile Driver	0.042

Source: *Caltrans*

5. IMPACT SUMMARY

The proposed project is not expected to produce noise levels that would exceed any applicable City of Gonzales noise level standards at any existing sensitive receptor location. Furthermore, project-related noise levels are not expected to exceed existing (without project) ambient noise levels at any existing sensitive receptor location.

In the future, the land bordering the eastern and northern facility fence line could potentially be developed with uses that are allowed within the Neighborhood Residential land use designation. As such, there is potential that if noise sensitive uses are planned within approximately 350 feet of the eastern facility fence line and within approximately 300 feet of the northern fence line (north of the loading dock area), they could be exposed to noise levels that exceed City standards. This would be a significant impact. The following mitigation measures could be incorporated to reduce noise impacts at these potentially sensitive locations to less than significant:

Eastern Property Fence Line:

- A sound wall constructed to a minimum height of 8.5-feet above receiver site elevation would reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with the respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation at potential ground level outdoor activity areas throughout the entire 350-foot “buffer area”. Suitable construction materials include concrete blocks, masonry, or stucco on both sides of a wood or steel stud wall.

- Incorporate industrial types of sound attenuating enclosures, sound absorbing materials, or other appropriate localized sound attenuation measures to reduce noise levels at/near the sources. The determination and implementation of appropriate mitigation measures should be conducted by a qualified acoustical consultant to be retained by the applicant to prepare the noise mitigation plan.

- Alternatively, reconfiguration of project site plan, as to locate the noise-producing equipment (currently located along the east side of the processing/cooler building (refrigeration trailers, refrigeration compressors, vacuum tubes and ice generators)) along the south side of the facility, adjacent to Gloria Road.

Northern Property Fence Line:

- A sound wall constructed to a minimum height of 8.5-feet above receiver site elevation would reduce noise levels east of the eastern fence line by a minimum of 5 dB. The exact noise level reduction provided by the wall is dependent on the potential location of sensitive receptors within this area, with respect to the wall. An 8.5-foot sound wall would provide adequate noise attenuation throughout the entire 300-foot “buffer area”.

- Alternatively, restrict all loading docks activities to within daytime hours only (7:00 a.m. to 10:00 p.m.).

FIGURE 1: OVERALL PROJECT SITE PLAN

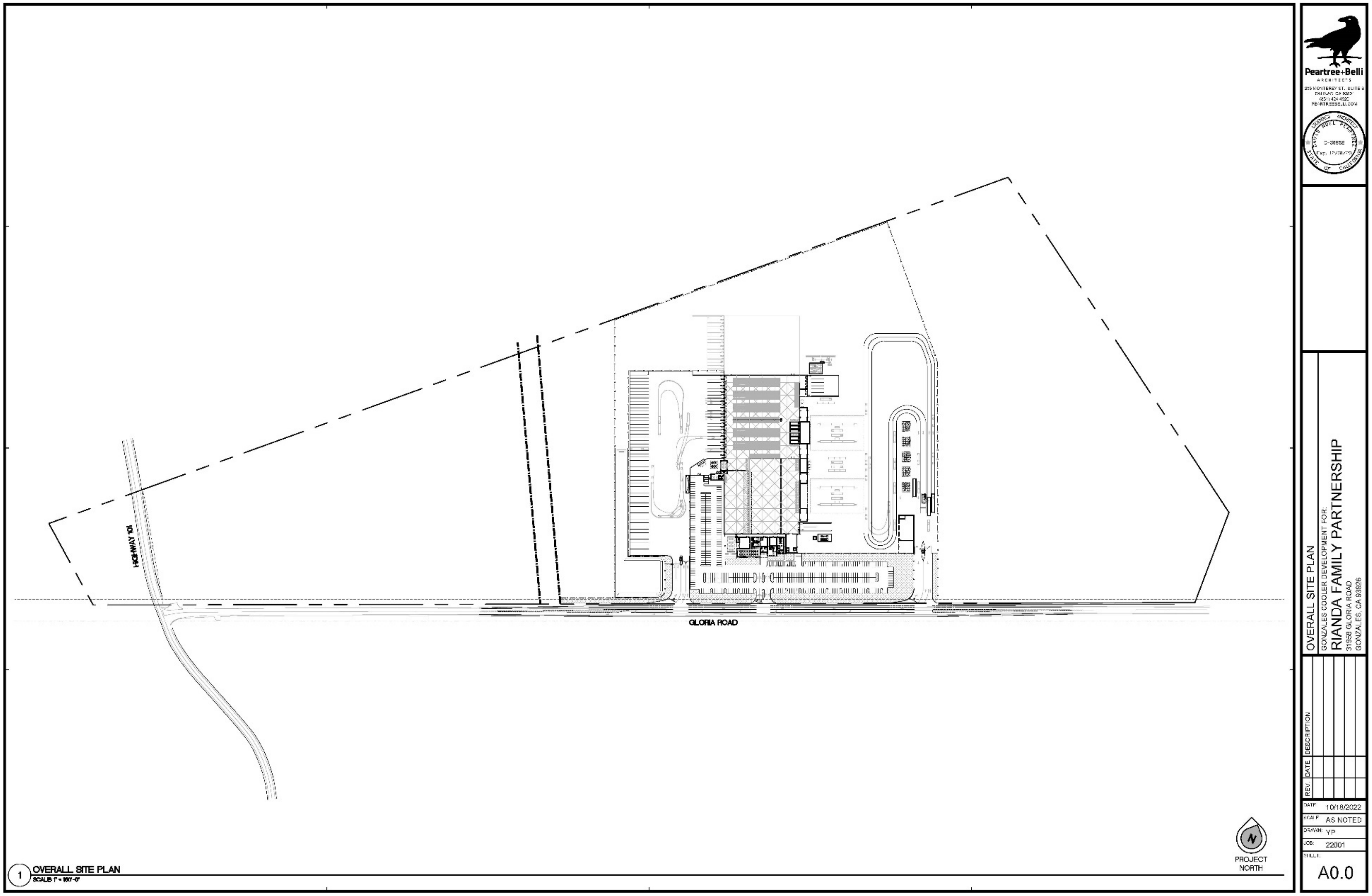


FIGURE 2: FACILITY SITE PLAN

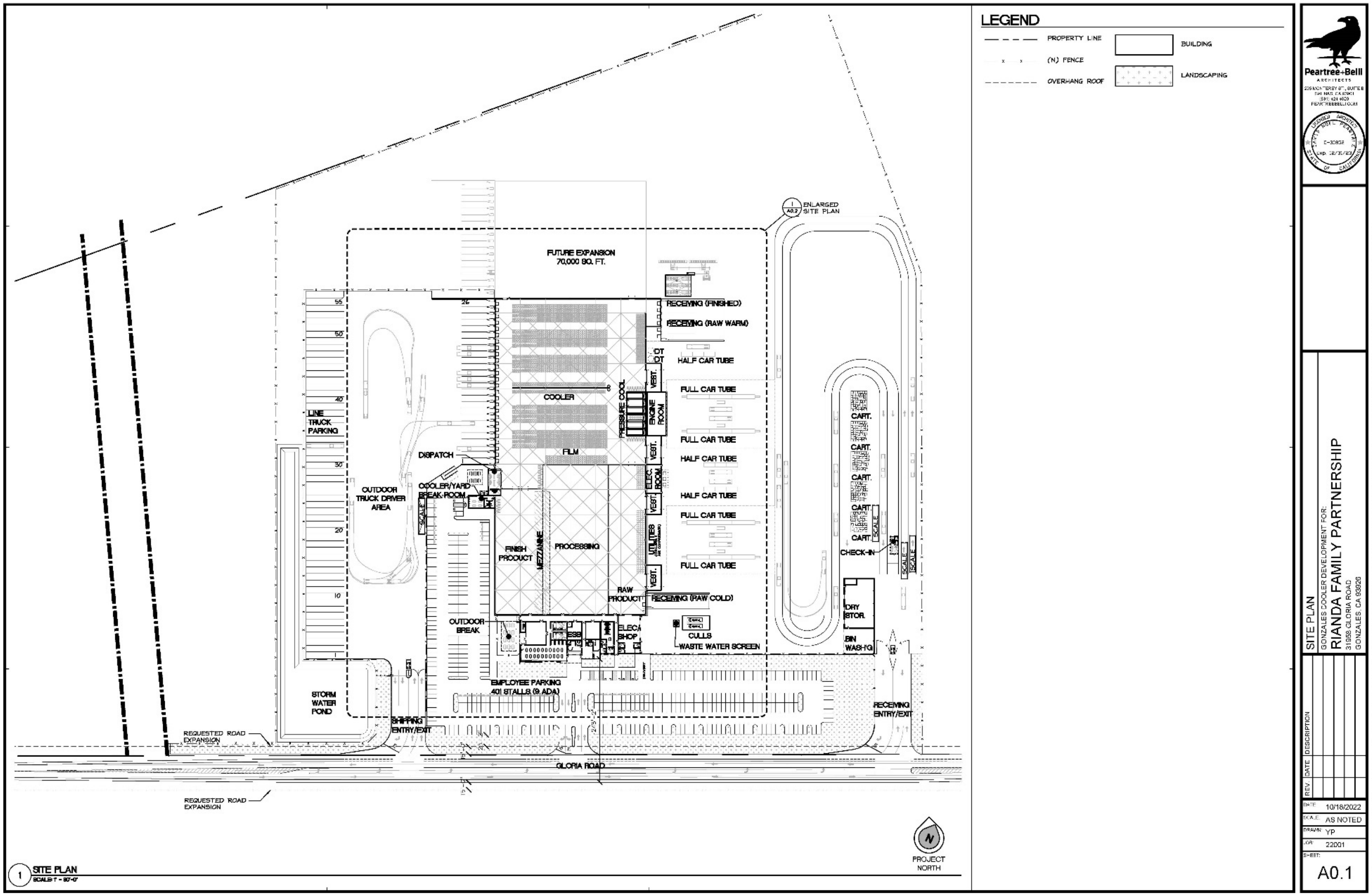
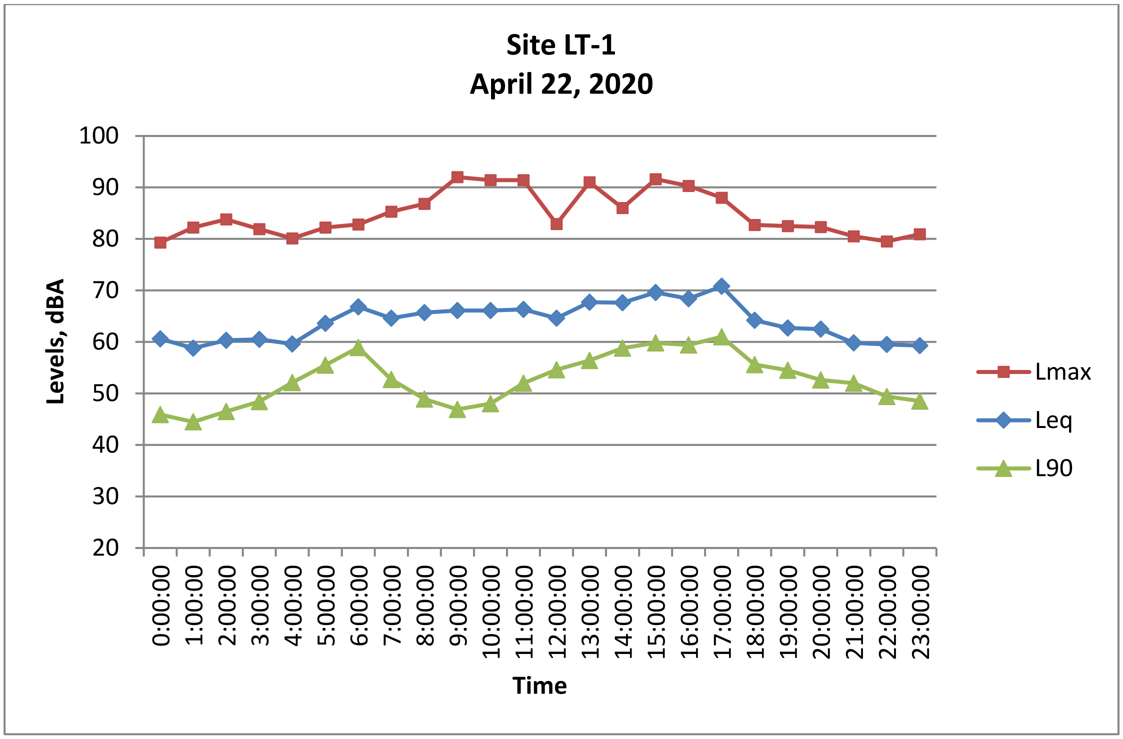


FIGURE 3: AMBIENT NOISE MEASUREMENT SITES

FIGURE 4: HOURLY NOISE LEVELS AT AMBIENT NOISE MONITORING SITE LT-1



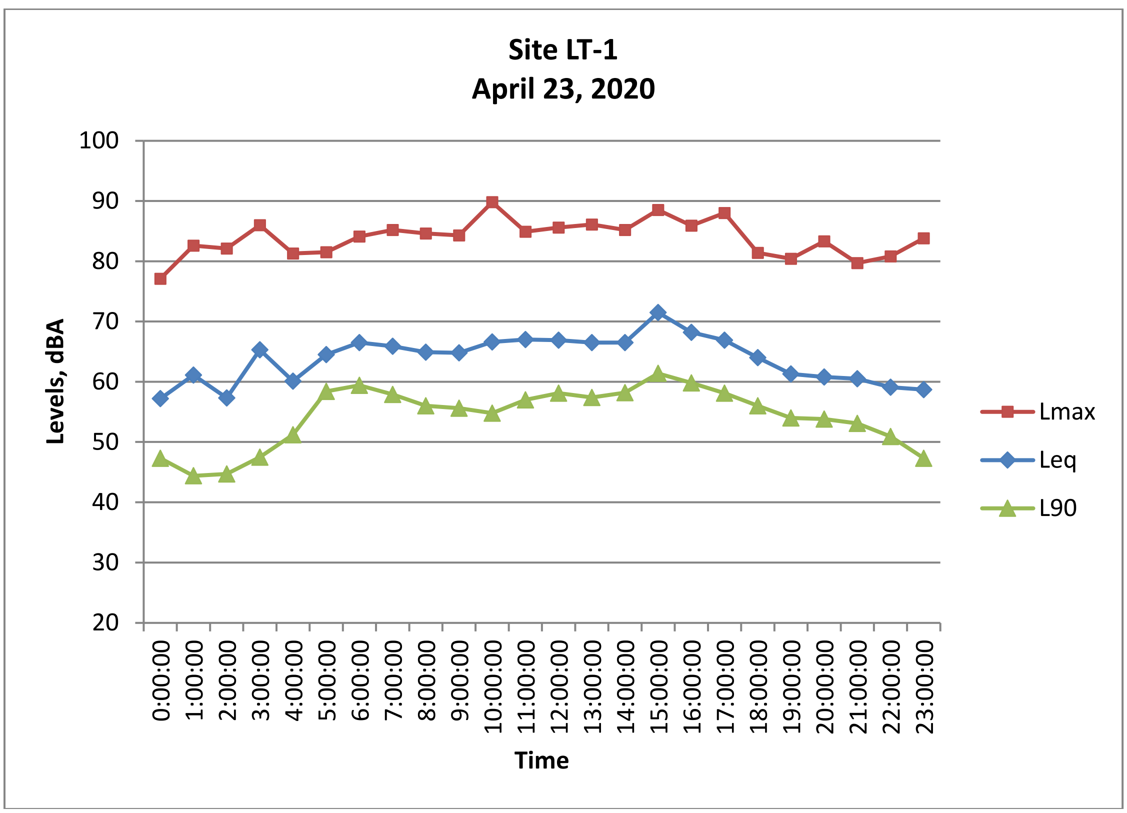
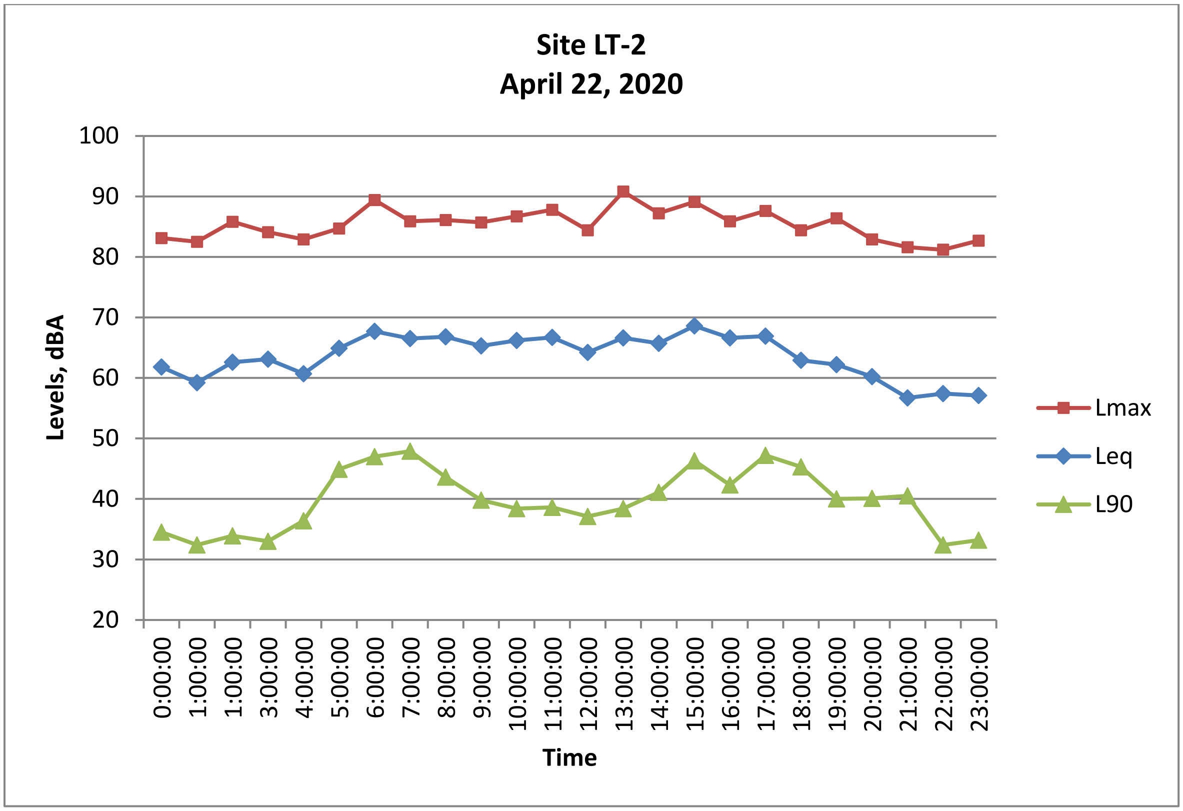


FIGURE 5: LONG-TERM AMBIENT NOISE MONITORING SITE LT-1

FIGURE 6: HOURLY NOISE LEVELS AT AMBIENT NOISE MONITORING SITE LT-2



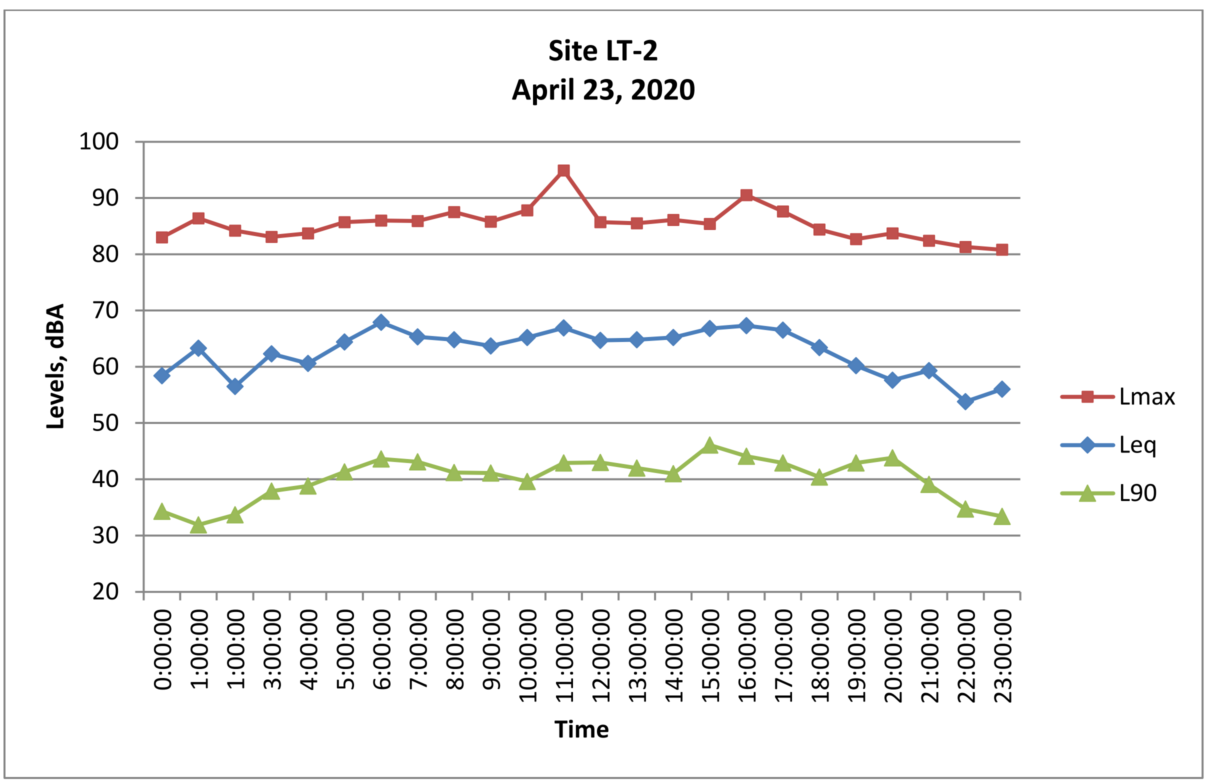


FIGURE 7: LONG-TERM AMBIENT NOISE MONITORING SITE LT-2

FIGURE 8: REFERENCE NOISE MEASUREMENT SITES, YUMA, ARIZONA

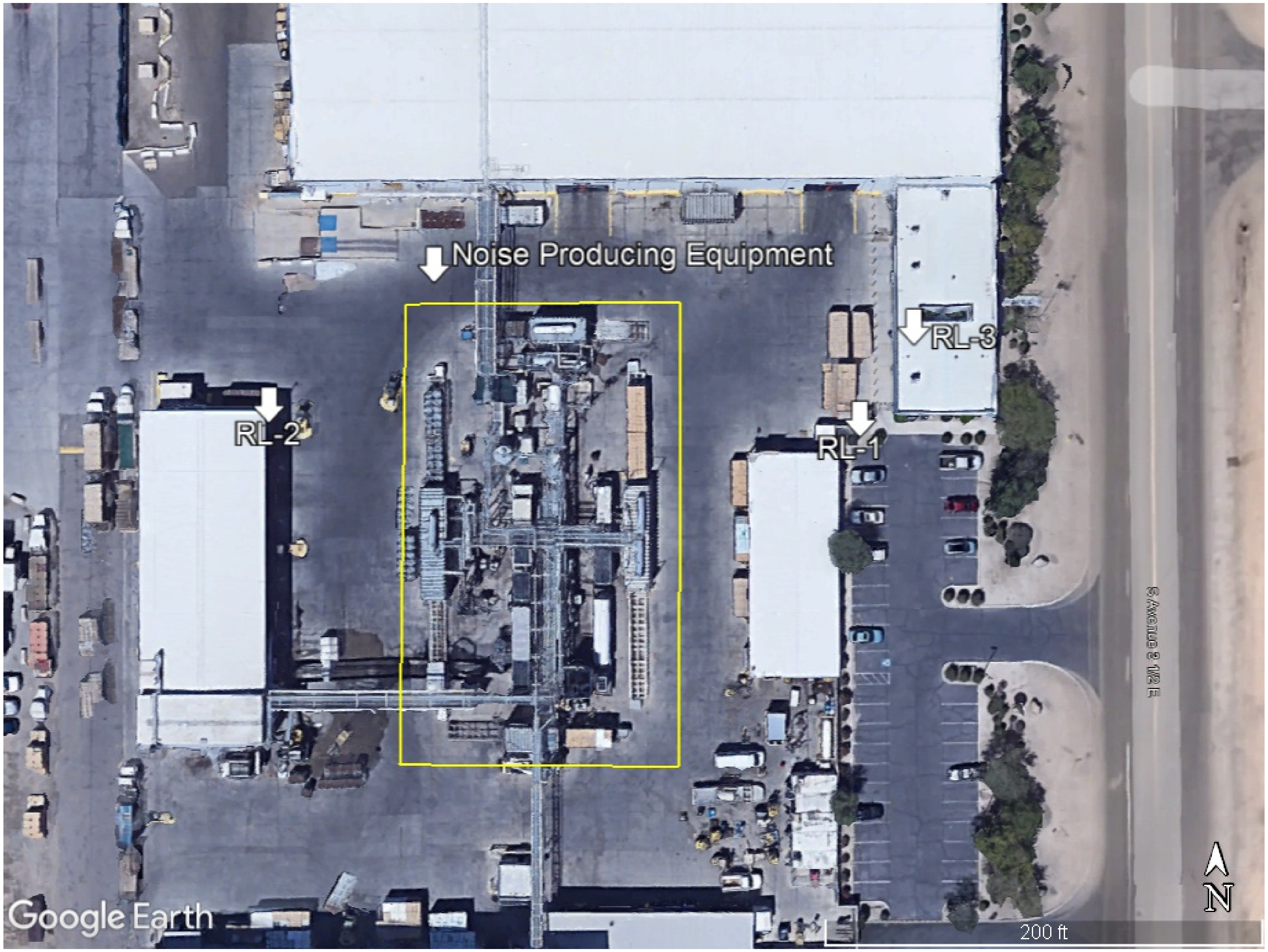


FIGURE 9: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITE RL-1

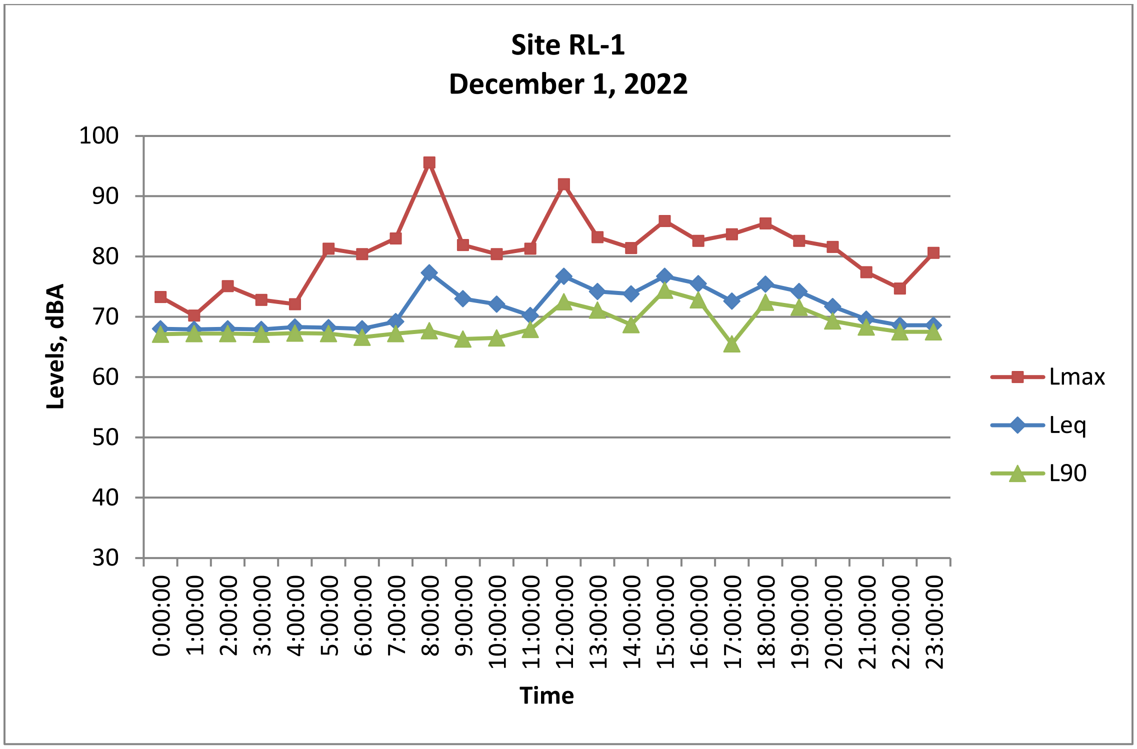


FIGURE 10: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITE RL-2

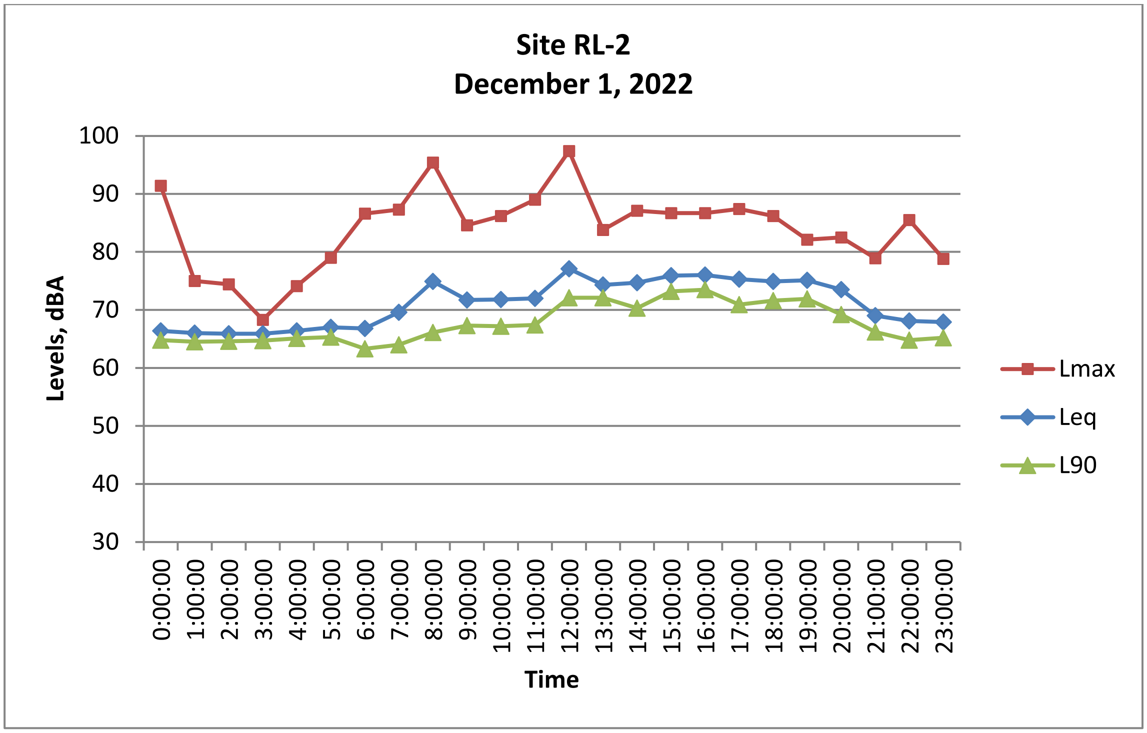


FIGURE 11: HOURLY NOISE LEVELS AT LONG-TERM MONITORING SITE RL-3

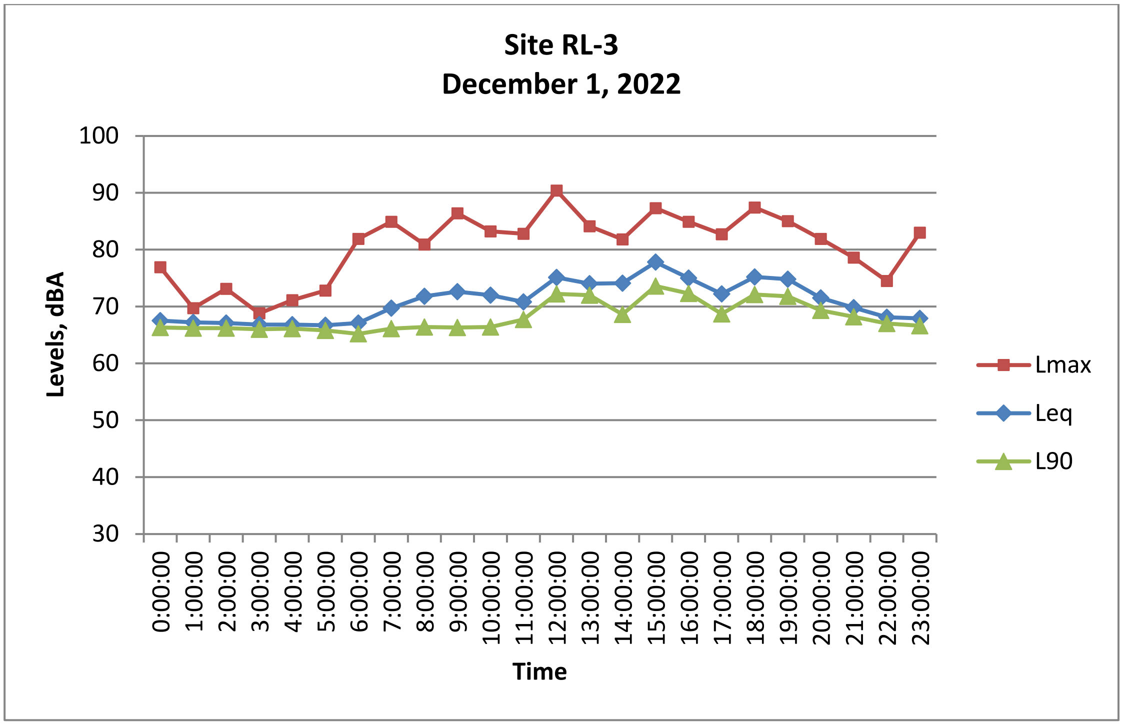


FIGURE 12: LOCATIONS OF LOADING DOCK NOISE MEASUREMENT SITES

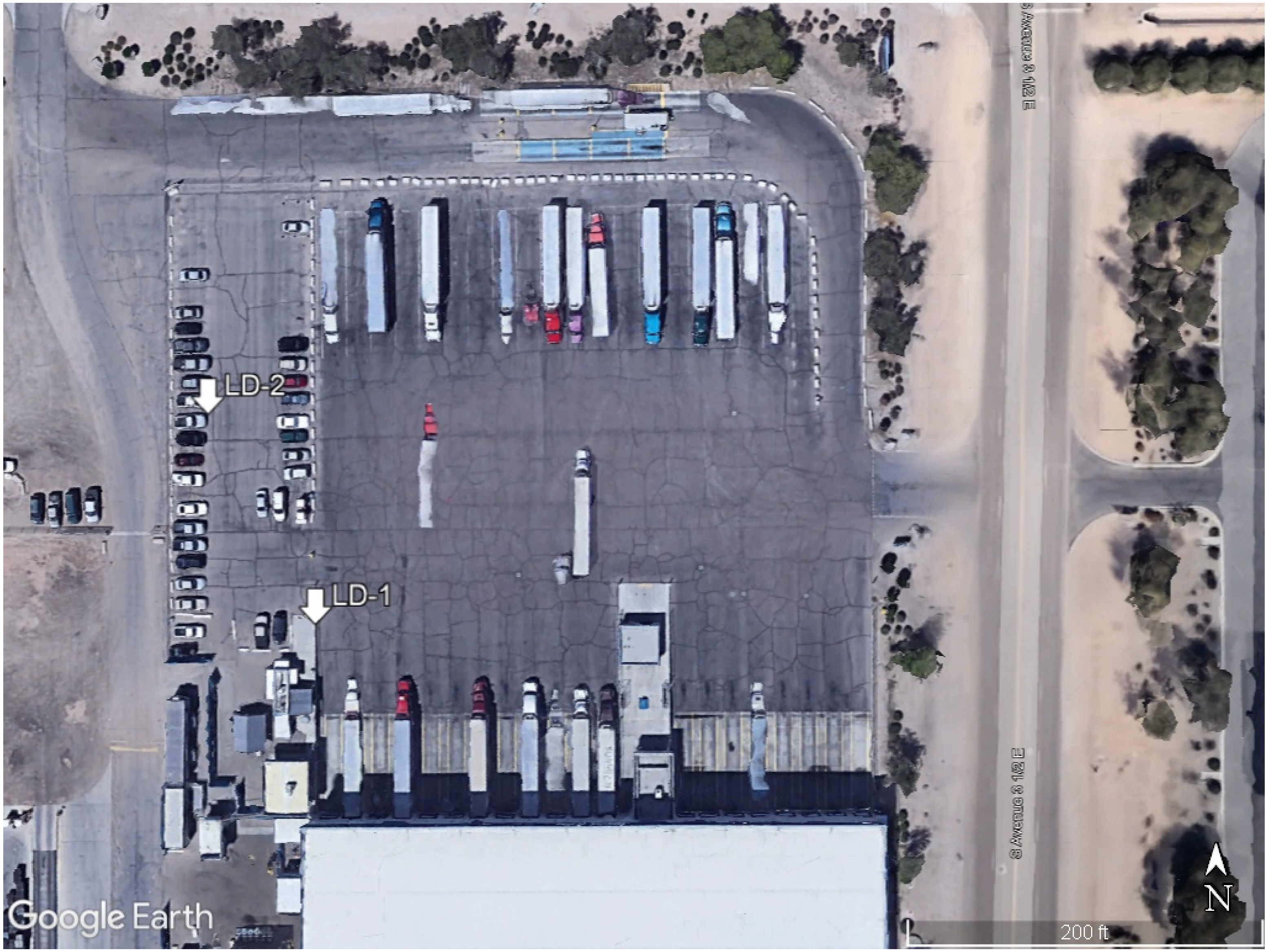


FIGURE 13: LOADING DOCK NOISE MEASUREMENT SITE LD-1

APPENDIX A-1

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). For example, L_{10} equals the level exceeded 10 percent of the time.

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of Anoise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

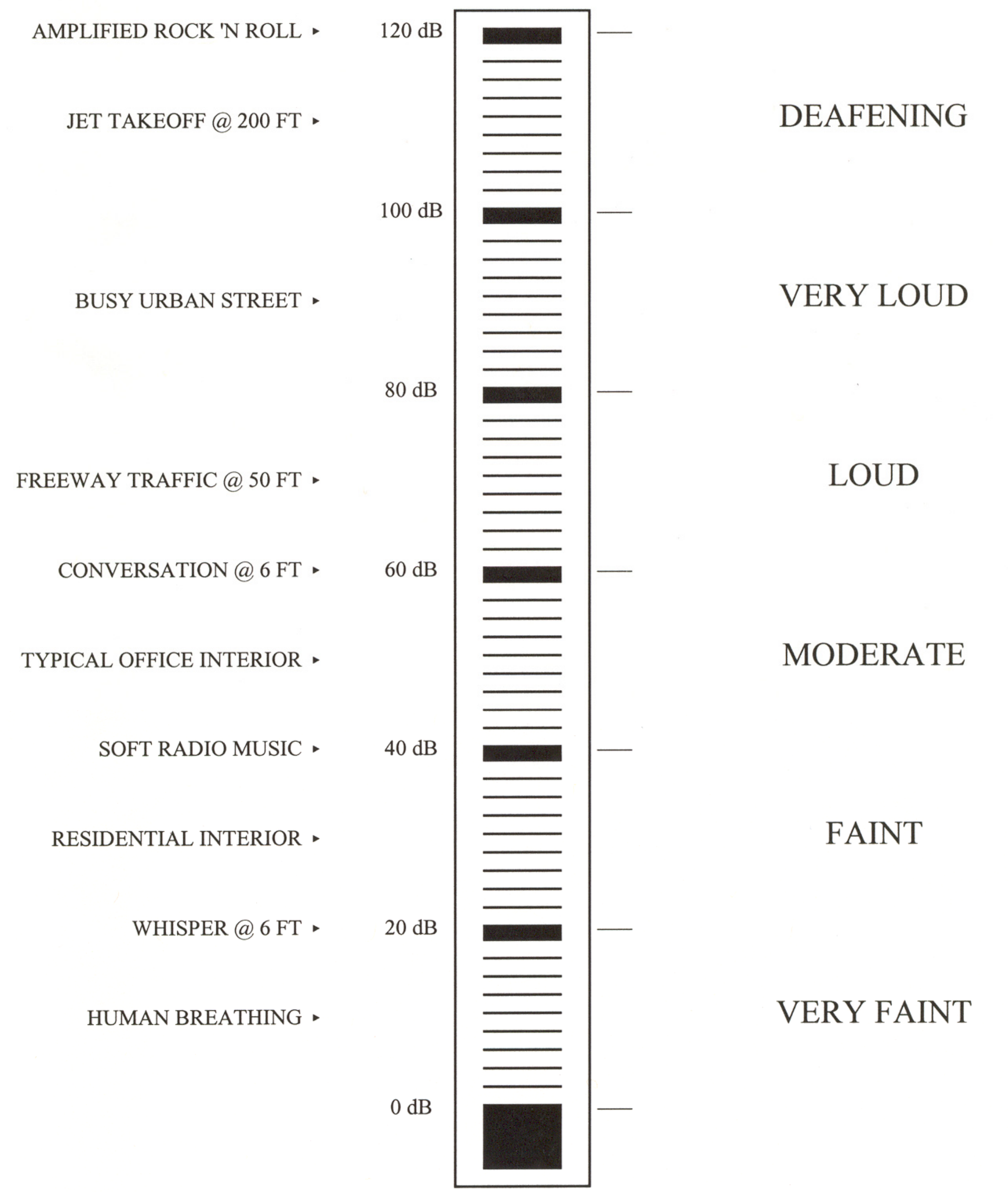
SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

SOUND TRANSMISSION CLASS (STC): The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

APPENDIX B

EXAMPLES OF SOUND LEVELS

NOISE SOURCE	SOUND LEVEL	SUBJECTIVE DESCRIPTION



APPENDIX C

TRAFFIC NOISE MODELING CALCULATIONS

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 21, 2022

Project #: 22-60
Description: Existing
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)

60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Gloria Rd	e/o 101	1170	75		25	13.5	13.5	35	150	
2	Alta St	n/o Gloria Rd	4180	85		15	7.5	7.5	30	150	
3	Gonazles River Rd	w/o Alta	5450	85		15	7.5	7.5	35	150	
4	Alta St	s/o Gonzales River Rd	4800	85		151	7.5	7.5	30	150	
5	Alta St	n/o Gonazles River Rd	5770	85		15	7.5	7.5	30	150	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 21, 2022

Project #:	22-60
Description:	Existing + Project
Ldn/Cnel:	Ldn
Site Type:	Soft

Contour Levels (dB)

60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Gloria Rd	e/o 101	2330	75		25	13.5	13.5	35	150	
2	Alta St	n/o Gloria Rd	4310	85		15	7.5	7.5	30	150	
3	Gonazles River Rd	w/o Alta	5450	85		15	7.5	7.5	35	150	
4	Alta St	s/o Gonzales River Rd	4920	85		151	7.5	7.5	30	150	
5	Alta St	n/o Gonazles River Rd	6890	85		15	7.5	7.5	30	150	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 21, 2022

Project #: 22-60
Description: 2035 + Project
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)								
60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Gloria Rd	e/o 101	21530	75		25	13.5	13.5	35	150	
2	Alta St	n/o Gloria Rd	7710	85		15	7.5	7.5	30	150	
3	Gonazles River Rd	w/o Alta	6340	85		15	7.5	7.5	35	150	
4	Alta St	s/o Gonzales River Rd	8320	85		151	7.5	7.5	30	150	
5	Alta St	n/o Gonazles River Rd	10700	85		15	7.5	7.5	30	150	

WJV Acoustics, Inc
FHWA-RD-77-108
Calculation Sheets
December 21, 2022

Project #: 22-60
Description: 2035 No Project
Ldn/Cnel: Ldn
Site Type: Soft

Contour Levels (dB)								
60	65	70	75					

Segment	Roadway Name	Segment Description	ADT	%Day	%Evening	%Night	%Med	%Heavy	Speed	Distance	Offset
1	Gloria Rd	e/o 101	20370	75		25	13.5	13.5	35	150	
2	Alta St	n/o Gloria Rd	7580	85		15	7.5	7.5	30	150	
3	Gonazles River Rd	w/o Alta	6340	85		15	7.5	7.5	35	150	
4	Alta St	s/o Gonzales River Rd	8200	85		151	7.5	7.5	30	150	
5	Alta St	n/o Gonazles River Rd	10580	85		15	7.5	7.5	30	150	

Transportation Analysis

G

APPENDIX

HEXAGON TRANSPORTATION CONSULTANTS, INC.

Memorandum

To:	Ron Sissem, EMC Planning Group
From:	Robert Del Rio, T.E. and Huy Tran, T.E.
Date:	March 3, 2023
Subject:	Transportation Analysis for the Proposed Gloria Agricultural Cooler Development

Hexagon Transportation Consultants, Inc. has completed a Transportation Analysis (TA) for the proposed Gloria Road Agricultural Cooler development in Gonzales, California. The proposed development will consist of a 250,000 square foot (s.f.) facility with operations that will include the transfer of materials by truck from the crop fields in nearby cities and counties to the proposed facility in Gonzales to be processed and delivered to their final destinations. During its peak season, the proposed development would have 436 employees working at the facility and 218 trucks per day transporting materials. Access to the project site is proposed via a full-access driveway for employees and two full-access driveways serving trucks along Gloria Road. The project site location and site plan are shown in Figures 1 and 2, respectively.

Transportation Analysis Scope

The TA consists of a California Environmental Quality Act (CEQA) required vehicle-miles-traveled (VMT) analysis and a supplemental traffic operations analysis that demonstrates the project's consistency with the *City of Gonzales 2010 General Plan* goals and policies.

CEQA Transportation Analysis Scope

Historically, traffic impact analysis has focused on the identification of traffic impacts and potential roadway improvements based on delay to relieve traffic congestion that may result due to proposed/planned growth. However, with the adoption of Senate Bill (SB) 743 legislation, public agencies are required (effective July 2020) to base transportation impacts on Vehicle-Miles-Traveled (VMT) rather than level of service that typically uses delay as its metric. The change in measurement is intended to better evaluate the effects on the state's goals for climate change and multi-modal transportation. Therefore, to adhere to the state's legislation, all new development projects are required to analyze transportation impacts using the VMT metric.

The CEQA transportation analysis for the project consists of a project-level VMT impact analysis using the City's Travel Demand Forecasting (TDF) Model.

Transportation Operations Analysis Scope

The current General Plan, *City of Gonzales 2010 General Plan,* adopted in January 2011 uses Level of Service (LOS) as its primary metric for the evaluation of the projected operation of the City's roadway system. Therefore, a traffic operations analysis based upon peak hour intersection level of service analysis is included for consistency with the General Plan goals and policies. The transportation operations analysis supplements the CEQA VMT analysis and identifies transportation and traffic operational issues that may arise due to a development project. However, the determination of project impacts per CEQA requirements is based solely on the VMT analysis.

Figure 1
Project Site Location and Study Intersections

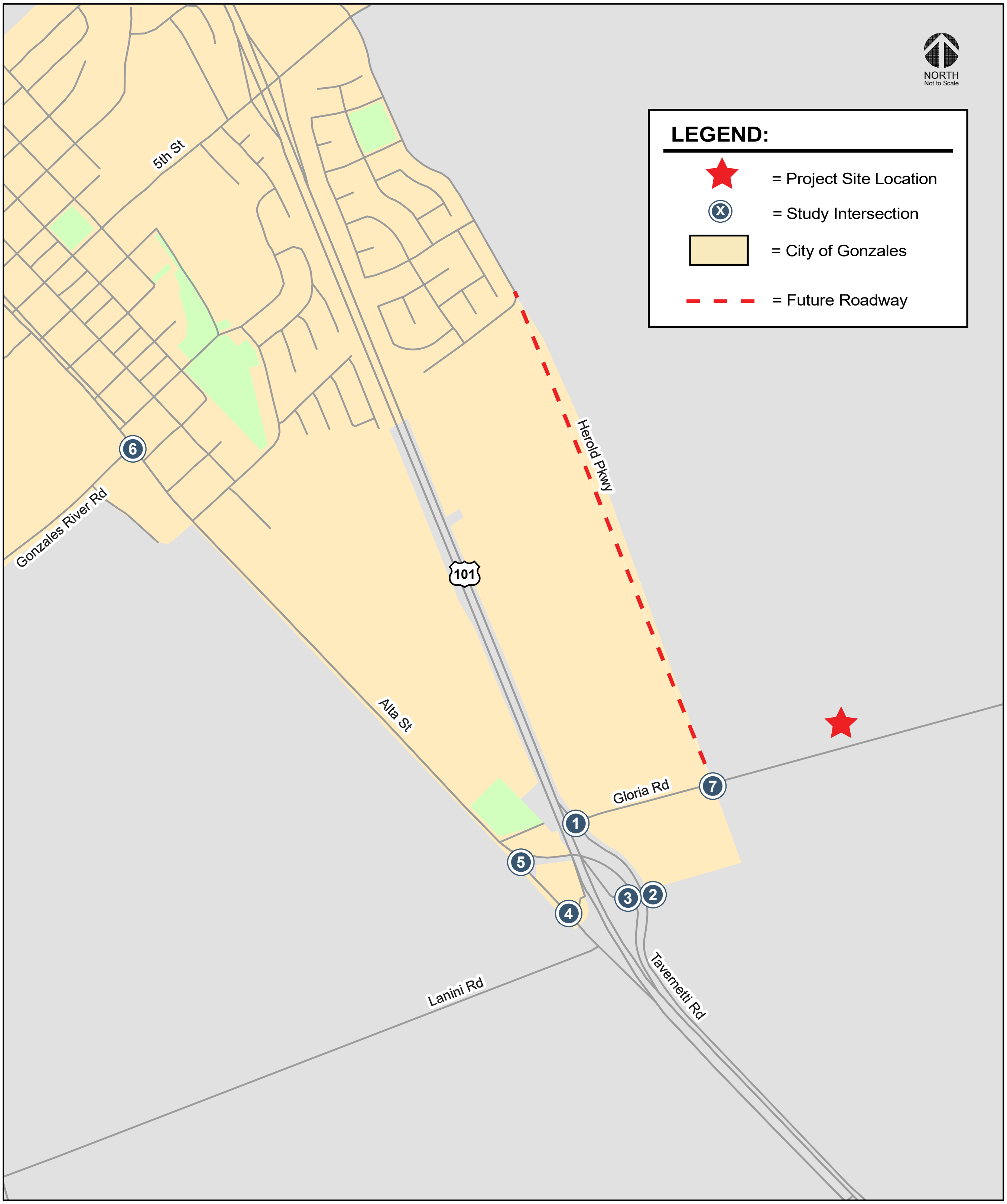
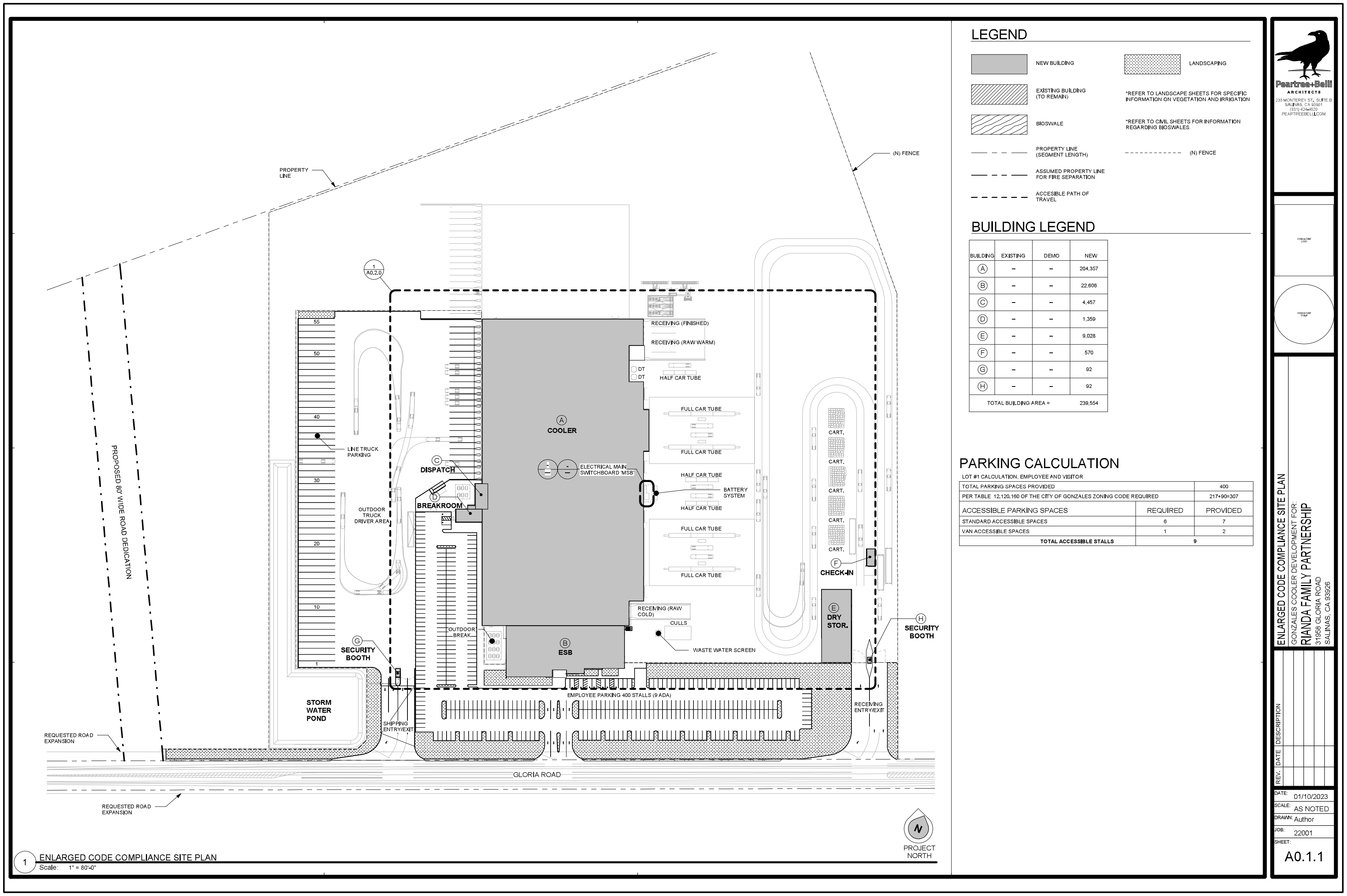


Figure 2
Project Site Plan



The transportation operations analysis includes the evaluation of weekday AM and PM peak hour operations at a limited number of intersections for the purpose of identifying operational issues (queuing, signal operations, and potential multi-modal issues) at intersections in the general vicinity of the project site. The transportation operations analysis also includes signal warrants at unsignalized intersections. An evaluation of potential project impacts on bicycle, pedestrian, and transit facilities is also included.

VMT Methodology and Evaluation

VMT is generally defined as the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT is calculated for residential and employment projects using the origin-destination VMT method, which measures the full distance of personal motorized vehicle trips with one end within the project. When assessing a residential project, the project's VMT is divided by the number of residents expected to occupy the project to determine the VMT per capita. When assessing an employment project, the project's VMT is divided by the number of employees.

Typically, development projects that are farther from other, complementary land uses (such as a business park far from housing) and in areas without transit or active transportation infrastructure (bike lanes, sidewalks, etc.) generate more driving than development near complementary land uses with more robust transportation options. Therefore, developments located in a central business district with high density and diversity of complementary land uses and frequent transit services are expected to internalize trips and generate shorter and fewer vehicle trips than developments located in a rural area with low density of residential developments and no transit services in the project vicinity.

City of Gonzalez TDF Model

The evaluation of the project's effects on VMT was completed using the recently updated City of Gonzales TDF Model. The model is a refinement of the Association of Monterey Bay Area Governments (AMBAG) Tri-County transportation model. The citywide model was last updated as part of the City of Gonzales Sphere of Influence (SOI) Circulation Study completed by Kimley-Horn in November 2019. The City's model provides more analytical detail and a higher level of accuracy of simulated travel in the City of Gonzales than the AMBAG model. The City's model focuses on the trip making in the City's greater SOI area and its mode-choice model is used to estimate the number of people traveling by car (drive-alone, carpool), transit, and non-motorized (walk and bike). The model serves as the primary forecasting tool for the City of Gonzales.

The model is a mathematical representation of travel within the three counties in the Monterey Bay Region and is mainly composed of four components: 1) trip generation, 2) trip distribution, 3) mode choice, and 4) trip assignment. The model uses socioeconomic inputs (i.e. households, number of jobs, hotel rooms) to estimate travel within Monterey County, Santa Cruz County, and San Benito County. Socioeconomic inputs are aggregated into geographic areas (transportation analysis zones). There are 1,839 traffic analysis zones within the model to represent the three counties. The Gonzales SOI area is represented by 31 traffic analysis zones.

VMT Policies and Impact Criteria

A project's VMT is compared to established thresholds of significance based on the project location and type of development. When assessing a residential project, the project's VMT is typically divided by the number of residents expected to occupy the project to determine the VMT per capita. When assessing an office or industrial project, the project's VMT is divided by the number of employees to determine the VMT per employee/job. Retail uses are assessed based on their effects on total VMT.

The City of Gonzales and County of Monterey, at the time of this report, have not yet adopted analysis procedures, standards, or guidelines consistent with SB 743. In the absence of an adopted policy with impact thresholds, this assessment relies on guidelines published by the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018 in analyzing the project's effects on VMT.

Employment Use Impact Thresholds

As stated in the technical advisory, OPR recommends an impact threshold of 15% below the existing regional VMT per employee for office uses. OPR does not provide recommended impact thresholds for industrial uses. Office space and jobs are more commonly available in urban areas in close proximity to supporting residential uses than industrial land uses which are typically more isolated from residential areas. While office employees may have the option to choose a convenient job location, industrial employees may have limited options, resulting in longer trips and consequently greater VMT. This is especially true for the proposed facility, which is intended to consolidate the applicant's existing operations in Salinas, to an area that is more centrally located to the agricultural fields from which raw products are produced.

For this reason, jurisdictions that have adopted their own VMT guidelines and impact thresholds have tended to define impact thresholds for industrial land uses that are less stringent than the typical 15% below existing VMT per job applied to office uses. In most jurisdictions, the existing VMT per industrial job is used as the impact threshold. Therefore, the existing countywide VMT per industrial job is used as the impact threshold for the proposed industrial land uses of the project. The AMBAG RTDM indicates that the countywide average VMT per industrial job is currently 19.8.

Vehicle Types

The OPR guidelines state that VMT refers to the amount and distance of automobile (cars and light trucks) travel attributable to a project. The objective of the SB 743 legislation is to reduce VMT for commuting to work, returning home or using retail services within the neighborhood by encouraging alternative modes of travel such as walking, bicycling, transit, or carpooling. VMT analysis is not intended to evaluate how goods and products are shipped and moved in the marketplace. Even though one particular project may generate a significant amount of truck trips, the number of truck trips and resulting in truck-generated VMT for an individual project is incidental when compared to the total VMT generated by residential, commercial, and office uses. Therefore the VMT evaluation for the project excludes truck trips that will be generated by the project.

Estimate of Project Truck VMT

Since the proposed project operations generate a significant number of large truck trips, a qualitative estimate of truck-generated VMT was completed. This has been done for informational purposes only, as analysis of truck VMT is not required per CEQA guidance. The proposed project is being proposed to replace an existing facility in Salinas and to relocate existing operations to the new site in Gonzales. It is expected that operations at the new site, including the number of truck trips, will be substantially the same as occur at the existing facility in Salinas. The proposed site is nearer to agricultural fields that are the source of raw product inputs, such that truck trips that deliver those inputs will be shorter than under existing operating conditions.

There are no evaluation tools such as a TDF model that are directly applicable to the proposed project operations for the estimation of truck-generated VMT. Therefore, the estimates of truck-generated VMT for the proposed project were derived based on the anticipated number of truck trips and truck trip origin/destination information provided by the applicant. The VMT for trucks was simply calculated as the number of truck trips multiplied by the length of the trips in miles. The VMT evaluation compares VMT generated by existing operations in Salinas to that of the proposed site operations.

The existing Salinas facility currently generates 218 trucks per day. Based on the location of the agricultural fields from which raw materials are delivered, the majority of trucks travel an average of 14 miles to the existing Salinas facility. Therefore, the existing Salinas facility generates approximately 6,100 truck-generated VMT (218 trucks x 2 trips x 14 miles per trip) per day.

The proposed Gonzales facility will be located closer to approximately 50 percent of the agricultural fields from which raw material inputs are currently delivered to the Salinas facility. Consequently, it is estimated that truck travel distances will be reduced by approximately three miles per trip on average. Truck-generated VMT for the proposed facility is estimated at approximately 4,800 VMT (218 trucks x 2 trips x 11 miles per trip) per day. Thus, the proposed project is estimated to reduce truck-generate VMT by about 20 percent.

VMT Evaluation

The AMBAG model indicates that the existing countywide VMT per industrial employee is 19.8. Based on the City's TDF model, the proposed project would generate on average 24.8 VMT per industrial employee. Because the project's VMT per industrial job would be 20% greater than the countywide VMT per industrial job of 19.8, the proposed project would have a significant VMT impact. The project would need to implement VMT reduction measures to achieve a 20% reduction in its VMT and reduce its impact to a less-than-significant level.

It should be noted that the projected project VMT per employee assumed that all employees would drive individually to work. However, based on employee carpooling behavior at the applicant's existing facility in Salinas, VMT generated by employees at the proposed Gonzales site would be substantially less than projected when accounting for current employee carpooling behavior. The applicant provided data to the City that was generated by surveying employee transportation behavior at the existing Salinas facility in 2022. The number of employees at the proposed Gonzales facility will be similar to the number at the existing Salinas facility, as will the production volume (nine processing lines). The types and classifications of job descriptions and pay ranges will also be similar. The survey data shows that 64 percent of all employees at the existing Salinas facility carpool to and from work during the peak season and 48 percent do the same during the off-season. Similar employee behavior is expected for the proposed Gonzales facility given the similarities between existing and planned operations and between job types and associated pay ranges. Even if employee carpooling were to be reduced to no less than 40 percent during the peak and off seasons, the resulting VMT reduction would still be sufficient to ensure that the VMT impacts of the proposed project are less than significant.

Traffic Operations Analysis

The current General Plan uses Level of Service (LOS) as its primary metric for the evaluation of the projected operation of the City's roadway system. Therefore, the traffic operations analysis is based upon peak hour intersection level of service analysis and is included for consistency with the General Plan standards, goals, and policies, and to identify circulation improvements needed to bring traffic operations in conformance with the General Plan level of service policy. The traffic operations analysis supplements the CEQA-required VMT analysis. However, the determination of project impacts per CEQA requirements is based solely on the VMT analysis.

The purpose of the operations analysis is to estimate the magnitude of traffic that would be added to the roadway system by the proposed project and evaluate its effect on intersection operations. The operations analysis consists of an evaluation of the peak-hour intersection level of service and signal warrant analysis at the following intersections in the immediate vicinity of the project site:

1. Tavernetti Road/US 101 NB On-Ramp and Gloria Road
2. Tavernetti Road and US 101 Southern Overpass
3. US 101 NB Off-Ramp and US 101 Southern Overpass
4. Alta Street and US 101 SB Off-Ramp
5. Alta Street and US 101 Southern Overpass
6. Alta Street and Gonzales River Road
7. Herold Parkway and Gloria Road (Future)

Traffic conditions were evaluated for the following scenarios:

Existing Conditions. Existing conditions were represented by existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from peak-hour turning-movement counts collected in May 2018 as part of the *City of Gonzales Sphere of Influence (SOI) Circulation Study* completed by Kimley-Horn, November 2019.

Existing Plus Project Conditions. Existing plus project peak-hour traffic volumes were estimated by adding to the existing traffic volumes the additional traffic that would be generated by the proposed project. Existing plus project conditions were evaluated relative to existing conditions in order to determine the effects of the proposed project on existing traffic conditions.

Year 2035 Cumulative without Project Conditions. Year 2035 cumulative conditions represent future traffic volumes on the future transportation network. Year 2035 conditions are used in the SOI study to reflect General Plan buildout conditions. Year 2035 cumulative conditions include traffic growth projected to occur in the Year 2035 without the proposed project.

Year 2035 Cumulative with Project Conditions. Year 2035 cumulative with project consists of Year 2035 cumulative traffic conditions with the addition of project traffic.

The traffic operations analysis also includes an evaluation of site access and on-site circulation and freeway ramp capacity analysis.

Project Trip Generation

Project trips were estimated for the proposed project based on site operations information provided by the applicant. Hourly site-generated trips, both truck and non-truck trips, were estimated based on the proposed facility operations data that included estimates of the number of trucks, employees, and employees' shift times. Trucks were assumed to arrive and depart within the same hour. The estimates based on the operations data also conservatively presume that all employee trips to the site will be via single-occupant vehicles. However, employee survey data provided to the City shows that 64 percent of all employees at the applicant's existing Salinas facility carpool to and from work during the peak season and 48 percent do the same during the off-season. Therefore, the trip estimates used in the operations analysis may be an overestimation (up to 32 percent greater) of the trips that could be generated by the project when accounting for current employee carpooling behavior at the applicant's existing facility in Salinas and the expectation that employees at the Gonzales site would have similar carpooling behavior. A breakdown of all estimated vehicular trips per the applicant site operations information is provided in Table 1.

Trucks have larger effects on traffic operations due to their sizes and vehicle operations. Therefore, a passenger-car equivalent (PCE) factor of 2 was applied to the proposed number of trucks for the level of service and queuing calculations.

Table 1
Daily Operations based on Applicant's Information (Passenger Vehicles & Light Trucks)

	Cooler Operations			Value Added Operations			
Hours of Operation	**Cooler Employees**	**Admin/ Maintenance**	**Guests**	**Processing Employees**	**Admin/ Maintenance**	**Guests**	**Total**
12:00 AM to 1:00 AM	10 departures			65 departures	15 departures		90 departures
1:00 AM to 2:00 AM	6 departures						6 departures
2:00 AM to 3:00 AM							
3:00 AM to 4:00 AM							
4:00 AM to 5:00 AM	2 departures			55 arrivals	25 arrivals	6 arrivals	86 arrivals 2 departures
5:00 AM to 6:00 AM	**12 arrivals**			**60 arrivals**	**20 arrivals**		**92 arrivals**
6:00 AM to 7:00 AM	**10 arrivals**			**20 departures**	**10 departures**		**10 arrivals** **30 departures**
7:00 AM to 8:00 AM	11 arrivals	11 arrivals	4 arrivals				26 arrivals
8:00 AM to 9:00 AM							
9:00 AM to 10:00 AM							
10:00 AM to 11:00 AM							
11:00 AM to 12:00 PM							
12:00 PM to 1:00 PM							
1:00 PM to 2:00 PM							
2:00 PM to 3:00 PM	14 arrivals			65 arrivals 55 departures	15 arrivals 25 departures	6 departures	94 arrivals 86 departures
3:00 PM to 4:00 PM	10 arrivals 12 departures			65 arrivals 60 departures	15 arrivals 20 departures		90 arrivals 92 departures
4:00 PM to 5:00 PM	**10 departures**						**10 departures**
5:00 PM to 6:00 PM	**6 arrivals** **11 departures**	**11 departures**	**4 departures**				**6 arrivals** **26 departures**
6:00 PM to 7:00 PM							
7:00 PM to 8:00 PM	2 arrivals						2 arrivals
8:00 PM to 9:00 PM							
9:00 PM to 10:00 PM				20 arrivals	10 arrivals		30 arrivals
10:00 PM to 11:00 PM							
11:00 PM to 12:00 AM	14 departures			65 departures	15 departures		94 departures
Daily	**65 arrivals** **65 departures** **130 total**	**11 arrivals** **11 departures** **22 total**	**4 arrivals** **4 departures** **8 total**	**265 arrivals** **265 departures** **530 total**	**85 arrivals** **85 departures** **170 total**	**6 arrivals** **6 departures** **12 total**	**436 arrivals** **436 departures** **872 total**

Source: Based on information provided by Belli Architectural Group on June 21, 2022.

Table 1 (Continued)
Daily Operations based on Applicant's Information (Heavy Trucks)

Hours of Operation	Cross Dock	Field Trucks	Carton/ Film	Shipping	Culls/ Trash	Total
12:00 AM to 1:00 AM						
1:00 AM to 2:00 AM						
2:00 AM to 3:00 AM						
3:00 AM to 4:00 AM						
4:00 AM to 5:00 AM						
5:00 AM to 6:00 AM	**1 arrival 1 departure**	**3 arrivals 3 departures**				**4 arrivals 4 departures**
6:00 AM to 7:00 AM	**2 arrivals 2 departures**	**3 arrivals 3 departures**				**5 arrivals 5 departures**
7:00 AM to 8:00 AM	3 arrivals 3 departures	3 arrivals 3 departures				6 arrivals 6 departures
8:00 AM to 9:00 AM	2 arrivals 2 departures	3 arrivals 3 departures			1 arrival 1 departure	6 arrivals 6 departures
9:00 AM to 10:00 AM	2 arrivals 2 departures	5 arrivals 5 departures				7 arrivals 7 departures
10:00 AM to 11:00 AM	4 arrivals 4 departures	5 arrivals 5 departures	1 arrival 1 departure			10 arrivals 10 departures
11:00 AM to 12:00 PM	3 arrivals 3 departures	5 arrivals 5 departures				8 arrivals 8 departures
12:00 PM to 1:00 PM	3 arrivals 3 departures	6 arrivals 6 departures			1 arrival 1 departure	10 arrivals 10 departures
1:00 PM to 2:00 PM	5 arrivals 5 departures	5 arrivals 5 departures		5 arrivals 5 departures		15 arrivals 15 departures
2:00 PM to 3:00 PM	2 arrivals 2 departures	5 arrivals 5 departures		12 arrivals 12 departures		19 arrivals 19 departures
3:00 PM to 4:00 PM	3 arrivals 3 departures	5 arrivals 5 departures		14 arrivals 14 departures		22 arrivals 22 departures
4:00 PM to 5:00 PM	**6 arrivals 6 departures**	**3 arrivals 3 departures**		**16 arrivals 16 departures**	**1 arrival 1 departure**	**26 arrivals 26 departures**
5:00 PM to 6:00 PM	**5 arrivals 5 departures**			**16 arrivals 16 departures**		**21 arrivals 21 departures**
6:00 PM to 7:00 PM	2 arrivals 2 departures			14 arrivals 14 departures		16 arrivals 16 departures
7:00 PM to 8:00 PM	3 arrivals 3 departures			14 arrivals 14 departures		17 arrivals 17 departures
8:00 PM to 9:00 PM	3 arrivals 3 departures			10 arrivals 10 departures	1 arrival 1 departure	14 arrivals 14 departures
9:00 PM to 10:00 PM	5 arrivals 5 departures			5 arrivals 5 departures		10 arrivals 10 departures
10:00 PM to 11:00 PM	1 arrival 1 departure					1 arrivals 1 departures
11:00 PM to 12:00 AM	1 arrival 1 departure					1 arrivals 1 departures
Daily	**56 arrivals 56 departures 112 total**	**51 arrivals 51 departures 102 total**	**1 arrivals 1 departures 2 total**	**106 arrivals 106 departures 212 total**	**4 arrivals 4 departures 8 total**	**218 arrivals 218 departures 436 total**

Source: Based on information provided by Belli Architectural Group on June 21, 2022.
Trucks were assumed to arrive and depart within the same hour.

Based on the applicant's site operations information, the proposed project would generate a total of 1,744 daily passenger-car equivalent vehicle trips, with 108 trips (100 inbound and 8 outbound) occurring during the AM peak hour and 116 trips (48 inbound and 68 outbound) occurring during the PM peak hour. Table 2 provides the estimated daily and peak-hour trips.

Table 2
Project Trip Generation Estimates

	Cars			Trucks			All Vehicles[1]		
Time Period	In	Out	Total	In	Out	Total	In	Out	Total
Daily	436	436	872	218	218	436	872	872	1744
AM Peak Hour	92	0	92	4	4	8	100	8	108
PM Peak Hour	6	26	32	21	21	42	48	68	116

Source: Based on information provided by Belli Architectural Group on June 21, 2022.
[1]Include a passenger-car equivalent factor of 2 for trucks.

Project Trip Distribution and Assignment

The trip distribution pattern for the employees and trucks of the project was obtained from information provided by the applicant regarding the locations of the employees' residences and the crop fields. The project trips were assigned to the roadway network based on the proposed project driveway locations, existing travel patterns in the area, freeway access, and the relative locations of complementary land uses. The project trip distribution patterns and trip assignments for the proposed development under the existing and Year 2035 conditions are shown in Figures 3 and 4, respectively.

Intersection Level of Service Analysis

Level of Service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. A minimum operating standard of LOS D is typically considered acceptable at intersections such as those at the US 101 and Alta Street interchange.

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. In the City of Gonzales, the weekday AM peak hour of traffic generally falls within the 5:00 to 7:00 AM period, and the weekday PM peak hour is typically in the 4:00 to 6:00 PM period. It is during these times that the most congested traffic conditions occur on a typical weekday.

Signalized Intersection Analysis Methodology

The signalized intersection level of service methodology is based on the *Highway Capacity Manual (HCM), 6th Edition* method for signalized intersections. The HCM operations methodology is based upon the evaluation of the average delay time for all vehicles at signalized intersections. The intersection level of service analysis was completed using SYNCHRO software. The correlation between average delay and level of service for signalized intersections is shown in Table 3.

Figure 3
Project Trip Distribution and Assignment under Existing Conditions

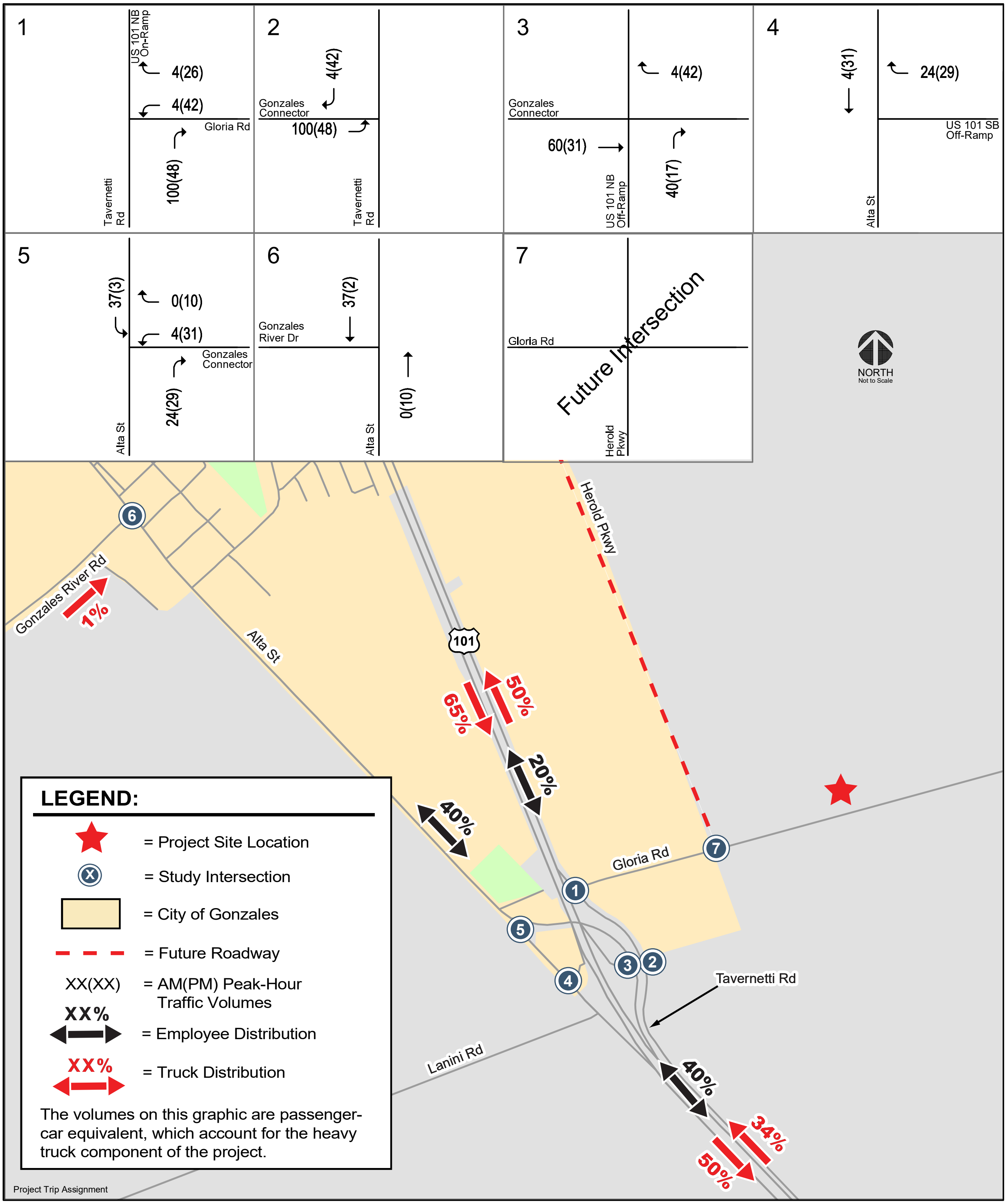


Figure 4
Project Trip Distribution and Assignment under Year 2035 Conditions

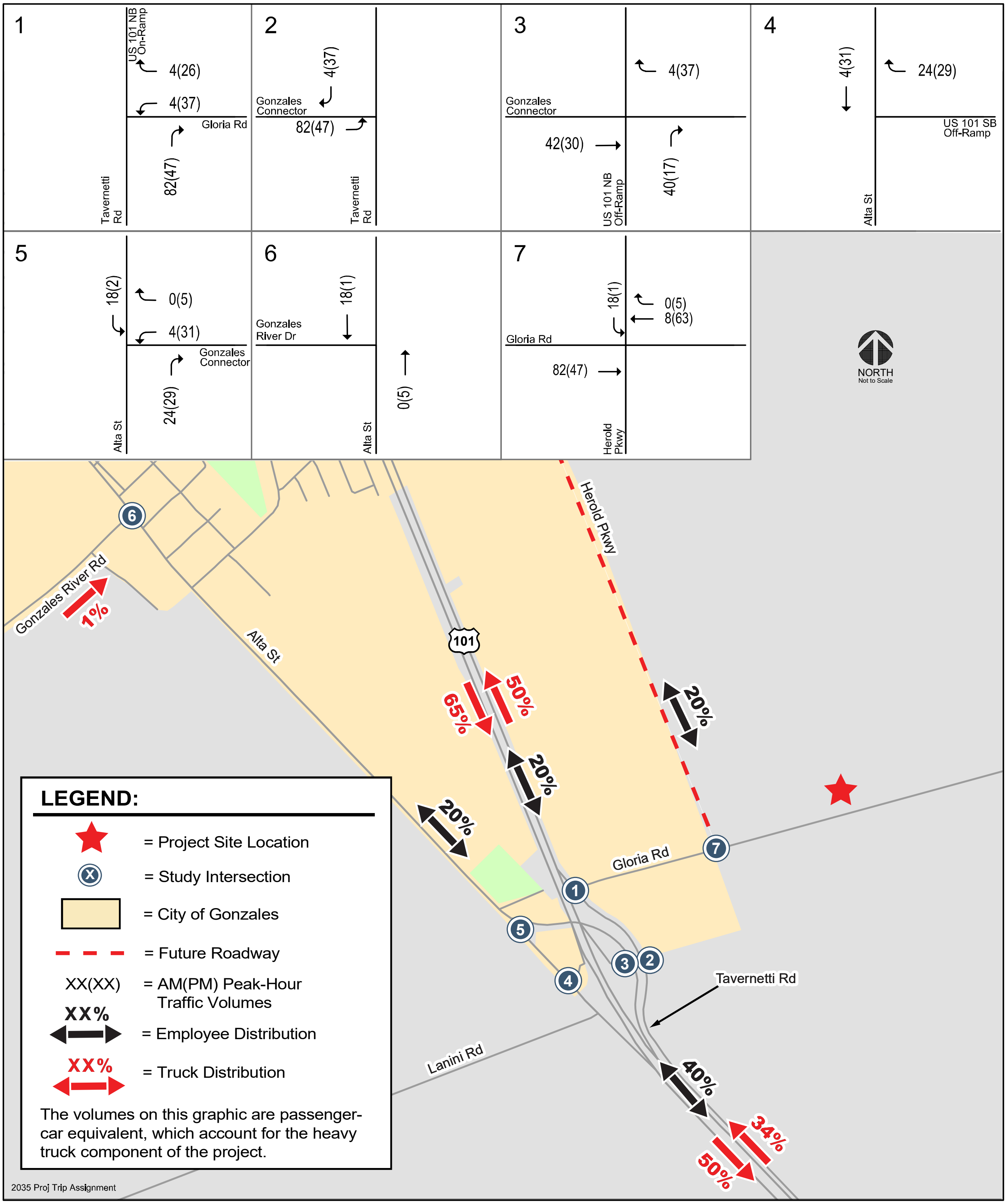


Table 3
Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay per Vehicle (sec.)	
		Signalized	Unsignalized
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	up to 10.0	up to 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0	10.1 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0	15.1 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0	25.1 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 to 80.0	35.1 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to oversaturation, poor progression, or very long cycle lengths.	> 80.0	> 50.0

Sources: Transportation Research Board, *Highway Capacity Manual, 6th Edition.*

Unsignalized Intersection Analysis Methodology

The intersection level of service analysis for unsignalized intersections is also based on the *HCM 6th Edition* methodology. This method is applicable for both two-way and all-way stop-controlled intersections. For the analysis of stop-controlled intersections, the *6th HCM* methodology evaluates intersection operations on the basis of average control delay time for all vehicles on the stop-controlled approaches. For the purpose of reporting level of service for one- and two-way stop-controlled intersections, the delay and corresponding level of service for the stop-controlled minor street approach with the highest delay are reported. For all-way stop-controlled intersections, the reported average delay and corresponding level of service are the average for all approaches at the intersection. The intersection level of service analysis for unsignalized intersections also was completed using SYNCHRO software.

Traffic Signal Warrants

The unsignalized intersections were evaluated for signalization, based on the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the California *Manual Uniform Traffic Control Devices* (MUTCD), 2014 Edition. This method provides an indication of whether peak-hour traffic volumes are, or would be, sufficient to justify the installation of a traffic signal. Intersections that meet the peak hour warrant are subject to further analysis before determining that a traffic signal is necessary. Other options such as traffic control devices, signage, or geometric changes may be preferable based on existing field conditions.

Traffic Volumes

Traffic volumes under the existing and year 2035 cumulative without project conditions were obtained from the *City of Gonzales Sphere of Influence Circulation Study* dated November 19, 2019 and prepared by Kimley Horn. Traffic volumes under the existing plus project and year 2035 cumulative with project conditions were estimated by adding the project traffic to existing and year 2035 cumulative without project traffic volumes, respectively. The traffic volumes for these four study scenarios are shown in Figures 5-8. The counts are included in Appendix A, and the volumes for each study scenario are tabulated in Appendix B.

Intersection Lane Configurations

It is assumed in this analysis that the roadway network and intersection configurations under the existing plus project, cumulative without project, and cumulative with project conditions would be the same as described under existing conditions with the exception of the Herold Parkway extension to Gloria Road. The Herold Parkway extension is presumed to be completed under Year 2035 conditions.

Level of Service Results

The results of the intersection level of service and signal warrant analyses under existing, existing plus project, cumulative without project, and cumulative with project conditions are summarized in Table 4. The level of service calculation sheets are included in Appendix C. The signal warrant checks for each unsignalized intersection are provided in Appendix D.

Existing Plus Project Intersection Operations Analysis

The results of the level of service analysis indicate that, when measured against the LOS D standard, all study intersections are projected to operate at an acceptable LOS D or better during both the AM and PM peak hours under the existing plus project conditions.

Based on the signal warrant analysis, all study intersections are projected to have volumes that fall below the thresholds that warrant signalization during both the AM and PM peak hours under the existing plus project conditions.

Year 2035 Cumulative Intersection Operations Analysis

The results of the level of service analysis indicate that the following five intersections would operate unacceptable LOS F during at least one of the peak hours under year 2035 cumulative without project conditions.

1. Tavernetti Road/US 101 NB On-Ramp and Gloria Road
2. Tavernetti Road and US 101 Southern Overpass
3. US 101 NB Off-Ramp and US 101 Southern Overpass
5. Alta Street and US 101 Southern Overpass
7. Herold Parkway and Gloria Road

The proposed project would contribute to sub-standard intersection operations at each of the above-identified intersections. Based on the signal warrant analysis, a traffic signal would be warranted at each of the five intersections projected to operate at an unacceptable LOS F identified above.

The remaining study intersections are projected to operate at acceptable levels of service under year 2035 cumulative without and with the proposed project during each of the peak hours analyzed.

Figure 5
Existing Traffic Volumes

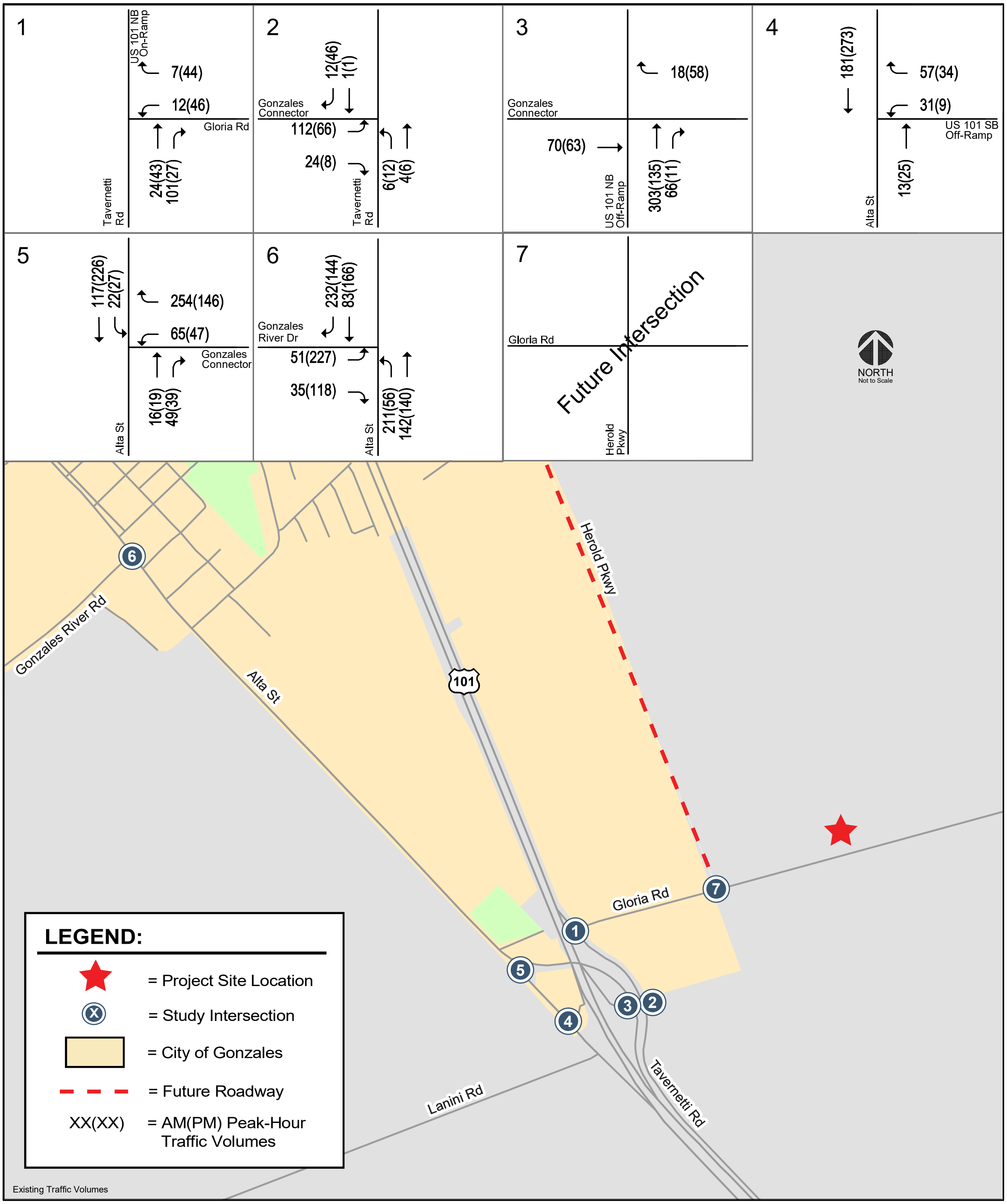


Figure 6
Existing Plus Project Traffic Volumes

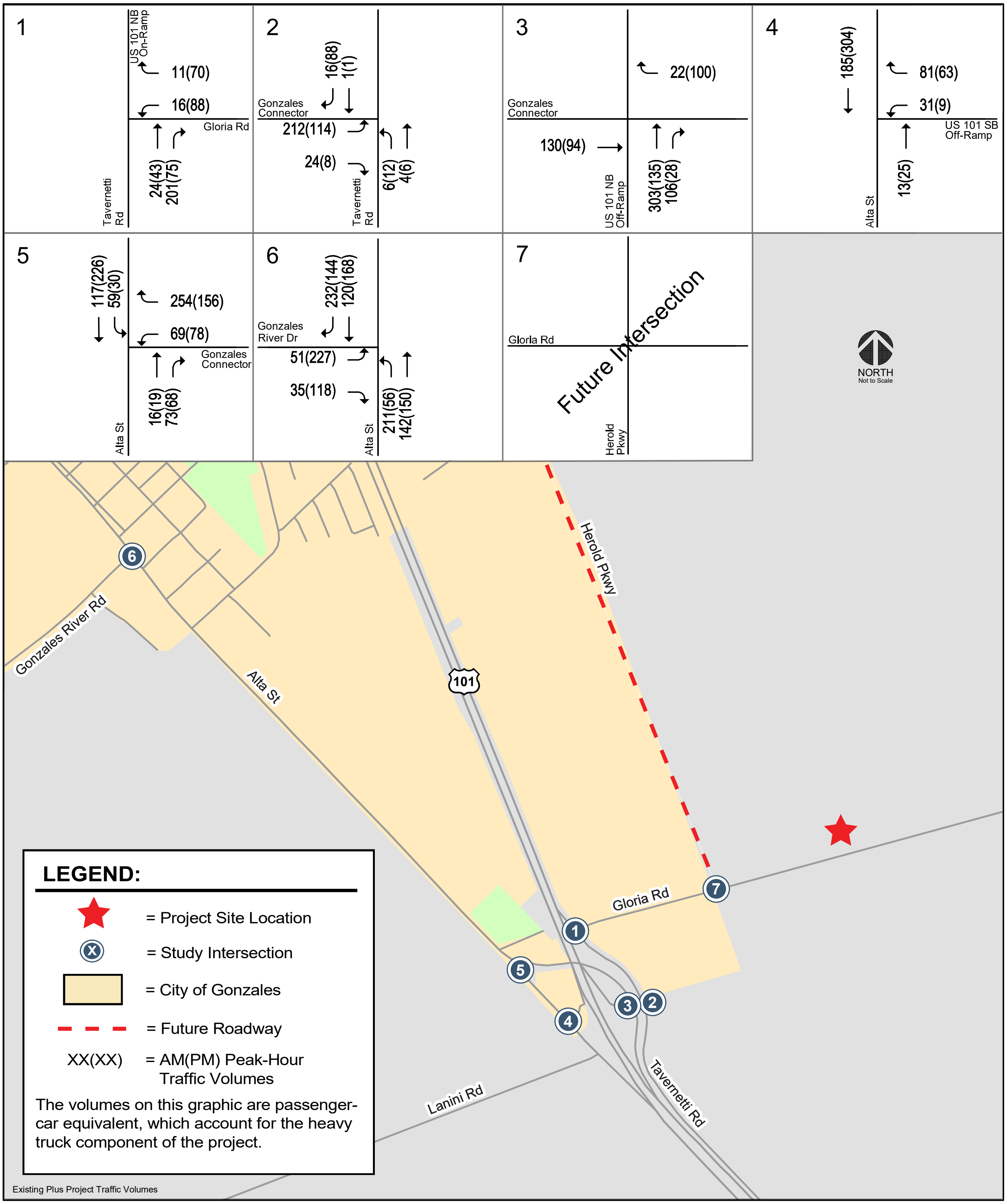


Figure 7
Year 2035 Cumulative without Project Traffic Volumes

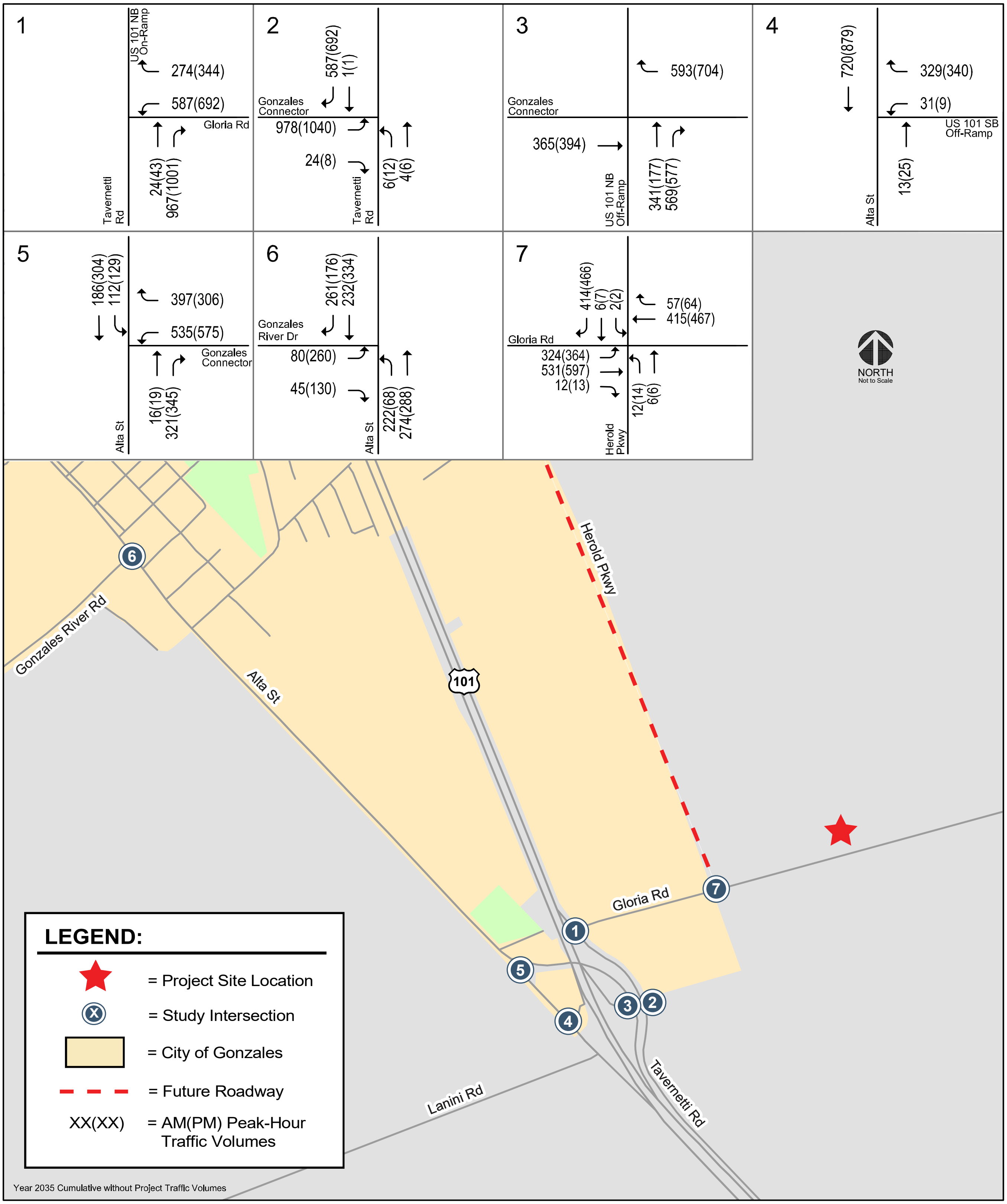


Figure 8
Year 2035 Cumulative with Project Traffic Volumes

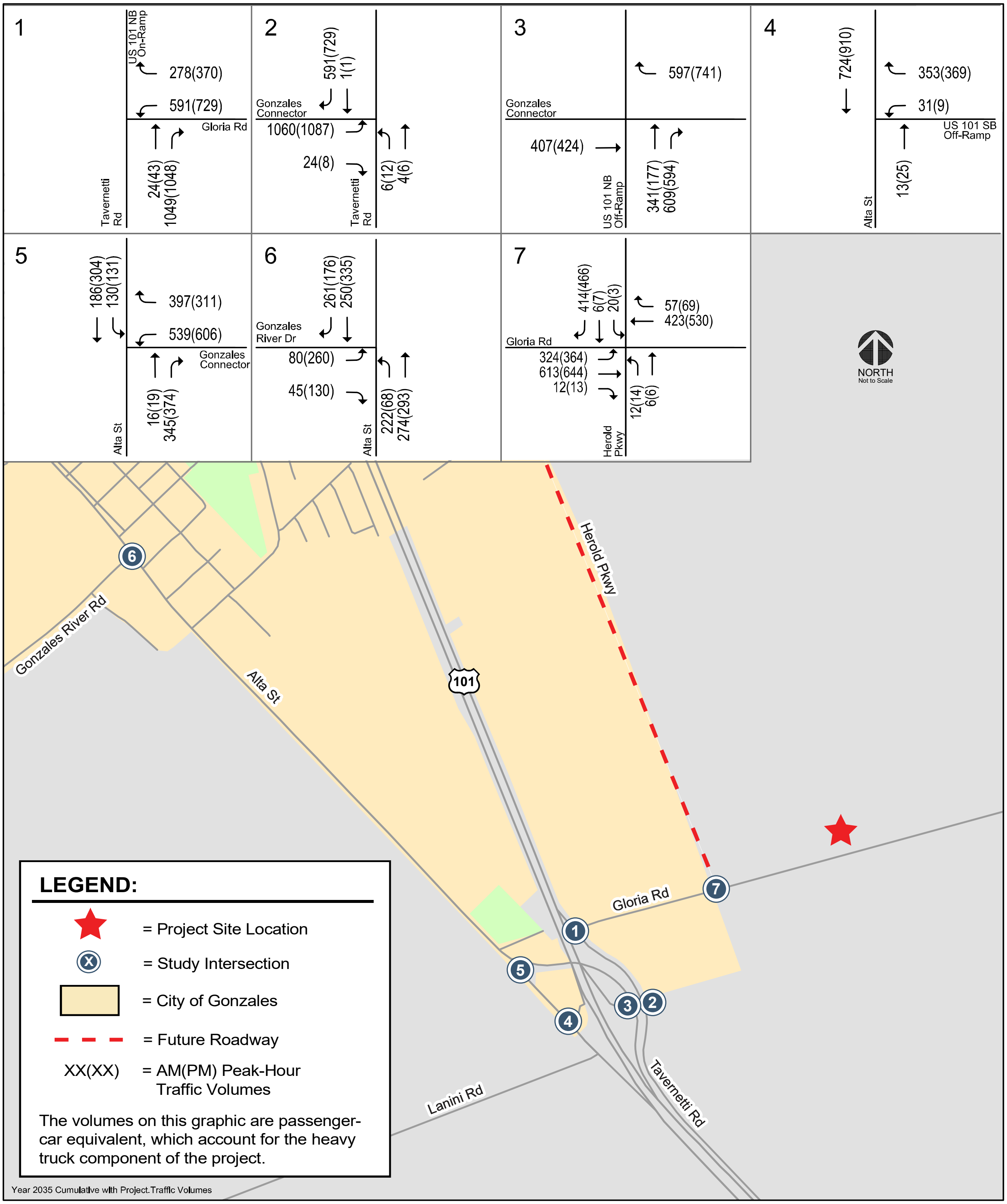


Table 4
Level of Service and Signal Warrant Check Summary

					Existing			Existing Plus Project				Year 2035 Cumulative without Project			Year 2035 Cumulative with Project			
#	Intersection	Peak Hour	Count Date	Int. Control[1]	Warrant Met?	Delay[2]	LOS	Warrant Met?	Delay[2]	LOS	Change in Delay	Warrant Met?	Delay[2]	LOS	Warrant Met?	Delay[2]	LOS	Change in Delay
1	US 101 NB On-Ramp/Tavernetti Road	AM	05/24/18	OWSC	No	9.5	A	No	10.1	B	0.6	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
	and Gloria Road	PM	05/24/18		No	9.8	A	No	11.2	B	1.4	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
2	Tavernetti Road	AM	05/24/18	AWSC	No	8.5	A	No	10.2	B	1.7	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
	and US 101 Southern Overpass	PM	05/24/18		No	7.7	A	No	8.2	A	0.5	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
3	US 101 NB Off-Ramp/US 101 Southerr	AM	05/24/18	AWSC	No	14.2	B	No	18.8	C	4.6	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
	and US 101 Southern Overpass	PM	05/24/18		No	8.4	A	No	8.8	A	0.4	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
4	Alta Street	AM	05/24/18	OWSC	No	9.7	A	No	9.7	A	0.0	**Yes**	15.0	C	**Yes**	15.7	C	0.7
	and US 101 SB Off-Ramp	PM	05/24/18		No	9.8	A	No	9.8	A	0.0	**Yes**	14.3	B	**Yes**	15.3	C	1.0
5	Alta Street	AM	05/24/18	OWSC	No	12.5	B	No	13.9	B	1.4	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
	and US 101 Southern Overpass	PM	05/24/18		No	10.8	B	No	12.1	B	1.3	**Yes**	**>250**	**F**	**Yes**	**>250**	**F**	**>25.0**
6	Alta Street	AM	05/24/18	Signal	--	10.7	B	--	10.6	B	-0.1	--	10.8	B	--	10.9	B	0.1
	and Gonzales River Drive	PM	05/24/18		--	12.3	B	--	12.2	B	-0.1	--	12.6	B	--	12.5	B	-0.1
7	Herold Parkway	AM	--	TWSC	--	--	--	--	--	--	--	**Yes**	**159.4**	**F**	**Yes**	**209.2**	**F**	**>25.0**
	and Gloria Road	PM	--		--	--	--	--	--	--	--	**Yes**	9.1	A	**Yes**	12.1	B	3.0

Notes:

[1] OWSC = one-way stop-controlled, TWSC = two-way stop-controlled, and AWSC = all-way stop-controlled

[2] The reported delay and corresponding level of service for one-way stop-controlled intersection are based on the stop-controlled approach with the highest delay.
The reported delay and corresponding level of service for signalized and all-way stop-controlled intersections represent the average delay for all approaches at the intersection.

Possible Intersection Improvements

The levels of service at each of the five intersections identified to operate at sub-standard levels under year 2035 cumulative with project conditions could be improved to acceptable LOS D or better by the installation of a traffic signal or a roundabout at each location. The City's SOI study identified the need to install a traffic signal or roundabout at each of the intersections.

Project's Contribution to Future Improvements

The project would contribute to the need for traffic signals/roundabouts and intersection improvements at five intersections. The project should contribute its fair share to the cost of a traffic signal or roundabout based on its prorated share of future traffic. The project's shares of future traffic at each study location requiring improvements are shown in Table 5.

Table 5
Project's Fair Share Contribution Towards Future Improvements

#	Intersection	Peak Hour	Existing (A)	Cumulative without Project (B)	Cumulative with Project (C)	Project Only (C-B)	Net Future Growth (C-A)	Fair Share % (C-B)/(C-A)*100%
1	US 101 NB On-Ramp/Tavernetti Road and Gloria Road	AM	144	1,852	1,942	90	1,798	5%
		PM	160	2,080	2,190	110	2,030	5%
2	Tavernetti Road and US 101 Southern Overpass	AM	159	1,600	1,686	86	1,527	6%
		PM	139	1,759	1,843	84	1,704	5%
3	US 101 NB Off-Ramp/US 101 Southern Overpass and US 101 Southern Overpass	AM	457	1,868	1,954	86	1,497	6%
		PM	267	1,852	1,936	84	1,669	5%
5	Alta Street and US 101 Southern Overpass	AM	523	1,567	1,613	46	1,090	4%
		PM	504	1,678	1,745	67	1,241	5%
7	Herold Parkway and Gloria Road	AM	120	1,779	1,887	108	1,767	6%
		PM	117	2,000	2,116	116	1,999	6%

Site Access and On-Site Circulation

A review of the project site plan was performed to determine if adequate site access and on-site circulation would be provided and to identify any access or circulation issues that should be improved. This review is based on the site plan prepared by Peartree+Belli Architects, dated January 10, 2023, presented in Figure 2, and in accordance with generally accepted traffic engineering standards.

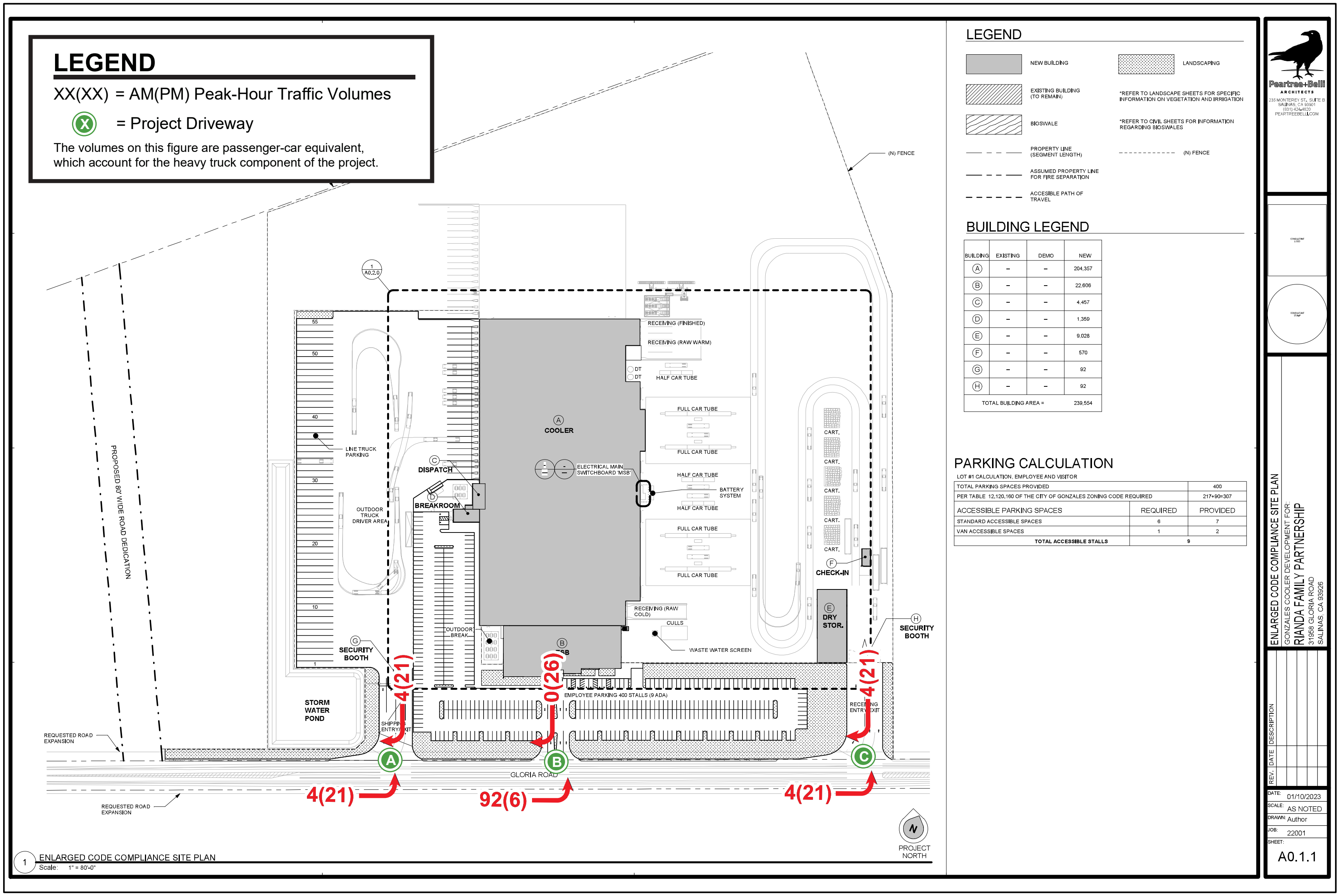
Site Access

Access to the project site is proposed via two full-access driveways A and C serving trucks and a full-access driveway for employees (Driveway B) along Gloria Road (see Figure 9). Driveway B would be located approximately 350 feet east of Driveway A, and Driveway C would be located approximately 650 east of Driveway B.

Operations at Project Driveways

As shown in Figure 9, a maximum of 92 passenger-cars vehicles would turn left into Driveway B during the AM peak hour, which equates to approximately two vehicles per minute on average. A maximum of 21 passenger-car equivalent vehicles would turn left into Driveways A and C during the PM peak hour, which equates to approximately one vehicle every three minutes on average at each driveway.

Figure 9
Project Trips at Driveways



The level of service and signal warrant analyses indicate that all three of the proposed driveways are projected to operate at acceptable LOS C or better and to have volumes that fall below the thresholds that warrant signalization during both the AM and PM peak hours under the existing plus project and year 2035 cumulative with project conditions.

Currently, Gloria Road is just a two-lane two-way undivided roadway with 12-foot-wide lanes and 4-foot-wide shoulders. Vehicles, both trucks and passenger vehicles, waiting to turn left into the project site will temporarily block vehicles traveling eastbound on Gloria Road. Left-turn pocket warrant analysis indicates that the near-term (existing plus project conditions) volumes would not warrant left-turn pockets at the site driveways. However, the future projected Year 2035 would be large enough to warrant the need for left-turn pockets at all three driveways. Therefore, storage space for left-turn vehicles will need to be provided at all three driveways.

The queuing analysis indicates that the queue lengths for the eastbound left-turn pockets at all three driveways are projected to be at most one vehicle under the existing plus project and year 2035 cumulative with project conditions. However, it is recommended that 200 feet of queue storage space, which can accommodate two trucks, be provided for the eastbound left-turn pocket at the truck driveways (Driveways A and C) and 100 feet of queue storage space, which can accommodate four passenger vehicles, be provided for the eastbound left-turn pocket at the employee driveway (Driveway B) for the rare events that multiple vehicles arrive at the same time.

Recommendation: The project should widen Gloria Road along its frontage to provide a striped median lane from approximately 500 feet west of Driveway A to approximately 300 feet east of Driveway C to accommodate 200- and 100-foot left-turn pockets at the truck driveways (Driveways A and C) and the employee driveway (Driveway B), respectively.

Sight Distance at Project Driveways

Adequate sight distance (sight distance triangles) should be provided at the project site driveways in accordance with the *American Association of State Highway Transportation Officials* (AASHTO) standards. Sight distance triangles should be measured at the driveway approximately 10 feet back from the traveled way. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway and provides drivers with the ability to exit a driveway and locate sufficient gaps in traffic. The minimum acceptable sight distance is often considered the AASHTO stopping sight distance. Sight distance requirements vary depending on the roadway speeds. Gloria Road currently is a two-lane undivided roadway without any posted speed limit. Based on the CA Department of Vehicles, the maximum speed limit is 55 mph on a two-lane undivided highway, unless posted otherwise. The AASHTO stopping sight distance for a facility with a speed limit of 55 mph is 495 feet. Thus, a driver exiting any of the three project driveways must be able to see approaching traffic on Gloria Road at a minimum distance of 495 feet to be able to stop and avoid a collision.

Based on field observations and aerial images, there are no existing trees or visual obstructions along Gloria Road that would obscure sight distance to drivers exiting the project site, providing a clear view of approaching traffic on both sides of Gloria beyond the minimum required distance of 495 feet. Therefore, it can be concluded that all three project driveways along Gloria Road would meet the AASHTO minimum stopping sight distance standards.

Recommendation: The project driveways should be designed to be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and other vehicles traveling on Gloria Road. Any landscaping and signage should be located in such a way as to ensure an unobstructed view for drivers exiting the site.

On-Site Circulation

The site plan shows that the employee surface parking lot would be located along the project's frontage on Gloria Road and the shipping and receiving areas would be located on the west and east sides of the facility, respectively.

The employee surface parking lot and the shipping and receiving areas are separated by barriers. Vehicles would be able mostly to circulate continuously within the drive aisles with the exception of a short dead-end located near the dispatch area. Dead-end aisles are undesirable because drivers can enter the aisle, and upon discovering that there is no available parking, must back out or conduct three-point turns. In areas where parking spaces are designated for specific individuals, dead-end aisles are less problematic.

Recommendation: All parking stalls within the dead-end aisle should be assigned parking spaces.

Driveways A and C would serve as entry/exit points for shipping and receiving trucks, respectively. Security booths are located approximately 150 and 200 feet north of Gloria Road at Driveways A and C, respectively. Two inbound lanes are proposed at each of the security booths and will provide adequate storage for two and four trucks arriving at the same time for Driveways A and C, respectively.

The site plan also includes turning templates to show that trucks would be able to pull into and out of the loading docks and the drive aisles for shipping and receiving.

Pedestrian, Bicycle, and Transit Facilities

A significant adverse effect would occur if the proposed project would be in conflict with applicable or adopted policies, plans or programs, or implementation of planned improvements related to pedestrian, bicycle, and transit facilities or otherwise decrease the performance or safety of these facilities.

Gloria Road currently does not provide any pedestrian or bicycle facilities. The project site is located in an undeveloped area of the City without any pedestrian/bikeable destinations nearby. Therefore, the project is not expected to attract or generate any pedestrian/biking demand on a near-term basis. However, significant growth in residential uses is planned for the areas surrounding the project site. Per the City's SOI study, Gloria Road is planned as a four-lane arterial that will include sidewalks, bike lanes, and a multi-use path. Therefore, the improvement of project frontages along Gloria Road should provide for the future widening of Gloria Road and implementation of the planned sidewalks, bike lanes, and multi-use paths to encourage non-vehicular travel by employees of the project site.

The City of Gonzales is currently served by the Monterey-Salinas Transit (MST) bus route 23. Bus route 23 operates between Salinas and King City. The nearest bus stop is located near the 5th Street and US 101 interchange approximately 1.5 miles north of the project site, which is beyond the acceptable walking distance. Additionally, there are no pedestrian facilities connecting the project site to the bus stop. Therefore, the project is not expected to generate any demand for transit services.

Roadway Segment Analysis

A roadway segment analysis was completed for the segments of Gloria Road, east of US 101 and Herold Parkway, north of Gloria Road. Gloria Road currently is a two-lane undivided roadway, and Herold Parkway is planned to be a four-lane divided arterial with left turns.

Based on the HCM 2000, the maximum threshold for LOS D of a 2-lane rural highway and a four-lane divided arterial with left turns are approximately 17,000 and 32,500 daily vehicles in both directions, respectively. The HCM 2000 thresholds provide a planning-level analysis of the relative traffic load and approximate capacity on a particular roadway. It is important to note that daily volume thresholds are used for planning purposes and traffic during the peak commute periods may result in worse operations than illustrated by the daily level of service.

The results of the roadway segment analysis (see Table 6) indicate that the volumes for both directions on Gloria Road, east of US 101 are projected to be 3,251 (acceptable LOS D or better) and 19,492 (unacceptable LOS E) daily vehicles under the existing plus project and year 2035 cumulative with project conditions, respectively. The volumes for both directions on Herold Parkway, north of Gloria Road are projected to be 11,478 (acceptable LOS D or better) daily vehicles under the year 2035 cumulative with project conditions.

The SOI study identified the need to widen Gloria Road, between US 101 and Herold Parkway, to four lanes under the year 2035 cumulative conditions to improve traffic operations along this segment. The project should contribute its fair share to the cost of widening Gloria Road based on its prorated share of future traffic, which was calculated to be approximately 9% based on data shown in Table 6.

Table 6
Roadway Segment Analysis

	Existing Network			Year 2035 Network		
Roadway Segment	Existing	Project Trips	Existing Plus Project	Cumulative without Project	Project Trips	Cumulative with Project
Gloria Road, east of US 101	1,507	1,744	3,251	17,922	1,570	19,492
Herold Parkway, north of Gloria Road	--	--	--	11,304	174	11,478

Volumes shown are for both directions

Freeway Ramp Analysis

A freeway ramp analysis based on calculated volume-to-capacity (V/C) ratios was conducted at the US 101 and Alta Street (south) freeway interchange for ramps that provides access to the project site.

Freeway Ramp Analysis Methodology

The freeway ramp analysis was performed to evaluate projected interchange operations with the implementation of the proposed project and supplements the intersection level of service analysis at the freeway ramp intersections. The study freeway ramps are under the jurisdiction of Caltrans.

The analysis is based on calculated ramp capacity (volume-to-capacity (V/C) ratios) at the study freeway ramps. The correlation between V/C ratio and level of service for freeway ramps is shown in Table 7. A minimum operating standard of LOS D is typically considered acceptable by Caltrans at ramps such as those at the US 101 and Alta Street interchange.

Freeway Ramp Analysis Results

The results of the freeway ramp analysis under the existing, existing plus project, year 2035 cumulative without project, and year 2035 cumulative with project conditions are summarized in Table 8.

Based on the calculated V/C ratios, all of the study freeway ramps currently operate at acceptable levels and would continue to operate at acceptable levels under all study scenarios.

Table 7
Freeway Ramp Levels of Service Based on Volume-to-Capacity Ratio

Level of Service	V/C Ratio
A	Less than 0.600
B	0.600-0.699
C	0.700-0.799
D	0.800-0.899
E	0.900-0.999
F	1.000 and Greater

Source: Transportation Research Board, *2000 Highway Capacity Manual*. (Washington, D.C., 2000)

Table 8
Freeway Ramp Analysis Summary

Interchange/Ramp	Peak Hour	Capacity[1] (vph)	Existing Volume[2] (vph)	Existing V/C	Existing LOS[3]	Existing Plus Project Volume[2] (vph)	Existing Plus Project V/C	Existing Plus Project LOS[3]	Year 2035 Cumulative without Project Volume[2] (vph)	Year 2035 Cumulative without Project V/C	Year 2035 Cumulative without Project LOS[3]	Year 2035 Cumulative with Project Volume[2] (vph)	Year 2035 Cumulative with Project V/C	Year 2035 Cumulative with Project LOS[3]
US 101 at Alta Street Interchange (South)														
Southbound Off-Ramp	AM	1,200	88	0.073	A	112	0.093	A	360	0.300	A	384	0.320	A
	PM	1,200	43	0.036	A	72	0.060	A	349	0.291	A	378	0.315	A
Southbound On-Ramp	AM	1,200	181	0.151	A	185	0.154	A	720	0.600	B	724	0.603	B
	PM	1,200	273	0.228	A	304	0.253	A	879	0.733	C	910	0.758	C
Northbound Off-Ramp	AM	1,200	369	0.308	A	409	0.341	A	910	0.758	C	950	0.792	C
	PM	1,200	146	0.122	A	163	0.136	A	754	0.628	B	771	0.643	B
Northbound On-Ramp	AM	1,200	31	0.026	A	35	0.029	A	298	0.248	A	302	0.252	A
	PM	1,200	87	0.073	A	113	0.094	A	387	0.323	A	413	0.344	A

Notes:
1. Typical capacities for diagonal ramps are 1,800 vehicles per hour per lane (vphpl). However, 1,200 vph was assumed as the capacity for the study ramps to be conservative.
2. Ramp volumes were interpolated from peak-hour turning movement vollumes at the ramp intersections.
3. The ramp level of service corresponds to the calculated ramp V/C ratios.

Gloria Road Agricultural Cooler TA

Technical Appendices

March 3, 2023

Appendix A
Traffic Counts

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Tavernetti Rd/US 101 NB Ramps -- Gloria Rd

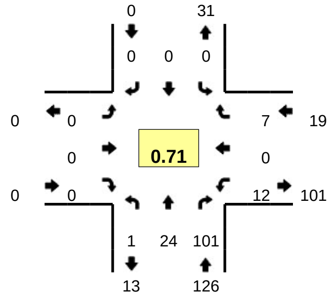
CITY/STATE: Gonzales, CA

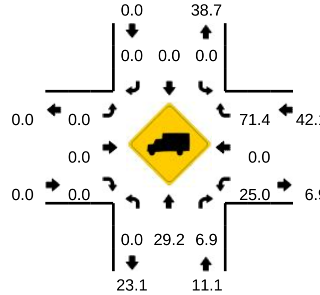
QC JOB #: 14718309

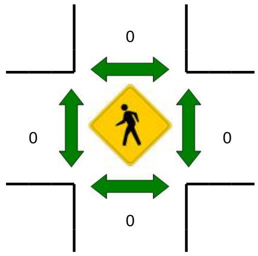
DATE: Thu, May 24 2018

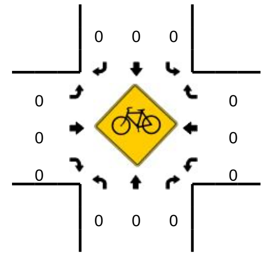
Peak-Hour: 5:40 AM -- 6:40 AM

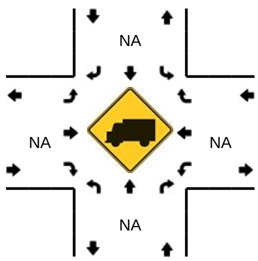
Peak 15-Min: 5:40 AM -- 5:55 AM

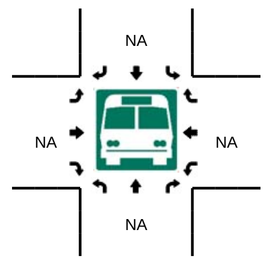












5-Min Count Period Beginning At	Tavernetti Rd/US 101 NB Ramps (Northbound) Left	Thru	Right	U	Tavernetti Rd/US 101 NB Ramps (Southbound) Left	Thru	Right	U	Gloria Rd (Eastbound) Left	Thru	Right	U	Gloria Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
5:10 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	2	0	6	
5:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	1	0	2	0	5	
5:20 AM	0	2	4	0	0	0	0	0	0	0	0	0	2	0	0	0	8	
5:25 AM	0	2	2	0	0	0	0	0	0	0	0	0	1	0	0	0	5	
5:30 AM	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	5	
5:35 AM	0	2	8	0	0	0	0	0	0	0	0	0	3	0	0	0	13	
5:40 AM	0	1	17	0	0	0	0	0	0	0	0	0	0	0	0	0	18	
5:45 AM	0	1	17	0	0	0	0	0	0	0	0	0	1	0	1	0	20	
5:50 AM	0	2	9	0	0	0	0	0	0	0	0	0	2	0	0	0	13	
5:55 AM	0	2	6	1	0	0	0	0	0	0	0	0	1	0	1	0	11	117
6:00 AM	0	2	2	0	0	0	0	0	0	0	0	0	1	0	2	0	7	117
6:05 AM	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6	117
6:10 AM	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	116
6:15 AM	0	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	10	121
6:20 AM	0	2	4	0	0	0	0	0	0	0	0	0	1	0	2	0	9	122
6:25 AM	0	4	7	0	0	0	0	0	0	0	0	0	2	0	0	0	13	130
6:30 AM	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	138
6:35 AM	0	5	10	0	0	0	0	0	0	0	0	0	4	0	1	0	20	145
6:40 AM	0	0	9	0	0	0	0	0	0	0	0	0	1	0	0	0	10	137
6:45 AM	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	10	127
6:50 AM	0	1	5	0	0	0	0	0	0	0	0	0	0	0	2	0	8	122
6:55 AM	0	3	8	0	0	0	0	0	0	0	0	0	2	0	2	0	15	126
7:00 AM	0	2	6	0	0	0	0	0	0	0	0	0	1	0	2	0	11	130
7:05 AM	0	3	1	0	0	0	0	0	0	0	0	0	1	0	2	0	7	131

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	16	172	0	0	0	0	0	0	0	0	0	12	0	4	0	204
Heavy Trucks	0	0	8		0	0	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Tavernetti Rd/US 101 NB Ramps -- Gloria Rd | **QC JOB #:** 14718310
CITY/STATE: Gonzales, CA | **DATE:** Thu, May 24 2018

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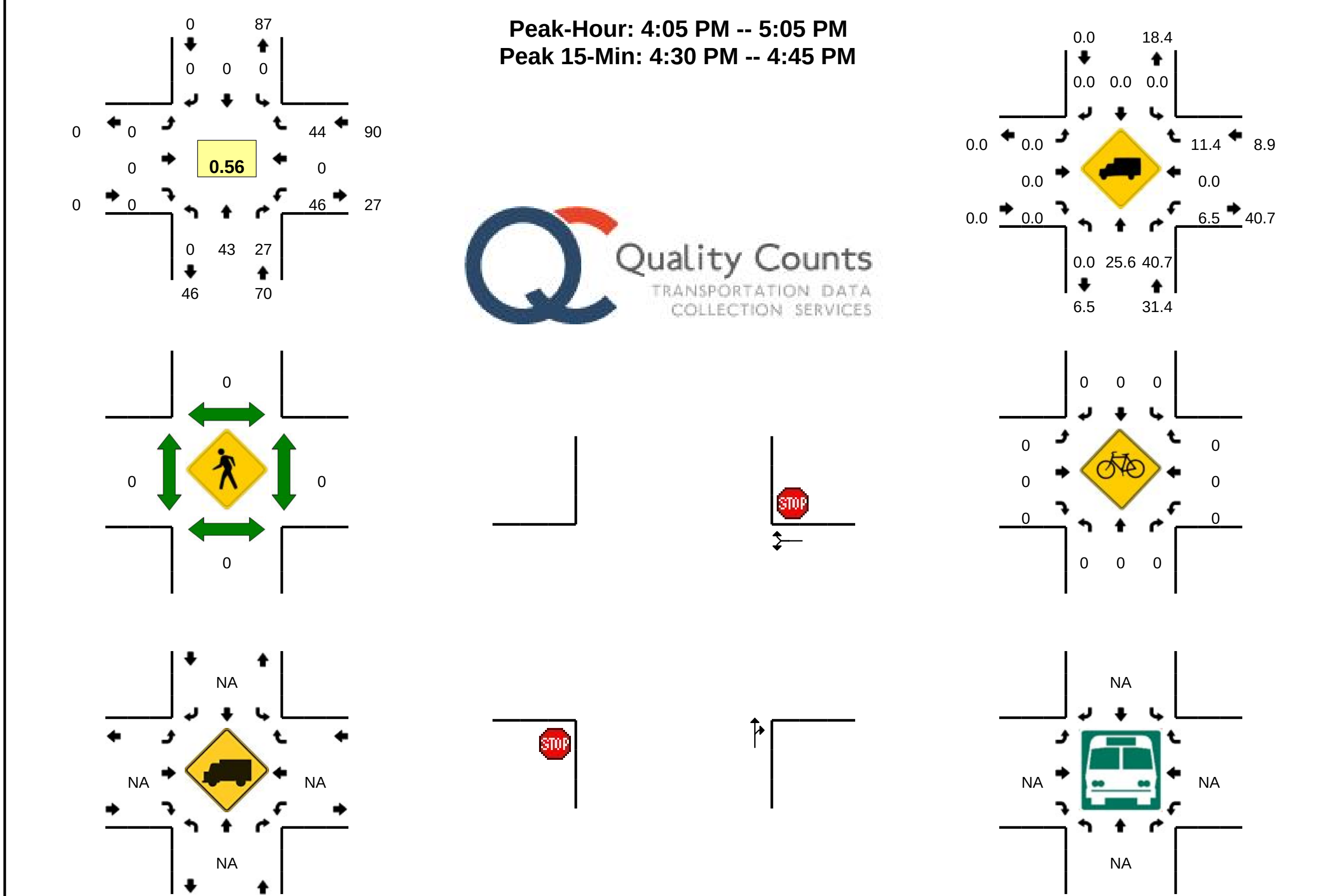
Peak 15-Min: 4:30 PM -- 4:45 PM



5-Min Count Period Beginning At	Tavernetti Rd/US 101 NB Ramps (Northbound) Left	Thru	Right	U	Tavernetti Rd/US 101 NB Ramps (Southbound) Left	Thru	Right	U	Gloria Rd (Eastbound) Left	Thru	Right	U	Gloria Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	0	2	3	0	0	0	0	0	0	0	0	0	0	0	3	0	8	
4:05 PM	0	2	4	0	0	0	0	0	0	0	0	0	0	0	4	0	10	
4:10 PM	0	4	1	0	0	0	0	0	0	0	0	0	1	0	1	0	7	
4:15 PM	0	4	2	0	0	0	0	0	0	0	0	0	1	0	2	0	9	
4:20 PM	0	3	0	0	0	0	0	0	0	0	0	0	3	0	1	0	7	
4:25 PM	0	5	5	0	0	0	0	0	0	0	0	0	1	0	6	0	17	
4:30 PM	0	2	1	0	0	0	0	0	0	0	0	0	9	0	9	0	21	
4:35 PM	0	6	1	0	0	0	0	0	0	0	0	0	16	0	9	0	32	
4:40 PM	0	2	3	0	0	0	0	0	0	0	0	0	9	0	5	0	19	
4:45 PM	0	4	2	0	0	0	0	0	0	0	0	0	5	0	0	0	11	
4:50 PM	0	5	3	0	0	0	0	0	0	0	0	0	0	0	1	0	9	
4:55 PM	0	3	3	0	0	0	0	0	0	0	0	0	0	0	3	0	9	159
5:00 PM	0	3	2	0	0	0	0	0	0	0	0	0	1	0	3	0	9	160
5:05 PM	0	3	1	0	0	0	0	0	0	0	0	0	1	0	2	0	7	157
5:10 PM	0	2	1	0	0	0	0	0	0	0	0	0	3	0	1	0	7	157
5:15 PM	0	5	2	0	0	0	0	0	0	0	0	0	1	0	1	0	9	157
5:20 PM	0	4	0	0	0	0	0	0	0	0	0	0	1	0	3	0	8	158
5:25 PM	0	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	7	148
5:30 PM	0	4	1	0	0	0	0	0	0	0	0	0	2	0	2	0	9	136
5:35 PM	0	1	0	0	0	0	0	0	0	0	0	0	3	0	3	0	7	111
5:40 PM	0	2	5	0	0	0	0	0	0	0	0	0	5	0	3	0	15	107
5:45 PM	0	3	2	0	0	0	0	0	0	0	0	0	0	0	3	0	8	104
5:50 PM	0	2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	4	99
5:55 PM	0	2	2	0	0	0	0	0	0	0	0	0	1	0	6	0	11	101

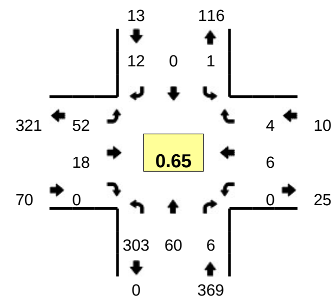
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	40	20	0	0	0	0	0	0	0	0	0	136	0	92	0	288
Heavy Trucks	0	0	4		0	0	0		0	0	0		0	0	4		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

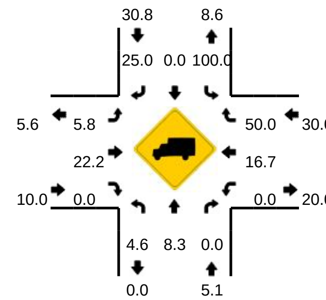
Report generated on 6/4/2018 2:30 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

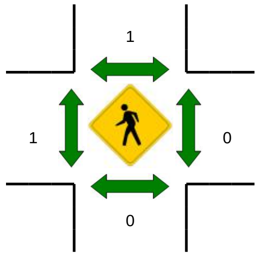
Type of peak hour being reported: Intersection Peak　　　Method for determining peak hour: Total Entering Volume

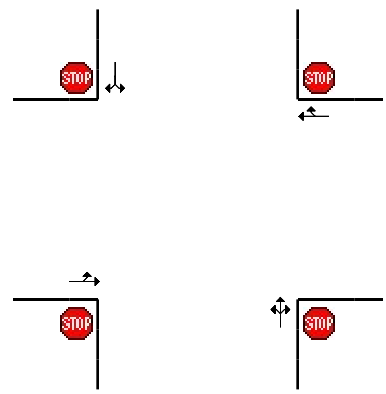
LOCATION: Tavernetti Rd -- S Gonzales Connector/US 101 NB Ramps　　　**QC JOB #:** 14718307
CITY/STATE: Gonzales, CA　　　**DATE:** Thu, May 24 2018

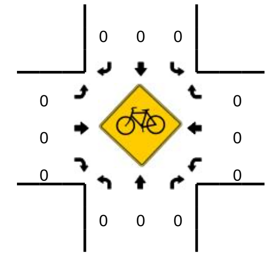


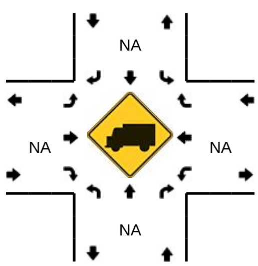
Peak-Hour: 5:20 AM -- 6:20 AM
Peak 15-Min: 5:40 AM -- 5:55 AM

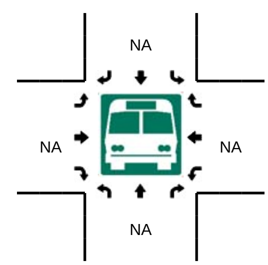












5-Min Count Period Beginning At	Tavernetti Rd (Northbound) Left	Thru	Right	U	Tavernetti Rd (Southbound) Left	Thru	Right	U	S Gonzales Connector/US 101 NB Ramps (Eastbound) Left	Thru	Right	U	S Gonzales Connector/US 101 NB Ramps (Westbound) Left	Thru	Right	U	Total	Hourly Totals
5:00 AM	16	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	20	
5:05 AM	17	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	25	
5:10 AM	12	1	1	0	0	0	0	0	1	2	0	0	0	0	0	0	17	
5:15 AM	19	2	0	0	0	0	1	0	1	1	0	0	0	0	0	0	24	
5:20 AM	19	3	0	0	0	0	2	0	4	0	0	0	0	0	0	0	28	
5:25 AM	26	0	0	0	1	0	1	0	4	2	0	0	0	0	0	0	34	
5:30 AM	31	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	36	
5:35 AM	27	5	0	0	0	0	3	0	6	0	0	0	0	0	0	0	41	
5:40 AM	36	12	0	0	0	0	0	0	9	2	0	0	0	2	0	0	61	
5:45 AM	47	7	3	0	0	0	0	0	8	2	0	0	0	1	0	0	68	
5:50 AM	29	11	1	0	0	0	2	0	4	2	0	0	0	0	1	0	50	
5:55 AM	19	6	1	0	0	0	2	0	3	5	0	0	0	1	0	0	37	441
6:00 AM	22	2	1	0	0	0	2	0	2	3	0	0	0	1	1	0	34	455
6:05 AM	10	2	0	0	0	0	0	0	3	0	0	0	0	0	0	0	15	445
6:10 AM	15	4	0	0	0	0	0	0	4	2	0	0	0	0	1	0	26	454
6:15 AM	22	6	0	0	0	0	0	0	2	0	0	0	0	1	1	0	32	462
6:20 AM	11	1	1	0	0	0	1	0	7	0	0	0	0	0	0	0	21	455
6:25 AM	19	3	0	0	1	0	0	0	8	1	0	0	0	2	1	0	35	456
6:30 AM	20	4	0	0	0	0	1	0	4	1	0	0	0	0	1	0	31	451
6:35 AM	22	3	0	0	0	0	4	0	9	0	0	0	0	1	3	0	42	452
6:40 AM	26	9	0	0	0	0	1	0	1	2	0	0	0	0	0	0	39	430
6:45 AM	31	5	0	0	0	0	0	0	3	1	0	0	0	0	0	0	40	402
6:50 AM	33	3	0	0	0	0	0	0	2	0	0	0	0	0	1	0	39	391
6:55 AM	20	1	0	0	0	0	2	0	8	2	0	0	0	2	1	1	37	391

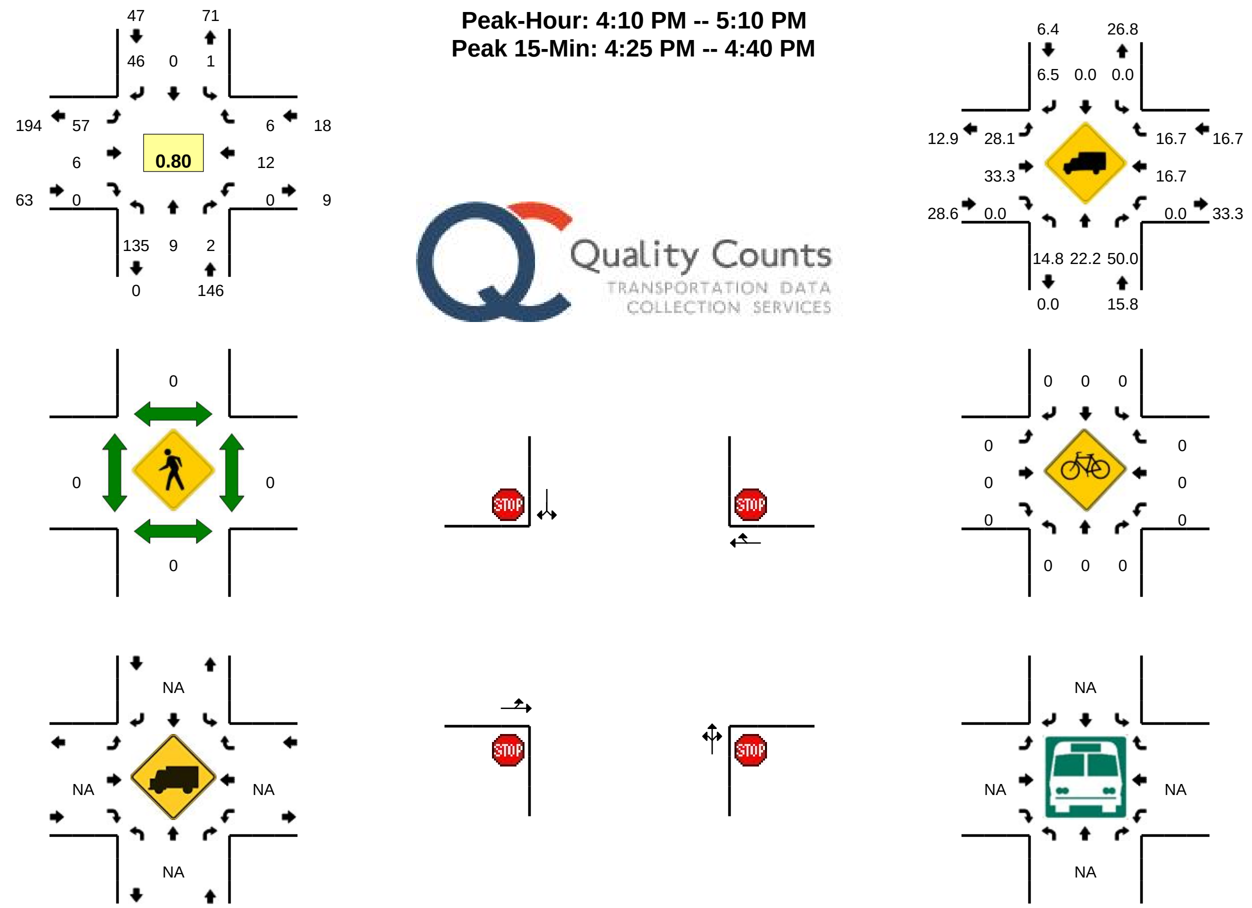
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	448	120	16	0	0	0	8	0	84	24	0	0	0	12	4	0	716
Heavy Trucks	12	12	0		0	0	0		0	0	0		0	0	0		24
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Tavernetti Rd -- S Gonzales Connector/US 101 NB Ramps | **QC JOB #:** 14718308
CITY/STATE: Gonzales, CA | **DATE:** Thu, May 24 2018

Peak-Hour: 4:10 PM -- 5:10 PM
Peak 15-Min: 4:25 PM -- 4:40 PM



5-Min Count Period Beginning At	Tavernetti Rd (Northbound) Left	Thru	Right	U	Tavernetti Rd (Southbound) Left	Thru	Right	U	S Gonzales Connector/US 101 NB Ramps (Eastbound) Left	Thru	Right	U	S Gonzales Connector/US 101 NB Ramps (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	10	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	16	
4:05 PM	11	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	16	
4:10 PM	13	1	1	0	0	0	1	0	4	0	0	1	0	0	0	0	21	
4:15 PM	14	2	0	0	0	0	1	0	5	1	0	0	0	3	1	0	27	
4:20 PM	4	0	1	0	1	0	2	0	4	1	0	0	0	1	0	0	14	
4:25 PM	15	1	0	0	0	0	1	0	5	0	0	0	0	1	3	0	26	
4:30 PM	9	0	0	0	0	0	6	0	3	0	0	0	0	3	0	0	21	
4:35 PM	12	0	0	0	0	0	19	0	6	0	0	0	0	1	1	0	39	
4:40 PM	11	1	0	0	0	0	8	0	5	1	0	0	0	0	0	0	26	
4:45 PM	8	0	0	0	0	0	5	0	4	1	0	0	0	0	1	0	19	
4:50 PM	11	2	0	0	0	0	1	0	6	0	0	0	0	0	0	0	20	
4:55 PM	16	1	0	0	0	0	0	0	8	1	0	0	0	0	0	0	26	271
5:00 PM	11	0	0	0	0	0	0	0	3	1	0	0	0	1	0	0	16	271
5:05 PM	11	1	0	0	0	0	2	0	3	0	0	0	0	2	0	0	19	274
5:10 PM	6	0	0	0	0	0	3	0	4	0	0	0	0	0	0	0	13	266
5:15 PM	12	0	0	0	0	0	0	0	7	0	0	0	0	1	0	0	20	259
5:20 PM	14	2	0	0	0	0	2	0	4	0	0	0	0	0	0	0	22	267
5:25 PM	5	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	10	251
5:30 PM	13	2	0	0	0	0	3	0	1	1	0	0	0	0	1	0	21	251
5:35 PM	10	0	1	0	0	0	4	0	2	1	0	0	0	0	0	0	18	230
5:40 PM	17	1	1	0	0	0	5	0	5	0	0	0	0	0	0	0	29	233
5:45 PM	12	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	17	231
5:50 PM	10	0	0	0	0	0	1	0	3	0	0	0	0	0	1	0	15	226
5:55 PM	6	0	0	0	0	0	1	0	3	3	0	0	0	1	1	0	15	215

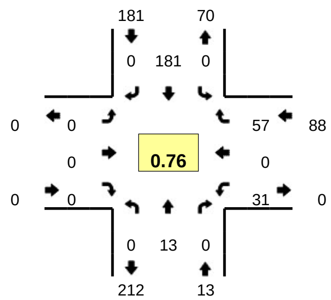
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	144	4	0	0	0	0	104	0	56	0	0	0	0	20	16	0	344
Heavy Trucks	12	4	0		0	0	0		12	0	0		0	4	4		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

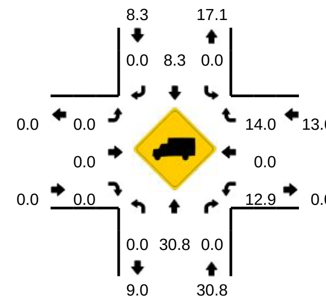
Report generated on 6/4/2018 2:30 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

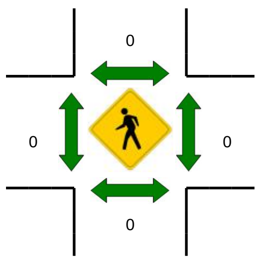
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

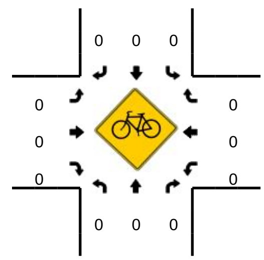
LOCATION: S Alta St -- US 101 SB Ramps — **QC JOB #:** 14718303
CITY/STATE: Gonzales, CA — **DATE:** Thu, May 24 2018

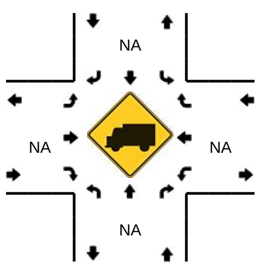


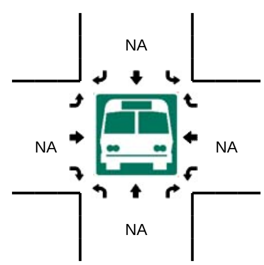
Peak-Hour: 5:30 AM -- 6:30 AM
Peak 15-Min: 5:40 AM -- 5:55 AM











5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	US 101 SB Ramps (Eastbound) Left	Thru	Right	U	US 101 SB Ramps (Westbound) Left	Thru	Right	U	Total	Hourly Totals
5:00 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	3	0	8	
5:05 AM	0	2	0	0	0	6	0	0	0	0	0	0	1	0	3	0	12	
5:10 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	0	3	0	14	
5:15 AM	0	0	0	0	0	17	0	0	0	0	0	0	0	0	1	0	18	
5:20 AM	0	0	0	0	0	12	0	0	0	0	0	0	1	0	3	0	16	
5:25 AM	0	2	0	0	0	11	0	0	0	0	0	0	0	0	4	0	17	
5:30 AM	0	1	0	0	0	11	0	0	0	0	0	0	3	0	1	0	16	
5:35 AM	0	1	0	0	0	17	0	0	0	0	0	0	1	0	5	0	24	
5:40 AM	0	2	0	0	0	22	0	0	0	0	0	0	2	0	7	0	33	
5:45 AM	0	2	0	0	0	23	0	0	0	0	0	0	3	0	7	0	35	
5:50 AM	0	2	0	0	0	13	0	0	0	0	0	0	6	0	4	0	25	
5:55 AM	0	0	0	0	0	14	0	0	0	0	0	0	4	0	5	0	23	241
6:00 AM	0	1	0	0	0	12	0	0	0	0	0	0	5	0	5	0	23	256
6:05 AM	0	1	0	0	0	14	0	0	0	0	0	0	0	0	4	0	19	263
6:10 AM	0	1	0	0	0	16	0	0	0	0	0	0	0	0	2	0	19	268
6:15 AM	0	1	0	0	0	8	0	0	0	0	0	0	1	0	6	0	16	266
6:20 AM	0	1	0	0	0	12	0	0	0	0	0	0	3	0	5	0	21	271
6:25 AM	0	0	0	0	0	19	0	0	0	0	0	0	3	0	6	0	28	282
6:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	2	0	3	0	9	275
6:35 AM	0	1	0	0	0	20	0	0	0	0	0	0	3	0	4	0	28	279
6:40 AM	0	2	0	0	0	10	0	0	0	0	0	0	0	0	3	0	15	261
6:45 AM	0	0	0	0	0	13	0	0	0	0	0	0	1	0	7	0	21	247
6:50 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	0	8	0	20	242
6:55 AM	0	3	0	0	0	9	0	0	0	0	0	0	2	0	11	0	25	244

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	24	0	0	0	232	0	0	0	0	0	0	44	0	72	0	372
Heavy Trucks	0	4	0		0	4	0		0	0	0		0	0	0		8
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 6/4/2018 2:30 PM — SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

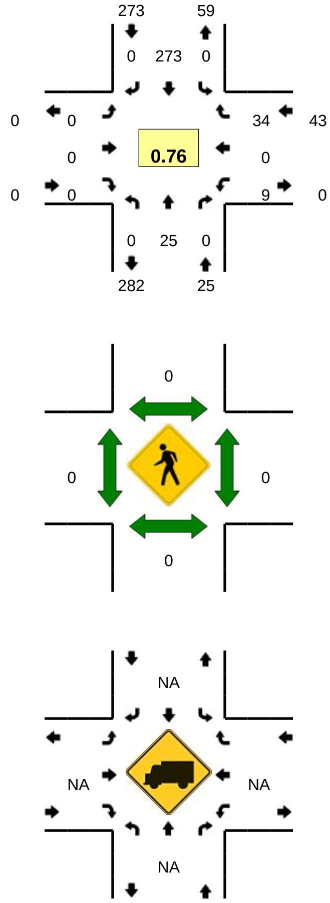
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

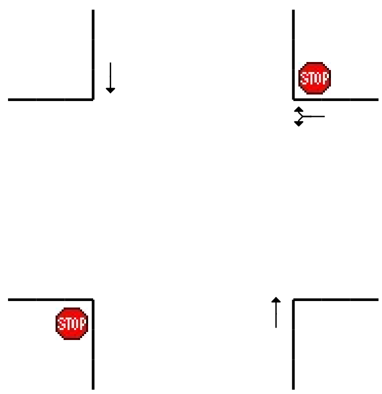
LOCATION: S Alta St -- US 101 SB Ramps — **QC JOB #:** 14718304

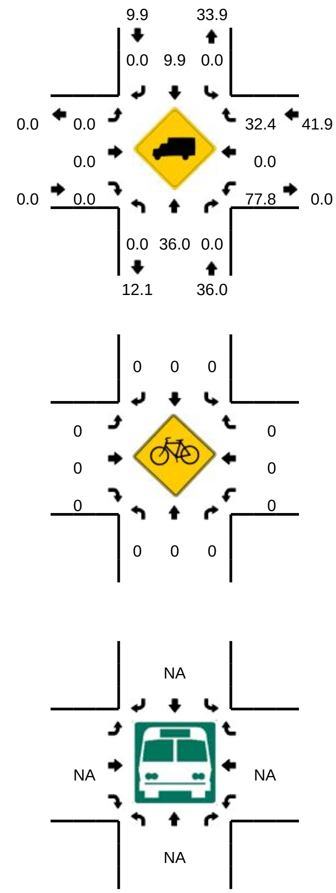
CITY/STATE: Gonzales, CA — **DATE:** Thu, May 24 2018

Peak-Hour: 4:00 PM -- 5:00 PM

Peak 15-Min: 4:35 PM -- 4:50 PM







5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	US 101 SB Ramps (Eastbound) Left	Thru	Right	U	US 101 SB Ramps (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	0	2	0	0	0	18	0	0	0	0	0	0	2	0	4	0	26	
4:05 PM	0	2	0	0	0	24	0	0	0	0	0	0	1	0	1	0	28	
4:10 PM	0	3	0	0	0	30	0	0	0	0	0	0	0	0	1	0	34	
4:15 PM	0	1	0	0	0	16	0	0	0	0	0	0	0	0	1	0	18	
4:20 PM	0	0	0	0	0	23	0	0	0	0	0	0	0	0	4	0	27	
4:25 PM	0	1	0	0	0	17	0	0	0	0	0	0	1	0	6	0	25	
4:30 PM	0	0	0	0	0	27	0	0	0	0	0	0	0	0	1	0	28	
4:35 PM	0	7	0	0	0	38	0	0	0	0	0	0	1	0	1	0	47	
4:40 PM	0	1	0	0	0	26	0	0	0	0	0	0	1	0	6	0	34	
4:45 PM	0	2	0	0	0	23	0	0	0	0	0	0	2	0	4	0	31	
4:50 PM	0	2	0	0	0	16	0	0	0	0	0	0	1	0	4	0	23	
4:55 PM	0	4	0	0	0	15	0	0	0	0	0	0	0	0	1	0	20	341
5:00 PM	0	0	0	0	0	20	0	0	0	0	0	0	1	0	1	0	22	337
5:05 PM	0	3	0	0	0	23	0	0	0	0	0	0	0	0	2	0	28	337
5:10 PM	0	2	0	0	0	25	0	0	0	0	0	0	0	0	1	0	28	331
5:15 PM	0	2	0	0	0	19	0	0	0	0	0	0	3	0	3	0	27	340
5:20 PM	0	1	0	0	0	18	0	0	0	0	0	0	0	0	2	0	21	334
5:25 PM	0	3	0	0	0	25	0	0	0	0	0	0	1	0	3	0	32	341
5:30 PM	0	0	0	0	0	20	0	0	0	0	0	0	1	0	2	0	23	336
5:35 PM	0	0	0	0	0	27	0	0	0	0	0	0	0	0	5	0	32	321
5:40 PM	0	1	0	0	0	28	0	0	0	0	0	0	0	0	2	0	31	318
5:45 PM	0	3	0	0	0	10	0	0	0	0	0	0	0	0	2	0	15	302
5:50 PM	0	0	0	0	0	14	0	0	0	0	0	0	1	0	1	0	16	295
5:55 PM	0	0	0	0	0	14	0	0	0	0	0	0	0	0	5	0	19	294

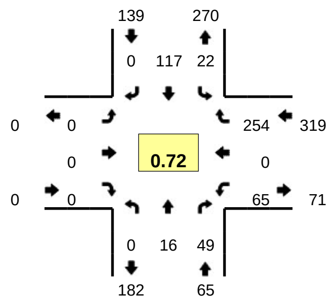
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	40	0	0	0	348	0	0	0	0	0	0	16	0	44	0	448
Heavy Trucks	0	4	0		0	12	0		0	0	0		16	0	12		44
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

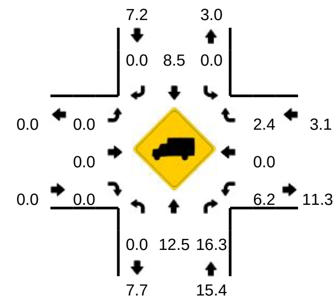
Comments:

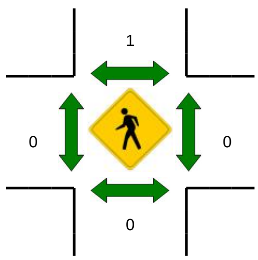
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

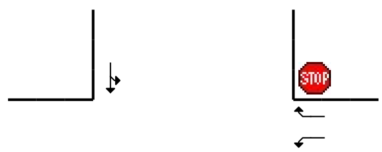
LOCATION: S Alta St -- S Gonzales Connector | **QC JOB #:** 14718301
CITY/STATE: Gonzales, CA | **DATE:** Thu, May 24 2018

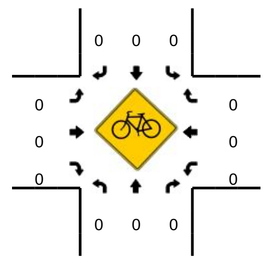
Peak-Hour: 5:15 AM -- 6:15 AM
Peak 15-Min: 5:35 AM -- 5:50 AM

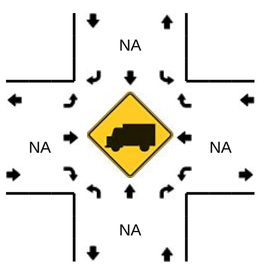


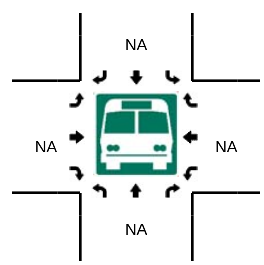












5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	S Gonzales Connector (Eastbound) Left	Thru	Right	U	S Gonzales Connector (Westbound) Left	Thru	Right	U	Total	Hourly Totals
5:00 AM	0	1	3	0	1	1	0	0	0	0	0	0	3	0	13	0	22	
5:05 AM	0	0	5	0	1	5	0	0	0	0	0	0	1	0	13	0	25	
5:10 AM	0	0	1	0	0	11	0	0	0	0	0	0	1	0	11	0	24	
5:15 AM	0	1	2	0	0	13	0	0	0	0	0	0	3	0	14	0	33	
5:20 AM	0	0	2	0	2	9	0	0	0	0	0	0	3	0	20	0	36	
5:25 AM	0	2	5	0	1	9	0	0	0	0	0	0	2	0	24	0	43	
5:30 AM	0	0	2	0	1	7	0	0	0	0	0	0	5	0	27	0	42	
5:35 AM	0	1	5	0	1	13	0	0	0	0	0	0	7	0	22	0	49	
5:40 AM	0	2	7	0	4	8	0	0	0	0	0	0	12	0	31	0	64	
5:45 AM	0	2	8	0	2	10	0	0	0	0	0	0	14	0	32	0	68	
5:50 AM	0	2	4	0	2	6	0	0	0	0	0	0	6	0	20	0	40	
5:55 AM	0	1	4	0	4	4	0	0	0	0	0	0	8	0	17	0	38	484
6:00 AM	0	2	3	0	1	11	0	0	0	0	0	0	2	0	24	0	43	505
6:05 AM	0	1	5	0	2	13	0	0	0	0	0	0	1	0	9	0	31	511
6:10 AM	0	2	2	0	2	14	0	0	0	0	0	0	2	0	14	0	36	523
6:15 AM	0	2	4	0	0	6	0	0	0	0	0	0	2	0	17	0	31	521
6:20 AM	0	0	6	0	2	6	0	0	0	0	0	0	6	0	10	0	30	515
6:25 AM	0	1	5	0	4	12	0	0	0	0	0	0	7	0	11	0	40	512
6:30 AM	0	0	4	0	0	2	0	0	0	0	0	0	3	0	21	0	30	500
6:35 AM	0	0	5	0	3	7	0	0	0	0	0	0	13	0	10	0	38	489
6:40 AM	0	2	2	0	0	3	0	0	0	0	0	0	6	0	27	0	40	465
6:45 AM	0	4	3	0	1	10	0	0	0	0	0	0	3	0	22	0	43	440
6:50 AM	0	6	2	0	0	10	0	0	0	0	0	0	3	0	32	0	53	453
6:55 AM	0	6	8	0	2	5	0	0	0	0	0	0	4	0	20	0	45	460

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	20	80	0	28	124	0	0	0	0	0	0	132	0	340	0	724
Heavy Trucks	0	0	4		0	4	0		0	0	0		0	0	4		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

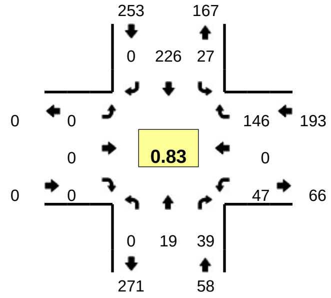
Comments:

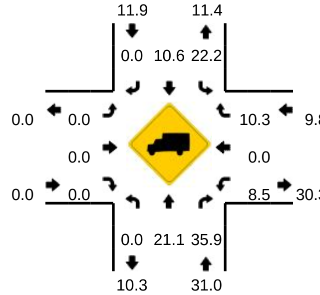
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

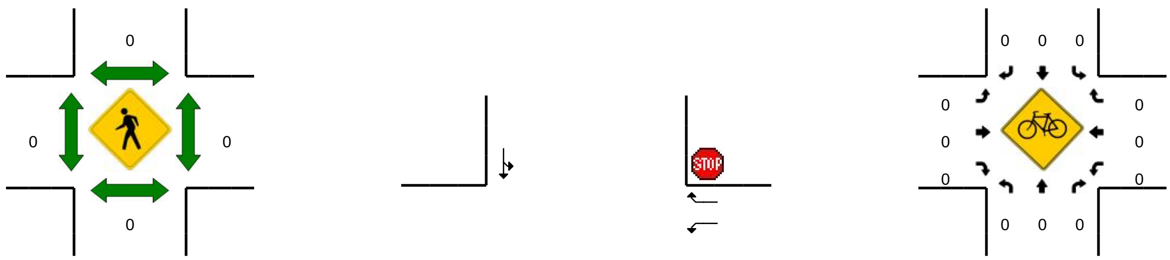
LOCATION: S Alta St -- S Gonzales Connector | **QC JOB #:** 14718302

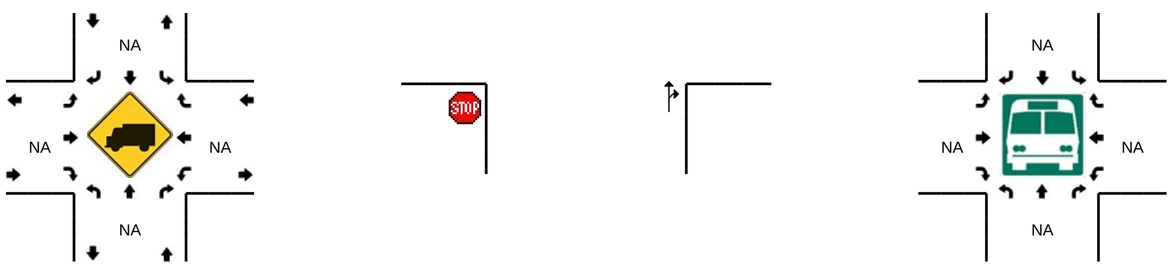
CITY/STATE: Gonzales, CA | **DATE:** Thu, May 24 2018

Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:35 PM -- 4:50 PM









5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	S Gonzales Connector (Eastbound) Left	Thru	Right	U	S Gonzales Connector (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	0	4	3	0	1	16	0	0	0	0	0	0	2	0	6	0	32	
4:05 PM	0	2	2	0	3	24	0	1	0	0	0	0	0	0	10	0	42	
4:10 PM	0	0	3	0	1	28	0	1	0	0	0	0	1	0	15	1	50	
4:15 PM	0	0	2	0	4	16	0	0	0	0	0	0	1	0	15	1	39	
4:20 PM	0	2	3	0	2	21	0	0	0	0	0	0	2	0	6	0	36	
4:25 PM	0	4	3	0	2	14	0	0	0	0	0	0	2	0	15	0	40	
4:30 PM	0	3	1	0	1	21	0	0	0	0	0	0	5	0	9	0	40	
4:35 PM	0	3	5	0	1	23	0	0	0	0	0	0	15	0	17	0	64	
4:40 PM	0	0	5	0	2	15	0	0	0	0	0	0	10	0	11	0	43	
4:45 PM	0	4	4	0	2	17	0	0	0	0	0	0	6	0	11	0	44	
4:50 PM	0	1	4	0	1	15	0	0	0	0	0	0	1	0	11	0	33	
4:55 PM	0	0	6	0	3	15	0	0	0	0	0	0	0	0	14	0	38	501
5:00 PM	0	0	1	0	3	17	0	0	0	0	0	0	2	0	12	0	35	504
5:05 PM	0	4	3	0	1	20	0	0	0	0	0	0	5	0	9	0	42	504
5:10 PM	0	1	2	0	3	21	0	0	0	0	0	0	2	0	9	0	38	492
5:15 PM	0	2	2	0	5	19	0	0	0	0	0	0	0	0	13	0	41	494
5:20 PM	0	2	2	0	3	16	0	0	0	0	0	0	4	0	10	0	37	495
5:25 PM	0	2	2	0	1	25	0	0	0	0	0	0	0	0	8	0	38	493
5:30 PM	0	2	1	0	0	19	0	0	0	0	0	0	1	0	13	0	36	489
5:35 PM	0	2	2	0	2	23	0	0	0	0	0	0	4	0	10	0	43	468
5:40 PM	0	1	4	0	0	20	0	0	0	0	0	0	8	0	12	0	45	470
5:45 PM	0	1	4	0	0	10	0	0	0	0	0	0	1	0	13	0	29	455
5:50 PM	0	0	0	0	3	13	0	0	0	0	0	0	1	0	9	0	26	448
5:55 PM	0	2	3	0	3	12	0	0	0	0	0	0	2	0	9	0	31	441

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	0	28	56	0	20	220	0	0	0	0	0	0	124	0	156	0	604
Heavy Trucks	0	8	8		0	12	0		0	0	0		0	0	8		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

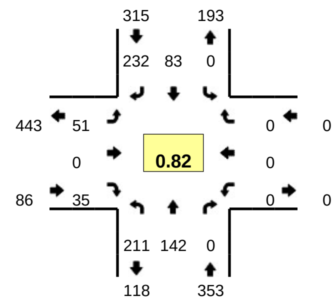
Type of peak hour being reported: Intersection Peak — Method for determining peak hour: Total Entering Volume

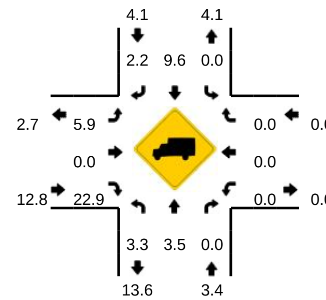
LOCATION: S Alta St -- Gonzales River Rd — **QC JOB #:** 14718321

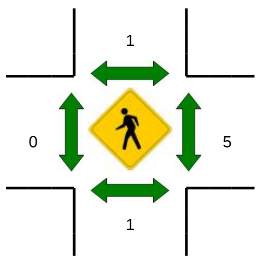
CITY/STATE: Monterey, CA — **DATE:** Thu, May 24 2018

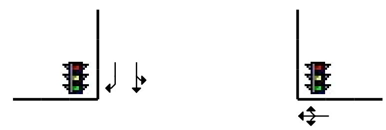
Peak-Hour: 5:25 AM -- 6:25 AM

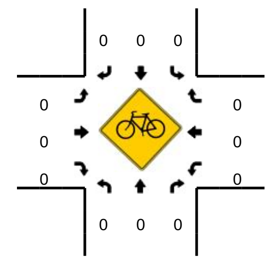
Peak 15-Min: 5:35 AM -- 5:50 AM

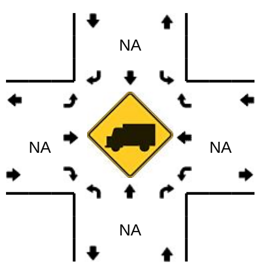


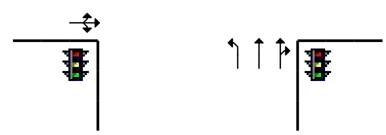


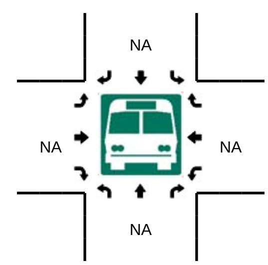












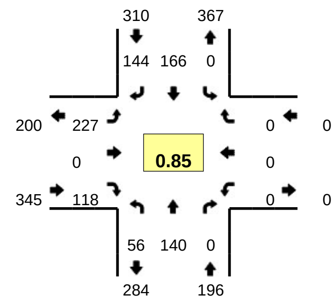
5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	Gonzales River Rd (Eastbound) Left	Thru	Right	U	Gonzales River Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
5:00 AM	12	10	0	0	0	2	5	0	2	0	0	0	0	0	0	0	31	
5:05 AM	5	9	0	0	0	5	16	0	2	0	2	0	0	0	0	0	39	
5:10 AM	9	8	0	0	0	5	16	0	2	0	1	0	0	0	0	0	41	
5:15 AM	6	11	0	0	0	11	18	0	7	0	5	0	0	0	0	0	58	
5:20 AM	13	7	0	0	0	4	10	0	8	0	0	0	0	0	0	0	42	
5:25 AM	14	14	0	0	0	7	19	0	4	0	1	0	0	0	0	0	59	
5:30 AM	24	13	0	0	0	3	17	0	1	0	2	0	0	0	0	0	60	
5:35 AM	22	14	0	0	0	7	20	0	6	0	4	0	0	0	0	0	73	
5:40 AM	25	14	0	0	0	6	23	0	5	0	4	0	0	0	0	0	77	
5:45 AM	32	12	0	0	0	6	24	0	3	0	2	0	0	0	0	0	79	
5:50 AM	18	21	0	0	0	6	21	0	2	0	3	0	0	0	0	0	71	
5:55 AM	13	8	0	0	0	10	19	0	3	0	1	0	0	0	0	0	54	684
6:00 AM	19	17	0	0	0	10	14	0	5	0	2	0	0	0	0	0	67	720
6:05 AM	11	8	0	0	0	12	17	0	4	0	4	0	0	0	0	0	56	737
6:10 AM	12	8	0	0	0	4	17	0	4	0	4	0	0	0	0	0	49	745
6:15 AM	10	8	0	0	0	5	20	0	9	0	1	0	0	0	0	0	53	740
6:20 AM	11	5	0	0	0	7	21	0	5	0	7	0	0	0	0	0	56	754
6:25 AM	14	7	0	0	0	3	17	0	8	0	4	0	0	0	0	0	53	748
6:30 AM	9	6	0	0	0	8	20	0	4	0	2	0	0	0	0	0	49	737
6:35 AM	9	4	0	0	0	6	20	0	8	0	1	0	0	0	0	0	48	712
6:40 AM	16	9	0	0	0	4	22	0	3	0	2	0	0	0	0	0	56	691
6:45 AM	13	6	0	0	0	3	38	0	5	0	6	0	0	0	0	0	71	683
6:50 AM	26	3	0	0	0	7	21	0	8	0	1	0	0	0	0	0	66	678
6:55 AM	19	9	0	0	0	9	21	0	5	0	4	0	0	0	0	0	67	691

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	316	160	0	0	0	76	268	0	56	0	40	0	0	0	0	0	916
Heavy Trucks	0	8	0		0	0	12		0	0	4		0	0	0		24
Pedestrians		4				0				0				4			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

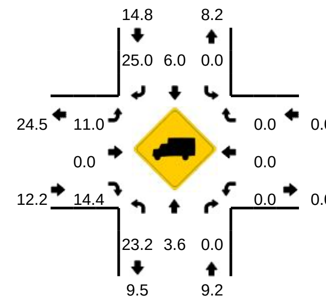
Comments:

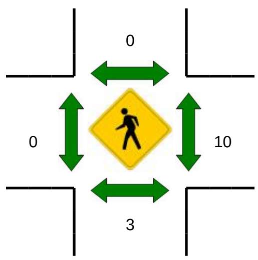
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

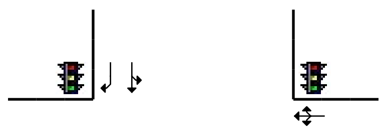
LOCATION: S Alta St -- Gonzales River Rd | **QC JOB #:** 14718322
CITY/STATE: Monterey, CA | **DATE:** Thu, May 24 2018

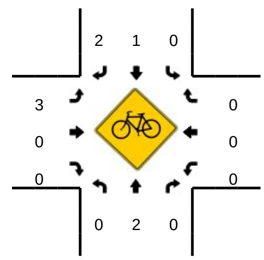


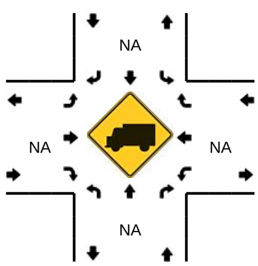
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

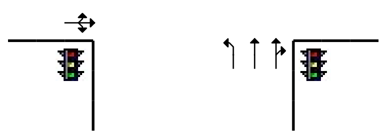


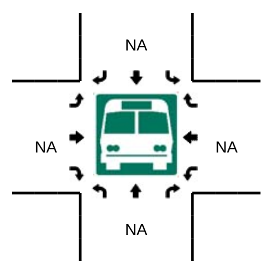












5-Min Count Period Beginning At	S Alta St (Northbound) Left	Thru	Right	U	S Alta St (Southbound) Left	Thru	Right	U	Gonzales River Rd (Eastbound) Left	Thru	Right	U	Gonzales River Rd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	10	10	0	0	0	15	18	0	17	0	13	0	0	0	0	0	83	
4:05 PM	4	11	0	0	0	8	15	0	11	0	13	0	0	0	0	0	62	
4:10 PM	9	13	0	0	0	17	9	0	29	0	13	0	0	0	0	0	90	
4:15 PM	6	10	0	0	0	17	12	0	22	0	12	0	0	0	0	0	79	
4:20 PM	4	13	0	0	0	9	12	0	29	0	15	0	0	0	0	0	82	
4:25 PM	4	11	0	0	0	10	7	0	33	0	10	0	0	0	0	0	75	
4:30 PM	1	14	0	0	0	20	13	0	19	0	9	0	0	0	0	0	76	
4:35 PM	3	22	0	0	0	20	10	0	19	0	7	0	0	0	0	0	81	
4:40 PM	5	10	0	0	0	12	10	0	14	0	10	0	0	0	0	0	61	
4:45 PM	4	14	0	0	0	14	16	0	12	0	7	0	0	0	0	0	67	
4:50 PM	3	5	0	0	0	12	7	0	13	0	3	0	0	0	0	0	43	
4:55 PM	3	7	0	0	0	12	15	0	9	0	6	0	0	0	0	0	52	851
5:00 PM	3	10	0	0	0	12	7	0	11	0	10	0	0	0	0	0	53	821
5:05 PM	0	12	0	0	0	17	10	0	8	0	8	0	0	0	0	0	55	814
5:10 PM	7	15	0	0	0	14	8	0	16	0	15	0	0	0	0	0	75	799
5:15 PM	3	12	0	0	0	16	10	0	11	0	4	0	0	0	0	0	56	776
5:20 PM	2	8	0	0	0	10	7	0	22	0	15	0	0	0	1	0	65	759
5:25 PM	5	8	0	0	0	15	4	0	11	0	11	0	0	0	0	0	54	738
5:30 PM	2	12	0	0	0	15	4	0	10	0	8	0	0	0	0	0	51	713
5:35 PM	1	14	0	0	0	11	8	0	9	0	20	0	0	0	0	0	63	695
5:40 PM	3	5	0	0	0	24	10	0	13	0	4	0	0	0	0	0	59	693
5:45 PM	3	13	0	0	0	6	6	0	13	0	7	0	0	0	0	0	48	674
5:50 PM	3	11	0	0	0	18	8	0	16	0	4	0	0	0	0	0	60	691
5:55 PM	3	10	0	0	0	14	5	0	12	0	6	0	0	0	0	0	50	689

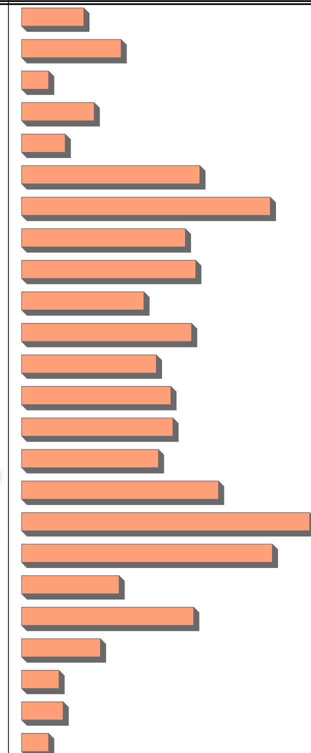
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	76	144	0	0	0	172	132	0	320	0	160	0	0	0	0	0	1004
Heavy Trucks	16	8	0		0	12	48		32	0	20		0	0	0		136
Pedestrians		4				0				0				8			12
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Type of report: Tube Count - Volume Data

LOCATION: Gloria Rd E of Tavernetti Rd — **QC JOB #:** 14772713
SPECIFIC LOCATION: Gloria Rd E of Tavernetti Rd — **DIRECTION:** EB/WB
CITY/STATE: Gonzales, CA — **DATE:** Aug 28 2018 - Aug 28 2018

Start Time	Mon	Tue 28-Aug-18	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM		30				30			30	
1:00 AM		48				48			48	
2:00 AM		13				13			13	
3:00 AM		35				35			35	
4:00 AM		21				21			21	
5:00 AM		86				86			86	
6:00 AM		**120**				**120**			**120**	
7:00 AM		79				79			79	
8:00 AM		84				84			84	
9:00 AM		59				59			59	
10:00 AM		82				82			82	
11:00 AM		65				65			65	
12:00 PM		72				72			72	
1:00 PM		73				73			73	
2:00 PM		66				66			66	
3:00 PM		95				95			95	
4:00 PM		**139**				**139**			**139**	
5:00 PM		121				121			121	
6:00 PM		47				47			47	
7:00 PM		83				83			83	
8:00 PM		38				38			38	
9:00 PM		18				18			18	
10:00 PM		20				20			20	
11:00 PM		13				13			13	
Day Total		1507				1507			1507	
% Weekday Average		100.0%								
% Week Average		100.0%				100.0%				
AM Peak		6:00 AM				6:00 AM			6:00 AM	
Volume		120				120			120	
PM Peak		4:00 PM				4:00 PM			4:00 PM	
Volume		139				139			139	



Comments:

Appendix B
Volume Summary

Intersection Number: 1
Intersection Name: US 101 NB On-Ramp/Tavernetti Road and Gloria Road
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**7**	**0**	**12**	**101**	**24**	**0**	**0**	**0**	**0**	**144**
Project Trips	0	0	0	4	0	4	100	0	0	0	0	0	108
Existing Plus Project Conditions	**0**	**0**	**0**	**11**	**0**	**16**	**201**	**24**	**0**	**0**	**0**	**0**	**252**
2035 Cumulative without Project Conditions	**0**	**0**	**0**	**274**	**0**	**587**	**967**	**24**	**0**	**0**	**0**	**0**	**1852**
Project Trips	0	0	0	4	0	4	82	0	0	0	0	0	90
2035 Cumulative with Project Conditions	**0**	**0**	**0**	**278**	**0**	**591**	**1049**	**24**	**0**	**0**	**0**	**0**	**1942**

Intersection Number: 2
Intersection Name: Tavernetti Road and US 101 Southern Overpass
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**12**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**6**	**24**	**0**	**112**	**159**
Project Trips	4	0	0	0	0	0	0	0	0	0	0	100	104
Existing Plus Project Conditions	**16**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**6**	**24**	**0**	**212**	**263**
2035 Cumulative without Project Conditions	**587**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**6**	**24**	**0**	**978**	**1600**
Project Trips	4	0	0	0	0	0	0	0	0	0	0	82	86
2035 Cumulative with Project Conditions	**591**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**6**	**24**	**0**	**1060**	**1686**

Intersection Number: 3
Intersection Name: US 101 NB Off-Ramp/US 101 Southern Overpass and US 101 Southern Overpass
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**18**	**0**	**0**	**66**	**303**	**0**	**0**	**70**	**0**	**457**
Project Trips	0	0	0	4	0	0	40	0	0	0	60	0	104
Existing Plus Project Conditions	**0**	**0**	**0**	**22**	**0**	**0**	**106**	**303**	**0**	**0**	**130**	**0**	**561**
2035 Cumulative without Project Conditions	**0**	**0**	**0**	**593**	**0**	**0**	**569**	**341**	**0**	**0**	**365**	**0**	**1868**
Project Trips	0	0	0	4	0	0	40	0	0	0	42	0	86
2035 Cumulative with Project Conditions	**0**	**0**	**0**	**597**	**0**	**0**	**609**	**341**	**0**	**0**	**407**	**0**	**1954**

Intersection Number: 4
Intersection Name: Alta Street and US 101 SB Off-Ramp
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**181**	**0**	**57**	**0**	**31**	**0**	**13**	**0**	**0**	**0**	**0**	**282**
Project Trips	0	4	0	24	0	0	0	0	0	0	0	0	28
Existing Plus Project Conditions	**0**	**185**	**0**	**81**	**0**	**31**	**0**	**13**	**0**	**0**	**0**	**0**	**310**
2035 Cumulative without Project Conditions	**0**	**720**	**0**	**329**	**0**	**31**	**0**	**13**	**0**	**0**	**0**	**0**	**1093**
Project Trips	0	4	0	24	0	0	0	0	0	0	0	0	28
2035 Cumulative with Project Conditions	**0**	**724**	**0**	**353**	**0**	**31**	**0**	**13**	**0**	**0**	**0**	**0**	**1121**

Intersection Number: 5
Intersection Name: Alta Street and US 101 Southern Overpass
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**117**	**22**	**254**	**0**	**65**	**49**	**16**	**0**	**0**	**0**	**0**	**523**
Project Trips	0	0	37	0	0	4	24	0	0	0	0	0	65
Existing Plus Project Conditions	**0**	**117**	**59**	**254**	**0**	**69**	**73**	**16**	**0**	**0**	**0**	**0**	**588**
2035 Cumulative without Project Conditions	**0**	**186**	**112**	**397**	**0**	**535**	**321**	**16**	**0**	**0**	**0**	**0**	**1567**
Project Trips	0	0	18	0	0	4	24	0	0	0	0	0	46
2035 Cumulative with Project Conditions	**0**	**186**	**130**	**397**	**0**	**539**	**345**	**16**	**0**	**0**	**0**	**0**	**1613**

Intersection Number: 6
Intersection Name: Alta Street and Gonzales River Drive
Peak Hour: AM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**232**	**83**	**0**	**0**	**0**	**0**	**0**	**142**	**211**	**35**	**0**	**51**	**754**
Project Trips	0	37	0	0	0	0	0	0	0	0	0	0	37
Existing Plus Project Conditions	**232**	**120**	**0**	**0**	**0**	**0**	**0**	**142**	**211**	**35**	**0**	**51**	**791**
2035 Cumulative without Project Conditions	**261**	**232**	**0**	**0**	**0**	**0**	**0**	**274**	**222**	**45**	**0**	**80**	**1114**
Project Trips	0	18	0	0	0	0	0	0	0	0	0	0	18
2035 Cumulative with Project Conditions	**261**	**250**	**0**	**0**	**0**	**0**	**0**	**274**	**222**	**45**	**0**	**80**	**1132**

Intersection Number: 7
Intersection Name: Herold Parkway and Gloria Road
Peak Hour: AM
Count Date: 1/0/00

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**101**	**0**	**120**
Project Trips	0	0	0	0	8	0	0	0	0	0	100	0	108
Existing Plus Project Conditions	**0**	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**	**0**	**201**	**0**	**228**
2035 Cumulative without Project Conditions	**414**	**6**	**2**	**57**	**415**	**0**	**0**	**6**	**12**	**12**	**531**	**324**	**1779**
Project Trips	0	0	18	0	8	0	0	0	0	0	82	0	108
2035 Cumulative with Project Conditions	**414**	**6**	**20**	**57**	**423**	**0**	**0**	**6**	**12**	**12**	**613**	**324**	**1887**

Intersection Number: 1
Intersection Name: US 101 NB On-Ramp/Tavernetti Road and Gloria Road
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**44**	**0**	**46**	**27**	**43**	**0**	**0**	**0**	**0**	**160**
Project Trips	0	0	0	26	0	42	48	0	0	0	0	0	116
Existing Plus Project Conditions	**0**	**0**	**0**	**70**	**0**	**88**	**75**	**43**	**0**	**0**	**0**	**0**	**276**
2035 Cumulative without Project Conditions	**0**	**0**	**0**	**344**	**0**	**692**	**1001**	**43**	**0**	**0**	**0**	**0**	**2080**
Project Trips	0	0	0	26	0	37	47	0	0	0	0	0	110
2035 Cumulative with Project Conditions	**0**	**0**	**0**	**370**	**0**	**729**	**1048**	**43**	**0**	**0**	**0**	**0**	**2190**

Intersection Number: 2
Intersection Name: Tavernetti Road and US 101 Southern Overpass
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**46**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**12**	**8**	**0**	**66**	**139**
Project Trips	42	0	0	0	0	0	0	0	0	0	0	48	90
Existing Plus Project Conditions	**88**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**12**	**8**	**0**	**114**	**229**
2035 Cumulative without Project Conditions	**692**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**12**	**8**	**0**	**1040**	**1759**
Project Trips	37	0	0	0	0	0	0	0	0	0	0	47	84
2035 Cumulative with Project Conditions	**729**	**1**	**0**	**0**	**0**	**0**	**0**	**6**	**12**	**8**	**0**	**1087**	**1843**

Intersection Number: 3
Intersection Name: US 101 NB Off-Ramp/US 101 Southern Overpass and US 101 Southern Overpass
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**58**	**0**	**0**	**11**	**135**	**0**	**0**	**63**	**0**	**267**
Project Trips	0	0	0	42	0	0	17	0	0	0	31	0	90
Existing Plus Project Conditions	**0**	**0**	**0**	**100**	**0**	**0**	**28**	**135**	**0**	**0**	**94**	**0**	**357**
2035 Cumulative without Project Conditions	**0**	**0**	**0**	**704**	**0**	**0**	**577**	**177**	**0**	**0**	**394**	**0**	**1852**
Project Trips	0	0	0	37	0	0	17	0	0	0	30	0	84
2035 Cumulative with Project Conditions	**0**	**0**	**0**	**741**	**0**	**0**	**594**	**177**	**0**	**0**	**424**	**0**	**1936**

Intersection Number: 4
Intersection Name: Alta Street and US 101 SB Off-Ramp
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**273**	**0**	**34**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**341**
Project Trips	0	31	0	29	0	0	0	0	0	0	0	0	60
Existing Plus Project Conditions	**0**	**304**	**0**	**63**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**401**
2035 Cumulative without Project Conditions	**0**	**879**	**0**	**340**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**1253**
Project Trips	0	31	0	29	0	0	0	0	0	0	0	0	60
2035 Cumulative with Project Conditions	**0**	**910**	**0**	**369**	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**1313**

Intersection Number: 5
Intersection Name: Alta Street and US 101 Southern Overpass
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**226**	**27**	**146**	**0**	**47**	**39**	**19**	**0**	**0**	**0**	**0**	**504**
Project Trips	0	0	3	10	0	31	29	0	0	0	0	0	73
Existing Plus Project Conditions	**0**	**226**	**30**	**156**	**0**	**78**	**68**	**19**	**0**	**0**	**0**	**0**	**577**
2035 Cumulative without Project Conditions	**0**	**304**	**129**	**306**	**0**	**575**	**345**	**19**	**0**	**0**	**0**	**0**	**1678**
Project Trips	0	0	2	5	0	31	29	0	0	0	0	0	67
2035 Cumulative with Project Conditions	**0**	**304**	**131**	**311**	**0**	**606**	**374**	**19**	**0**	**0**	**0**	**0**	**1745**

Intersection Number: 6
Intersection Name: Alta Street and Gonzales River Drive
Peak Hour: PM
Count Date: 5/24/18

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**144**	**166**	**0**	**0**	**0**	**0**	**0**	**140**	**56**	**118**	**0**	**227**	**851**
Project Trips	0	2	0	0	0	0	0	10	0	0	0	0	12
Existing Plus Project Conditions	**144**	**168**	**0**	**0**	**0**	**0**	**0**	**150**	**56**	**118**	**0**	**227**	**863**
2035 Cumulative without Project Conditions	**176**	**334**	**0**	**0**	**0**	**0**	**0**	**288**	**68**	**130**	**0**	**260**	**1256**
Project Trips	0	1	0	0	0	0	0	5	0	0	0	0	6
2035 Cumulative with Project Conditions	**176**	**335**	**0**	**0**	**0**	**0**	**0**	**293**	**68**	**130**	**0**	**260**	**1262**

Intersection Number: 7
Intersection Name: Herold Parkway and Gloria Road
Peak Hour: PM
Count Date: 1/0/00

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	Total
Existing Conditions	**0**	**0**	**0**	**0**	**90**	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**117**
Project Trips	0	0	0	0	68	0	0	0	0	0	48	0	116
Existing Plus Project Conditions	**0**	**0**	**0**	**0**	**158**	**0**	**0**	**0**	**0**	**0**	**75**	**0**	**233**
2035 Cumulative without Project Conditions	**466**	**7**	**2**	**64**	**467**	**0**	**0**	**6**	**14**	**13**	**597**	**364**	**2000**
Project Trips	0	0	1	5	63	0	0	0	0	0	47	0	116
2035 Cumulative with Project Conditions	**466**	**7**	**3**	**69**	**530**	**0**	**0**	**6**	**14**	**13**	**644**	**364**	**2116**

Appendix C
Intersection Level of Service Calculations

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	7	24	101	0	0
Future Vol, veh/h	12	7	24	101	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	25	72	30	7	2	2
Mvmt Flow	17	10	34	142	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	105	105	0	0
Stage 1	105	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.65	6.92	-	-
Critical Hdwy Stg 1	5.65	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.725	3.948	-	-
Pot Cap-1 Maneuver	840	789	-	-
Stage 1	865	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	840	789	-	-
Mov Cap-2 Maneuver	840	-	-	-
Stage 1	865	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	9.5	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	820
HCM Lane V/C Ratio	-	-	0.033
HCM Control Delay (s)	-	-	9.5
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.1

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	112	24	6	4	1	12
Future Vol, veh/h	112	24	6	4	1	12
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	7	17	17	50	100	25
Mvmt Flow	172	37	9	6	2	18
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.5	7.9	8.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	60%	82%	0%
Vol Thru, %	40%	0%	8%
Vol Right, %	0%	18%	92%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	136	13
LT Vol	6	112	0
Through Vol	4	0	1
RT Vol	0	24	12
Lane Flow Rate	15	209	20
Geometry Grp	1	1	1
Degree of Util (X)	0.021	0.241	0.031
Departure Headway (Hd)	4.814	4.14	5.546
Convergence, Y/N	Yes	Yes	Yes
Cap	748	864	649
Service Time	2.815	2.179	3.547
HCM Lane V/C Ratio	0.02	0.242	0.031
HCM Control Delay	7.9	8.5	8.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.9	0.1

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	70	0	0	0	18	0	303	66	0	0	0
Future Vol, veh/h	0	70	0	0	0	18	0	303	66	0	0	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	10	0	0	0	22	0	5	9	0	0	0
Mvmt Flow	0	108	0	0	0	28	0	466	102	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.5	8.4	15.4
HCM LOS	A	A	C

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	82%	100%	0%
Vol Right, %	18%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	369	70	18
LT Vol	0	0	0
Through Vol	303	70	0
RT Vol	66	0	18
Lane Flow Rate	568	108	28
Geometry Grp	1	1	1
Degree of Util (X)	0.669	0.161	0.039
Departure Headway (Hd)	4.243	5.391	5.117
Convergence, Y/N	Yes	Yes	Yes
Cap	852	664	697
Service Time	2.264	3.435	3.17
HCM Lane V/C Ratio	0.667	0.163	0.04
HCM Control Delay	15.4	9.5	8.4
HCM Lane LOS	C	A	A
HCM 95th-tile Q	5.3	0.6	0.1

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	57	13	0	0	181
Future Vol, veh/h	31	57	13	0	0	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	13	14	31	0	0	9
Mvmt Flow	41	75	17	0	0	238

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	255	17	0	-	-	-
Stage 1	17	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.53	6.34	-	-	-	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.617	3.426	-	-	-	-
Pot Cap-1 Maneuver	710	1028	-	0	0	-
Stage 1	978	-	-	0	0	-
Stage 2	776	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	710	1028	-	-	-	-
Mov Cap-2 Maneuver	710	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	776	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	888	-
HCM Lane V/C Ratio	-	0.13	-
HCM Control Delay (s)	-	9.7	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.4	-

Intersection	
Int Delay, s/veh	7.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	254	16	49	22	117
Future Vol, veh/h	65	254	16	49	22	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	7	2	13	17	0	9
Mvmt Flow	90	353	22	68	31	163

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	281	56	0	0	90	0
Stage 1	56	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	698	1011	-	-	1518	-
Stage 1	954	-	-	-	-	-
Stage 2	801	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	683	1011	-	-	1518	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	954	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	921	1518	-
HCM Lane V/C Ratio	-	-	0.481	0.02	-
HCM Control Delay (s)	-	-	12.5	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.7	0.1	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	35	211	142	83	232
Future Volume (veh/h)	51	35	211	142	83	232
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1559	1841	1841	1752	1856
Adj Flow Rate, veh/h	62	43	257	173	101	283
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	6	23	4	4	10	3
Cap, veh/h	107	82	354	2207	483	434
Arrive On Green	0.06	0.06	0.20	0.63	0.28	0.28
Sat Flow, veh/h	1725	1321	1753	3589	1752	1572
Grp Volume(v), veh/h	62	43	257	173	101	283
Grp Sat Flow(s),veh/h/ln	1725	1321	1753	1749	1752	1572
Q Serve(g_s), s	1.0	0.9	4.0	0.6	1.3	4.7
Cycle Q Clear(g_c), s	1.0	0.9	4.0	0.6	1.3	4.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	107	82	354	2207	483	434
V/C Ratio(X)	0.58	0.53	0.73	0.08	0.21	0.65
Avail Cap(c_a), veh/h	618	473	1645	7219	1703	1529
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	13.3	10.9	2.1	8.2	9.4
Incr Delay (d2), s/veh	4.9	5.1	2.9	0.0	0.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	1.4	0.0	0.4	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.3	18.5	13.8	2.1	8.4	11.0
LnGrp LOS	B	B	B	A	A	B
Approach Vol, veh/h	105			430	384	
Approach Delay, s/veh	18.4			9.1	10.3	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.0		6.3	10.4	12.6
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		60.5		10.5	27.5	28.5
Max Q Clear Time (g_c+I1), s		2.6		3.0	6.0	6.7
Green Ext Time (p_c), s		1.2		0.1	0.7	1.5
Intersection Summary						
HCM 6th Ctrl Delay			10.7			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	44	43	27	0	0
Future Vol, veh/h	46	44	43	27	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	6	11	26	41	0	0
Mvmt Flow	82	79	77	48	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	101	101	0	0
Stage 1	101	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.46	6.31	-	-
Critical Hdwy Stg 1	5.46	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.554	3.399	-	-
Pot Cap-1 Maneuver	888	930	-	-
Stage 1	913	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	888	930	-	-
Mov Cap-2 Maneuver	888	-	-	-
Stage 1	913	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	9.8	0
HCM LOS	A	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	908
HCM Lane V/C Ratio	-	-	0.177
HCM Control Delay (s)	-	-	9.8
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.6

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	8	12	6	1	46
Future Vol, veh/h	66	8	12	6	1	46
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	27	37	17	17	0	7
Mvmt Flow	83	10	15	8	1	58
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.3	7.7	6.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	89%	0%
Vol Thru, %	33%	0%	2%
Vol Right, %	0%	11%	98%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	74	47
LT Vol	12	66	0
Through Vol	6	0	1
RT Vol	0	8	46
Lane Flow Rate	22	92	59
Geometry Grp	1	1	1
Degree of Util (X)	0.028	0.119	0.057
Departure Headway (Hd)	4.53	4.613	3.491
Convergence, Y/N	Yes	Yes	Yes
Cap	781	778	1009
Service Time	2.609	2.638	1.571
HCM Lane V/C Ratio	0.028	0.118	0.058
HCM Control Delay	7.7	8.3	6.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.4	0.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	63	0	0	0	58	0	135	11	0	0	0
Future Vol, veh/h	0	63	0	0	0	58	0	135	11	0	0	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	0	29	0	0	0	9	0	15	27	0	0	0
Mvmt Flow	0	79	0	0	0	73	0	169	14	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.5	7.3	8.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	92%	100%	0%
Vol Right, %	8%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	146	63	58
LT Vol	0	0	0
Through Vol	135	63	0
RT Vol	11	0	58
Lane Flow Rate	182	79	72
Geometry Grp	1	1	1
Degree of Util (X)	0.227	0.107	0.08
Departure Headway (Hd)	4.47	4.903	3.983
Convergence, Y/N	Yes	Yes	Yes
Cap	808	733	902
Service Time	2.47	2.918	1.998
HCM Lane V/C Ratio	0.225	0.108	0.08
HCM Control Delay	8.8	8.5	7.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.9	0.4	0.3

Intersection						
Int Delay, s/veh	1.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	34	25	0	0	273
Future Vol, veh/h	9	34	25	0	0	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	78	32	36	0	0	10
Mvmt Flow	12	45	33	0	0	359

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	392	33	0	-	-	-
Stage 1	33	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	7.18	6.52	-	-	-	-
Critical Hdwy Stg 1	6.18	-	-	-	-	-
Critical Hdwy Stg 2	6.18	-	-	-	-	-
Follow-up Hdwy	4.202	3.588	-	-	-	-
Pot Cap-1 Maneuver	489	961	-	0	0	-
Stage 1	825	-	-	0	0	-
Stage 2	566	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	489	961	-	-	-	-
Mov Cap-2 Maneuver	489	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	799	-
HCM Lane V/C Ratio	-	0.071	-
HCM Control Delay (s)	-	9.8	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.2	-

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	146	19	39	27	226
Future Vol, veh/h	47	146	19	39	27	226
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	8	10	21	36	22	11
Mvmt Flow	57	176	23	47	33	272

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	385	47	0	0	70	0
Stage 1	47	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.48	6.3	-	-	4.32	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.39	-	-	2.398	-
Pot Cap-1 Maneuver	606	1000	-	-	1413	-
Stage 1	960	-	-	-	-	-
Stage 2	709	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	589	1000	-	-	1413	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	855	1413	-
HCM Lane V/C Ratio	-	-	0.272	0.023	-
HCM Control Delay (s)	-	-	10.8	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	227	118	56	140	166	144
Future Volume (veh/h)	227	118	56	140	166	144
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1737	1678	1559	1841	1811	1530
Adj Flow Rate, veh/h	267	139	66	165	195	169
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	11	15	23	4	6	25
Cap, veh/h	411	353	71	1536	427	305
Arrive On Green	0.25	0.25	0.05	0.44	0.24	0.24
Sat Flow, veh/h	1654	1422	1485	3589	1811	1296
Grp Volume(v), veh/h	267	139	66	165	195	169
Grp Sat Flow(s),veh/h/ln	1654	1422	1485	1749	1811	1296
Q Serve(g_s), s	4.2	2.3	1.3	0.8	2.7	3.3
Cycle Q Clear(g_c), s	4.2	2.3	1.3	0.8	2.7	3.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	411	353	71	1536	427	305
V/C Ratio(X)	0.65	0.39	0.93	0.11	0.46	0.55
Avail Cap(c_a), veh/h	1749	1504	644	4911	1476	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	9.0	13.7	4.8	9.4	9.7
Incr Delay (d2), s/veh	1.7	0.7	34.8	0.0	0.8	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.1	1.0	0.1	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.4	9.7	48.5	4.8	10.2	11.3
LnGrp LOS	B	A	D	A	B	B
Approach Vol, veh/h	406			231	364	
Approach Delay, s/veh	10.9			17.3	10.7	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		17.2		11.7	5.9	11.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		40.5		30.5	12.5	23.5
Max Q Clear Time (g_c+I1), s		2.8		6.2	3.3	5.3
Green Ext Time (p_c), s		1.1		1.3	0.1	1.6

Intersection Summary						
HCM 6th Ctrl Delay			12.3			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	11	24	201	0	0
Future Vol, veh/h	16	11	24	201	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	25	72	30	7	2	2
Mvmt Flow	23	15	34	283	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	176	176	0	0
Stage 1	176	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.65	6.92	-	-
Critical Hdwy Stg 1	5.65	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.725	3.948	-	-
Pot Cap-1 Maneuver	764	715	-	-
Stage 1	802	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	764	715	-	-
Mov Cap-2 Maneuver	764	-	-	-
Stage 1	802	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	10.1	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	743
HCM Lane V/C Ratio	-	-	0.051
HCM Control Delay (s)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.2

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	212	24	6	4	1	16
Future Vol, veh/h	212	24	6	4	1	16
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	7	17	17	50	100	25
Mvmt Flow	326	37	9	6	2	25
Number of Lanes	1	0	0	1	1	0
Approach	EB		NB		SB	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB				EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	10.4		8.3		9.2	
HCM LOS	B		A		A	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	60%	90%	0%
Vol Thru, %	40%	0%	6%
Vol Right, %	0%	10%	94%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	236	17
LT Vol	6	212	0
Through Vol	4	0	1
RT Vol	0	24	16
Lane Flow Rate	15	363	26
Geometry Grp	1	1	1
Degree of Util (X)	0.022	0.425	0.043
Departure Headway (Hd)	5.192	4.21	5.904
Convergence, Y/N	Yes	Yes	Yes
Cap	693	850	610
Service Time	3.194	2.264	3.905
HCM Lane V/C Ratio	0.022	0.427	0.043
HCM Control Delay	8.3	10.4	9.2
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.1	2.1	0.1

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	130	0	0	0	22	0	303	106	0	0	0
Future Vol, veh/h	0	130	0	0	0	22	0	303	106	0	0	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	10	0	0	0	22	0	5	9	0	0	0
Mvmt Flow	0	200	0	0	0	34	0	466	163	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.2	8.9	21.7
HCM LOS	B	A	C

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	74%	100%	0%
Vol Right, %	26%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	409	130	22
LT Vol	0	0	0
Through Vol	303	130	0
RT Vol	106	0	22
Lane Flow Rate	629	200	34
Geometry Grp	1	1	1
Degree of Util (X)	0.782	0.31	0.052
Departure Headway (Hd)	4.476	5.586	5.574
Convergence, Y/N	Yes	Yes	Yes
Cap	805	638	646
Service Time	2.525	3.676	3.574
HCM Lane V/C Ratio	0.781	0.313	0.053
HCM Control Delay	21.7	11.2	8.9
HCM Lane LOS	C	B	A
HCM 95th-tile Q	7.9	1.3	0.2

Intersection						
Int Delay, s/veh	3.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	81	13	0	0	185
Future Vol, veh/h	31	81	13	0	0	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	13	14	31	0	0	9
Mvmt Flow	41	107	17	0	0	243

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	260	17	0	-	-	-
Stage 1	17	-	-	-	-	-
Stage 2	243	-	-	-	-	-
Critical Hdwy	6.53	6.34	-	-	-	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.617	3.426	-	-	-	-
Pot Cap-1 Maneuver	706	1028	-	0	0	-
Stage 1	978	-	-	0	0	-
Stage 2	772	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	706	1028	-	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	9.7		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	913	-
HCM Lane V/C Ratio	-	0.161	-
HCM Control Delay (s)	-	9.7	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.6	-

Intersection	
Int Delay, s/veh	8.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	69	254	16	73	59	117
Future Vol, veh/h	69	254	16	73	59	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	7	2	13	17	0	9
Mvmt Flow	96	353	22	101	82	163

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	400	73	0	0	123	0
Stage 1	73	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	596	989	-	-	1477	-
Stage 1	937	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	560	989	-	-	1477	-
Mov Cap-2 Maneuver	560	-	-	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	2.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	1477	-
HCM Lane V/C Ratio	-	-	0.528	0.055	-
HCM Control Delay (s)	-	-	13.9	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	3.2	0.2	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	35	211	142	120	232
Future Volume (veh/h)	51	35	211	142	120	232
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1559	1841	1841	1752	1856
Adj Flow Rate, veh/h	62	43	257	173	146	283
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	6	23	4	4	10	3
Cap, veh/h	107	82	353	2222	495	445
Arrive On Green	0.06	0.06	0.20	0.64	0.28	0.28
Sat Flow, veh/h	1725	1321	1753	3589	1752	1572
Grp Volume(v), veh/h	62	43	257	173	146	283
Grp Sat Flow(s),veh/h/ln	1725	1321	1753	1749	1752	1572
Q Serve(g_s), s	1.0	0.9	4.1	0.6	1.9	4.7
Cycle Q Clear(g_c), s	1.0	0.9	4.1	0.6	1.9	4.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	107	82	353	2222	495	445
V/C Ratio(X)	0.58	0.53	0.73	0.08	0.29	0.64
Avail Cap(c_a), veh/h	609	467	1621	7115	1679	1507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	13.5	11.1	2.1	8.3	9.3
Incr Delay (d2), s/veh	4.9	5.1	2.9	0.0	0.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	1.4	0.0	0.5	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.5	18.7	14.0	2.1	8.7	10.8
LnGrp LOS	B	B	B	A	A	B
Approach Vol, veh/h	105			430	429	
Approach Delay, s/veh	18.6			9.2	10.1	
Approach LOS	B			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.4		6.3	10.5	12.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		60.5		10.5	27.5	28.5
Max Q Clear Time (g_c+I1), s		2.6		3.0	6.1	6.7
Green Ext Time (p_c), s		1.2		0.1	0.7	1.8

Intersection Summary			
HCM 6th Ctrl Delay			10.6
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	101	19	0	0	4
Future Vol, veh/h	4	101	19	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	115	22	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	22	0	-	0	147	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1593	-	-	-	845	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1593	-	-	-	842	1055
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	901	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1593	-	-	-	1055
HCM Lane V/C Ratio	0.003	-	-	-	0.004
HCM Control Delay (s)	7.3	-	-	-	8.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	197	23	0	0	4
Future Vol, veh/h	4	197	23	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	224	26	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	26	0	-	0	260	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	234	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1588	-	-	-	729	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	805	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1588	-	-	-	727	1050
Mov Cap-2 Maneuver	-	-	-	-	727	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1588	-	-	-	1050
HCM Lane V/C Ratio	0.003	-	-	-	0.004
HCM Control Delay (s)	7.3	-	-	-	8.4
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	105	23	0	0	0
Future Vol, veh/h	92	105	23	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	119	26	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	26	0	-	0	355	26
Stage 1	-	-	-	-	26	-
Stage 2	-	-	-	-	329	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1588	-	-	-	643	1050
Stage 1	-	-	-	-	997	-
Stage 2	-	-	-	-	729	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1588	-	-	-	601	1050
Mov Cap-2 Maneuver	-	-	-	-	601	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	729	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1588	-	-	-	-	-
HCM Lane V/C Ratio	0.066	-	-	-	-	-
HCM Control Delay (s)	7.4	-	-	-	0	0
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	-	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	88	70	43	75	0	0
Future Vol, veh/h	88	70	43	75	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	6	11	26	41	0	0
Mvmt Flow	157	125	77	134	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	144	144	0	0
Stage 1	144	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.46	6.31	-	-
Critical Hdwy Stg 1	5.46	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.554	3.399	-	-
Pot Cap-1 Maneuver	839	880	-	-
Stage 1	873	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	839	880	-	-
Mov Cap-2 Maneuver	839	-	-	-
Stage 1	873	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	11.2	0
HCM LOS	B	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	857
HCM Lane V/C Ratio	-	-	0.329
HCM Control Delay (s)	-	-	11.2
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	1.4

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	114	8	12	6	1	88
Future Vol, veh/h	114	8	12	6	1	88
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	27	37	17	17	0	7
Mvmt Flow	143	10	15	8	1	110
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	8	7.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	93%	0%
Vol Thru, %	33%	0%	1%
Vol Right, %	0%	7%	99%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	122	89
LT Vol	12	114	0
Through Vol	6	0	1
RT Vol	0	8	88
Lane Flow Rate	22	152	111
Geometry Grp	1	1	1
Degree of Util (X)	0.03	0.201	0.115
Departure Headway (Hd)	4.823	4.739	3.727
Convergence, Y/N	Yes	Yes	Yes
Cap	746	753	968
Service Time	2.826	2.789	1.728
HCM Lane V/C Ratio	0.029	0.202	0.115
HCM Control Delay	8	9	7.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.7	0.4

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	94	0	0	0	100	0	135	28	0	0	0
Future Vol, veh/h	0	94	0	0	0	100	0	135	28	0	0	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	0	29	0	0	0	9	0	15	27	0	0	0
Mvmt Flow	0	118	0	0	0	125	0	169	35	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9	7.8	9.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	83%	100%	0%
Vol Right, %	17%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	163	94	100
LT Vol	0	0	0
Through Vol	135	94	0
RT Vol	28	0	100
Lane Flow Rate	204	118	125
Geometry Grp	1	1	1
Degree of Util (X)	0.261	0.164	0.142
Departure Headway (Hd)	4.612	5.023	4.098
Convergence, Y/N	Yes	Yes	Yes
Cap	780	716	876
Service Time	2.634	3.045	2.12
HCM Lane V/C Ratio	0.262	0.165	0.143
HCM Control Delay	9.3	9	7.8
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1	0.6	0.5

Intersection						
Int Delay, s/veh	1.8					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	63	25	0	0	304
Future Vol, veh/h	9	63	25	0	0	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	78	32	36	0	0	10
Mvmt Flow	12	83	33	0	0	400

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	433	33	0	-	-	-
Stage 1	33	-	-	-	-	-
Stage 2	400	-	-	-	-	-
Critical Hdwy	7.18	6.52	-	-	-	-
Critical Hdwy Stg 1	6.18	-	-	-	-	-
Critical Hdwy Stg 2	6.18	-	-	-	-	-
Follow-up Hdwy	4.202	3.588	-	-	-	-
Pot Cap-1 Maneuver	460	961	-	0	0	-
Stage 1	825	-	-	0	0	-
Stage 2	540	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	460	961	-	-	-	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	9.8		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	846	-
HCM Lane V/C Ratio	-	0.112	-
HCM Control Delay (s)	-	9.8	-
HCM Lane LOS	-	A	-
HCM 95th %tile Q(veh)	-	0.4	-

Intersection	
Int Delay, s/veh	5.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	78	156	19	68	30	226
Future Vol, veh/h	78	156	19	68	30	226
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	8	10	21	36	22	11
Mvmt Flow	94	188	23	82	36	272

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	408	64	0	0	105	0
Stage 1	64	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Critical Hdwy	6.48	6.3	-	-	4.32	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.39	-	-	2.398	-
Pot Cap-1 Maneuver	588	978	-	-	1370	-
Stage 1	944	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	570	978	-	-	1370	-
Mov Cap-2 Maneuver	570	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	683	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	790	1370	-
HCM Lane V/C Ratio	-	-	0.357	0.026	-
HCM Control Delay (s)	-	-	12.1	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0.1	-

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	227	118	56	150	168	144
Future Volume (veh/h)	227	118	56	150	168	144
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1737	1678	1559	1841	1811	1530
Adj Flow Rate, veh/h	267	139	66	176	198	169
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	11	15	23	4	6	25
Cap, veh/h	411	353	71	1538	428	306
Arrive On Green	0.25	0.25	0.05	0.44	0.24	0.24
Sat Flow, veh/h	1654	1422	1485	3589	1811	1296
Grp Volume(v), veh/h	267	139	66	176	198	169
Grp Sat Flow(s),veh/h/ln	1654	1422	1485	1749	1811	1296
Q Serve(g_s), s	4.2	2.4	1.3	0.9	2.7	3.3
Cycle Q Clear(g_c), s	4.2	2.4	1.3	0.9	2.7	3.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	411	353	71	1538	428	306
V/C Ratio(X)	0.65	0.39	0.93	0.11	0.46	0.55
Avail Cap(c_a), veh/h	1747	1501	643	4904	1474	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	9.0	13.7	4.8	9.5	9.7
Incr Delay (d2), s/veh	1.7	0.7	34.8	0.0	0.8	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.0	1.0	0.2	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.5	9.8	48.5	4.8	10.2	11.2
LnGrp LOS	B	A	D	A	B	B
Approach Vol, veh/h	406			242	367	
Approach Delay, s/veh	10.9			16.7	10.7	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		17.2		11.7	5.9	11.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		40.5		30.5	12.5	23.5
Max Q Clear Time (g_c+I1), s		2.9		6.2	3.3	5.3
Green Ext Time (p_c), s		1.2		1.3	0.1	1.6

Intersection Summary						
HCM 6th Ctrl Delay			12.2			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	27	90	0	0	21
Future Vol, veh/h	21	27	90	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	31	102	0	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	102	0	-	0	181	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1490	-	-	-	808	953
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	944	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1490	-	-	-	795	953
Mov Cap-2 Maneuver	-	-	-	-	795	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1490	-	-	-	953
HCM Lane V/C Ratio	0.016	-	-	-	0.025
HCM Control Delay (s)	7.5	-	-	-	8.9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	1.5					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	54	137	0	0	21
Future Vol, veh/h	21	54	137	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	61	156	0	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	156	0	-	0	265	156
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	109	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1424	-	-	-	724	890
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1424	-	-	-	712	890
Mov Cap-2 Maneuver	-	-	-	-	712	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1424	-	-	-	890
HCM Lane V/C Ratio	0.017	-	-	-	0.027
HCM Control Delay (s)	7.6	-	-	-	9.2
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	48	111	0	0	26
Future Vol, veh/h	6	48	111	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	55	126	0	0	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	126	0	-	0	195	126
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	69	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1460	-	-	-	794	924
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	954	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1460	-	-	-	790	924
Mov Cap-2 Maneuver	-	-	-	-	790	-
Stage 1	-	-	-	-	896	-
Stage 2	-	-	-	-	954	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1460	-	-	-	-	924
HCM Lane V/C Ratio	0.005	-	-	-	-	0.032
HCM Control Delay (s)	7.5	-	-	-	0	9
HCM Lane LOS	A	-	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection	
Int Delay, s/veh	521.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	587	274	24	967	0	0
Future Vol, veh/h	587	274	24	967	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	25	72	30	7	2	2
Mvmt Flow	827	386	34	1362	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	715	715	0	0
Stage 1	715	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.65	6.92	-	-
Critical Hdwy Stg 1	5.65	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.725	3.948	-	-
Pot Cap-1 Maneuver	~ 365	~ 333	-	-
Stage 1	~ 445	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	~ 365	~ 333	-	-
Mov Cap-2 Maneuver	~ 365	-	-	-
Stage 1	~ 445	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay,	$ 1120.9	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	354
HCM Lane V/C Ratio	-	-	3.426
HCM Control Delay (s)	-	$	1120.9
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	111.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	606.2
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	978	24	6	4	1	587
Future Vol, veh/h	978	24	6	4	1	587
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	7	17	17	50	100	25
Mvmt Flow	1505	37	9	6	2	903
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	752.6	16.3	366.8
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	60%	98%	0%
Vol Thru, %	40%	0%	0%
Vol Right, %	0%	2%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	1002	588
LT Vol	6	978	0
Through Vol	4	0	1
RT Vol	0	24	587
Lane Flow Rate	15	1542	905
Geometry Grp	1	1	1
Degree of Util (X)	0.032	2.622	1.735
Departure Headway (Hd)	12.904	7.621	10.291
Convergence, Y/N	Yes	Yes	Yes
Cap	279	493	362
Service Time	10.904	5.621	8.291
HCM Lane V/C Ratio	0.054	3.128	2.5
HCM Control Delay	16.3	752.6	366.8
HCM Lane LOS	C	F	F
HCM 95th-tile Q	0.1	100.4	38.1

Intersection	
Intersection Delay, s/veh	502.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	365	0	0	0	593	0	341	569	0	0	0
Future Vol, veh/h	0	365	0	0	0	593	0	341	569	0	0	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	10	0	0	0	22	0	5	9	0	0	0
Mvmt Flow	0	562	0	0	0	912	0	525	875	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	126	360.6	746.9
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	37%	100%	0%
Vol Right, %	63%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	910	365	593
LT Vol	0	0	0
Through Vol	341	365	0
RT Vol	569	0	593
Lane Flow Rate	1400	562	912
Geometry Grp	1	1	1
Degree of Util (X)	2.608	1.118	1.716
Departure Headway (Hd)	7.82	12.569	10.977
Convergence, Y/N	Yes	Yes	Yes
Cap	476	298	338
Service Time	5.82	10.569	8.977
HCM Lane V/C Ratio	2.941	1.886	2.698
HCM Control Delay	746.9	126	360.6
HCM Lane LOS	F	F	F
HCM 95th-tile Q	97.2	13.3	35.3

Intersection						
Int Delay, s/veh	4.9					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	329	13	0	0	720
Future Vol, veh/h	31	329	13	0	0	720
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	13	14	31	0	0	9
Mvmt Flow	41	433	17	0	0	947

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	964	17	0	-	-	-
Stage 1	17	-	-	-	-	-
Stage 2	947	-	-	-	-	-
Critical Hdwy	6.53	6.34	-	-	-	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.617	3.426	-	-	-	-
Pot Cap-1 Maneuver	270	1028	-	0	0	-
Stage 1	978	-	-	0	0	-
Stage 2	360	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	270	1028	-	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	360	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	828	-
HCM Lane V/C Ratio	-	0.572	-
HCM Control Delay (s)	-	15	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	3.7	-

Intersection						
Int Delay, s/veh	635.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	535	397	16	321	112	186
Future Vol, veh/h	535	397	16	321	112	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	7	2	13	17	0	9
Mvmt Flow	743	551	22	446	156	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	815	245	0	0	468	0
Stage 1	245	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	~ 340	794	-	-	1104	-
Stage 1	784	-	-	-	-	-
Stage 2	~ 556	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 284	794	-	-	1104	-
Mov Cap-2 Maneuver	~ 284	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	~ 464	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	$ 1067		0		3.3	
HCM LOS	F					

Minor Lane/Major Mvmt		NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)		-	-	391	1104	-
HCM Lane V/C Ratio		-	-	3.311	0.141	-
HCM Control Delay (s)		-	-	$ 1067	8.8	0
HCM Lane LOS		-	-	F	A	A
HCM 95th %tile Q(veh)		-	-	117.1	0.5	-

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	45	222	274	232	261
Future Volume (veh/h)	80	45	222	274	232	261
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1559	1841	1841	1752	1856
Adj Flow Rate, veh/h	98	55	271	334	283	318
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	6	23	4	4	10	3
Cap, veh/h	159	122	364	2270	547	491
Arrive On Green	0.09	0.09	0.21	0.65	0.31	0.31
Sat Flow, veh/h	1725	1321	1753	3589	1752	1572
Grp Volume(v), veh/h	98	55	271	334	283	318
Grp Sat Flow(s),veh/h/ln	1725	1321	1753	1749	1752	1572
Q Serve(g_s), s	1.9	1.4	5.0	1.3	4.6	6.1
Cycle Q Clear(g_c), s	1.9	1.4	5.0	1.3	4.6	6.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	159	122	364	2270	547	491
V/C Ratio(X)	0.62	0.45	0.75	0.15	0.52	0.65
Avail Cap(c_a), veh/h	620	475	1286	5884	1436	1289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	14.9	12.9	2.4	9.8	10.3
Incr Delay (d2), s/veh	3.8	2.6	3.1	0.0	0.8	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	1.8	0.1	1.4	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.0	17.5	16.0	2.4	10.6	11.8
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	153			605	601	
Approach Delay, s/veh	18.5			8.5	11.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		27.1		7.7	11.7	15.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		58.5		12.5	25.5	28.5
Max Q Clear Time (g_c+I1), s		3.3		3.9	7.0	8.1
Green Ext Time (p_c), s		2.5		0.3	0.7	2.8
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	40.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	324	531	12	0	415	57	12	6	0	2	6	414
Future Vol, veh/h	324	531	12	0	415	57	12	6	0	2	6	414
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	33	7	0	0	29	0	0	0	0	18	0	75
Mvmt Flow	405	664	15	0	519	71	15	8	0	3	8	518

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	590	0	0	679	0	0	2300	2072	672	2041	2044	555
Stage 1	-	-	-	-	-	-	1482	1482	-	555	555	-
Stage 2	-	-	-	-	-	-	818	590	-	1486	1489	-
Critical Hdwy	4.43	-	-	4.1	-	-	7.1	6.5	6.2	7.28	6.5	6.95
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.28	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.28	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	3.5	4	3.3	3.662	4	3.975
Pot Cap-1 Maneuver	850	-	-	923	-	-	28	55	459	38	57	~ 415
Stage 1	-	-	-	-	-	-	158	191	-	489	516	-
Stage 2	-	-	-	-	-	-	373	498	-	143	189	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	850	-	-	923	-	-	-	29	459	19	30	~ 415
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	29	-	19	30	-
Stage 1	-	-	-	-	-	-	83	100	-	256	516	-
Stage 2	-	-	-	-	-	-	-	498	-	69	99	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.9	0		159.4
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	850	-	-	923	-	-	26	415
HCM Lane V/C Ratio	-	0.476	-	-	-	-	-	0.385	1.247
HCM Control Delay (s)	-	13	-	-	0	-	-	212.7	158.4
HCM Lane LOS	-	B	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	-	2.6	-	-	0	-	-	1.2	21.7

Notes
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	1262.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	692	344	43	1001	0	0
Future Vol, veh/h	692	344	43	1001	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	6	11	26	41	0	0
Mvmt Flow	1236	614	77	1788	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	971	971	0	0
Stage 1	971	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.46	6.31	-	-
Critical Hdwy Stg 1	5.46	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.554	3.399	-	-
Pot Cap-1 Maneuver	~ 276	~ 295	-	-
Stage 1	~ 361	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	~ 276	~ 295	-	-
Mov Cap-2 Maneuver	~ 276	-	-	-
Stage 1	~ 361	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	$ 2534.9	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	282
HCM Lane V/C Ratio	-	-	6.56
HCM Control Delay (s)	-		$ 2534.9
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	199.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	440.5
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1040	8	12	6	1	692
Future Vol, veh/h	1040	8	12	6	1	692
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	27	37	17	17	0	7
Mvmt Flow	1300	10	15	8	1	865
Number of Lanes	1	0	0	1	1	0
Approach	**EB**		**NB**		**SB**	
Opposing Approach			SB		NB	
Opposing Lanes	0		1		1	
Conflicting Approach Left	SB		EB			
Conflicting Lanes Left	1		1		0	
Conflicting Approach Right	NB				EB	
Conflicting Lanes Right	1		0		1	
HCM Control Delay	635.4		14.9		156.8	
HCM LOS	F		B		F	

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	99%	0%
Vol Thru, %	33%	0%	0%
Vol Right, %	0%	1%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	1048	693
LT Vol	12	1040	0
Through Vol	6	0	1
RT Vol	0	8	692
Lane Flow Rate	22	1310	866
Geometry Grp	1	1	1
Degree of Util (X)	0.046	2.363	1.255
Departure Headway (Hd)	11.325	7.068	8.018
Convergence, Y/N	Yes	Yes	Yes
Cap	318	524	459
Service Time	9.325	5.068	6.018
HCM Lane V/C Ratio	0.069	2.5	1.887
HCM Control Delay	14.9	635.4	156.8
HCM Lane LOS	B	F	F
HCM 95th-tile Q	0.1	91.7	23.4

Intersection	
Intersection Delay, s/veh	283.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	394	0	0	0	704	0	177	577	0	0	0
Future Vol, veh/h	0	394	0	0	0	704	0	177	577	0	0	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	0	29	0	0	0	9	0	15	27	0	0	0
Mvmt Flow	0	493	0	0	0	880	0	221	721	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	88.6	297.9	372.3
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	23%	100%	0%
Vol Right, %	77%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	754	394	704
LT Vol	0	0	0
Through Vol	177	394	0
RT Vol	577	0	704
Lane Flow Rate	942	492	880
Geometry Grp	1	1	1
Degree of Util (X)	1.766	1.025	1.589
Departure Headway (Hd)	7.679	10.428	8.539
Convergence, Y/N	Yes	Yes	Yes
Cap	481	355	431
Service Time	5.679	8.428	6.539
HCM Lane V/C Ratio	1.958	1.386	2.042
HCM Control Delay	372.3	88.6	297.9
HCM Lane LOS	F	F	F
HCM 95th-tile Q	51	12.1	37.7

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	340	25	0	0	879
Future Vol, veh/h	9	340	25	0	0	879
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	78	32	36	0	0	10
Mvmt Flow	12	447	33	0	0	1157

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1190	33	0	-	-	-
Stage 1	33	-	-	-	-	-
Stage 2	1157	-	-	-	-	-
Critical Hdwy	7.18	6.52	-	-	-	-
Critical Hdwy Stg 1	6.18	-	-	-	-	-
Critical Hdwy Stg 2	6.18	-	-	-	-	-
Follow-up Hdwy	4.202	3.588	-	-	-	-
Pot Cap-1 Maneuver	148	961	-	0	0	-
Stage 1	825	-	-	0	0	-
Stage 2	214	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	148	961	-	-	-	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	214	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.3	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	842	-
HCM Lane V/C Ratio	-	0.545	-
HCM Control Delay (s)	-	14.3	-
HCM Lane LOS	-	B	-
HCM 95th %tile Q(veh)	-	3.4	-

Intersection	
Int Delay, s/veh	567.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	575	306	19	345	129	304
Future Vol, veh/h	575	306	19	345	129	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	8	10	21	36	22	11
Mvmt Flow	693	369	23	416	155	366

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	907	231	0	0	439	0
Stage 1	231	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Critical Hdwy	6.48	6.3	-	-	4.32	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.39	-	-	2.398	-
Pot Cap-1 Maneuver	~ 299	789	-	-	1022	-
Stage 1	793	-	-	-	-	-
Stage 2	~ 494	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 242	789	-	-	1022	-
Mov Cap-2 Maneuver	~ 242	-	-	-	-	-
Stage 1	793	-	-	-	-	-
Stage 2	~ 400	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1079.5	0	2.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	319	1022	-
HCM Lane V/C Ratio	-	-	3.327	0.152	-
HCM Control Delay (s)	-	-	$ 1079.5	9.2	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	96.9	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	260	130	68	288	334	176
Future Volume (veh/h)	260	130	68	288	334	176
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1737	1678	1559	1841	1811	1530
Adj Flow Rate, veh/h	306	153	80	339	393	207
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	11	15	23	4	6	25
Cap, veh/h	424	364	92	1767	588	420
Arrive On Green	0.26	0.26	0.06	0.51	0.32	0.32
Sat Flow, veh/h	1654	1422	1485	3589	1811	1296
Grp Volume(v), veh/h	306	153	80	339	393	207
Grp Sat Flow(s),veh/h/ln	1654	1422	1485	1749	1811	1296
Q Serve(g_s), s	6.4	3.4	2.0	2.0	7.1	4.8
Cycle Q Clear(g_c), s	6.4	3.4	2.0	2.0	7.1	4.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	424	364	92	1767	588	420
V/C Ratio(X)	0.72	0.42	0.87	0.19	0.67	0.49
Avail Cap(c_a), veh/h	1118	961	429	4216	1444	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	11.7	17.6	5.1	11.0	10.3
Incr Delay (d2), s/veh	2.3	0.8	21.4	0.1	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.1	1.1	0.4	2.3	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	12.5	38.9	5.2	12.3	11.1
LnGrp LOS	B	B	D	A	B	B
Approach Vol, veh/h	459			419	600	
Approach Delay, s/veh	14.3			11.6	11.9	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.6		14.2	6.8	16.7
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		45.5		25.5	10.9	30.1
Max Q Clear Time (g_c+I1), s		4.0		8.4	4.0	9.1
Green Ext Time (p_c), s		2.5		1.4	0.1	3.2

Intersection Summary			
HCM 6th Ctrl Delay			12.6
HCM 6th LOS			B

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	364	597	13	0	467	64	14	6	0	2	7	466
Future Vol, veh/h	364	597	13	0	467	64	14	6	0	2	7	466
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	39	0	0	16	0	0	0	0	0	0	20
Mvmt Flow	607	995	22	0	778	107	23	10	0	3	12	777

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	885	0	0	1017	0	0	3446	3105	1006	3057	3063	832
Stage 1	-	-	-	-	-	-	2220	2220	-	832	832	-
Stage 2	-	-	-	-	-	-	1226	885	-	2225	2231	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.48
Pot Cap-1 Maneuver	773	-	-	690	-	-	~ 4	12	295	8	13	~ 343
Stage 1	-	-	-	-	-	-	58	82	-	366	387	-
Stage 2	-	-	-	-	-	-	221	366	-	58	81	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	773	-	-	690	-	-	-	~ 3	295	-	~ 3	~ 343
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 3	-	-	~ 3	-
Stage 1	-	-	-	-	-	-	~ 12	18	-	79	387	-
Stage 2	-	-	-	-	-	-	-	366	-	6	17	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	0		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	773	-	-	690	-	-	-	343
HCM Lane V/C Ratio	-	0.785	-	-	-	-	-	-	2.264
HCM Control Delay (s)	-	24.4	-	-	0	-	-	-	$ 602.7
HCM Lane LOS	-	C	-	-	A	-	-	-	F
HCM 95th %tile Q(veh)	-	7.9	-	-	0	-	-	-	59.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	568.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	591	278	24	1049	0	0
Future Vol, veh/h	591	278	24	1049	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	25	72	30	7	2	2
Mvmt Flow	832	392	34	1477	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	773	773	0	0
Stage 1	773	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.65	6.92	-	-
Critical Hdwy Stg 1	5.65	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.725	3.948	-	-
Pot Cap-1 Maneuver	~ 337	~ 306	-	-
Stage 1	~ 417	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	~ 337	~ 306	-	-
Mov Cap-2 Maneuver	~ 337	-	-	-
Stage 1	~ 417	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	$ 1270.4	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	326
HCM Lane V/C Ratio	-	-	3.754
HCM Control Delay (s)	-	-	$ 1270.4
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	116.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	677.2
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1060	24	6	4	1	591
Future Vol, veh/h	1060	24	6	4	1	591
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	7	17	17	50	100	25
Mvmt Flow	1631	37	9	6	2	909
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	849.4	17	372.9
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	60%	98%	0%
Vol Thru, %	40%	0%	0%
Vol Right, %	0%	2%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	10	1084	592
LT Vol	6	1060	0
Through Vol	4	0	1
RT Vol	0	24	591
Lane Flow Rate	15	1668	911
Geometry Grp	1	1	1
Degree of Util (X)	0.032	2.838	1.746
Departure Headway (Hd)	13.515	7.644	10.725
Convergence, Y/N	Yes	Yes	Yes
Cap	267	500	346
Service Time	11.515	5.644	8.725
HCM Lane V/C Ratio	0.056	3.336	2.633
HCM Control Delay	17	849.4	372.9
HCM Lane LOS	C	F	F
HCM 95th-tile Q	0.1	112.7	37.2

Intersection	
Intersection Delay, s/veh	535.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	407	0	0	0	597	0	341	609	0	0	0
Future Vol, veh/h	0	407	0	0	0	597	0	341	609	0	0	0
Peak Hour Factor	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Heavy Vehicles, %	0	10	0	0	0	22	0	5	9	0	0	0
Mvmt Flow	0	626	0	0	0	918	0	525	937	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	173.1	367	796.8
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	36%	100%	0%
Vol Right, %	64%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	950	407	597
LT Vol	0	0	0
Through Vol	341	407	0
RT Vol	609	0	597
Lane Flow Rate	1462	626	918
Geometry Grp	1	1	1
Degree of Util (X)	2.719	1.247	1.727
Departure Headway (Hd)	7.923	12.891	11.504
Convergence, Y/N	Yes	Yes	Yes
Cap	482	288	331
Service Time	5.923	10.891	9.504
HCM Lane V/C Ratio	3.033	2.174	2.773
HCM Control Delay	796.8	173.1	367
HCM Lane LOS	F	F	F
HCM 95th-tile Q	102.2	16.5	34.3

Intersection						
Int Delay, s/veh	5.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	353	13	0	0	724
Future Vol, veh/h	31	353	13	0	0	724
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	13	14	31	0	0	9
Mvmt Flow	41	464	17	0	0	953

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	970	17	0	-	-	-
Stage 1	17	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Critical Hdwy	6.53	6.34	-	-	-	-
Critical Hdwy Stg 1	5.53	-	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-	-
Follow-up Hdwy	3.617	3.426	-	-	-	-
Pot Cap-1 Maneuver	268	1028	-	0	0	-
Stage 1	978	-	-	0	0	-
Stage 2	358	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	268	1028	-	-	-	-
Mov Cap-2 Maneuver	268	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	358	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	836	-
HCM Lane V/C Ratio	-	0.604	-
HCM Control Delay (s)	-	15.7	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4.2	-

Intersection						
Int Delay, s/veh	726.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	539	397	16	345	130	186
Future Vol, veh/h	539	397	16	345	130	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	7	2	13	17	0	9
Mvmt Flow	749	551	22	479	181	258

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	882	262	0	0	501	0
Stage 1	262	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	~ 310	777	-	-	1074	-
Stage 1	770	-	-	-	-	-
Stage 2	~ 527	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 249	777	-	-	1074	-
Mov Cap-2 Maneuver	~ 249	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	~ 423	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1250.6	0	3.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	350	1074	-
HCM Lane V/C Ratio	-	-	3.714	0.168	-
HCM Control Delay (s)	-	-	$ 1250.6	9	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	122.7	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	45	222	274	250	261
Future Volume (veh/h)	80	45	222	274	250	261
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1559	1841	1841	1752	1856
Adj Flow Rate, veh/h	98	55	271	334	305	318
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	6	23	4	4	10	3
Cap, veh/h	159	122	363	2276	552	495
Arrive On Green	0.09	0.09	0.21	0.65	0.31	0.31
Sat Flow, veh/h	1725	1321	1753	3589	1752	1572
Grp Volume(v), veh/h	98	55	271	334	305	318
Grp Sat Flow(s),veh/h/ln	1725	1321	1753	1749	1752	1572
Q Serve(g_s), s	1.9	1.4	5.1	1.3	5.1	6.1
Cycle Q Clear(g_c), s	1.9	1.4	5.1	1.3	5.1	6.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	159	122	363	2276	552	495
V/C Ratio(X)	0.62	0.45	0.75	0.15	0.55	0.64
Avail Cap(c_a), veh/h	616	472	1277	5846	1427	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.3	15.0	13.0	2.4	9.9	10.3
Incr Delay (d2), s/veh	3.9	2.6	3.1	0.0	0.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.1	1.9	0.1	1.5	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.1	17.7	16.1	2.4	10.8	11.7
LnGrp LOS	B	B	B	A	B	B
Approach Vol, veh/h	153			605	623	
Approach Delay, s/veh	18.6			8.5	11.3	
Approach LOS	B			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		27.3		7.7	11.8	15.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		58.5		12.5	25.5	28.5
Max Q Clear Time (g_c+I1), s		3.3		3.9	7.1	8.1
Green Ext Time (p_c), s		2.5		0.3	0.7	2.9

Intersection Summary			
HCM 6th Ctrl Delay			10.9
HCM 6th LOS			B

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	967	861	0	0	4
Future Vol, veh/h	4	967	861	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1099	978	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	978	0	-	0	2087	978
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	1109	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	706	-	-	-	58	304
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	316	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	706	-	-	-	58	304
Mov Cap-2 Maneuver	-	-	-	-	58	-
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	316	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	706	-	-	-	304
HCM Lane V/C Ratio	0.006	-	-	-	0.015
HCM Control Delay (s)	10.1	-	-	-	17
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1063	865	0	0	4
Future Vol, veh/h	4	1063	865	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1208	983	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	983	0	-	0	2201	983
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	1218	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	703	-	-	-	49	302
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	280	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	703	-	-	-	49	302
Mov Cap-2 Maneuver	-	-	-	-	49	-
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	280	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	703	-	-	-	302
HCM Lane V/C Ratio	0.006	-	-	-	0.015
HCM Control Delay (s)	10.2	-	-	-	17.1
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.6					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	971	865	0	0	0
Future Vol, veh/h	92	971	865	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	1103	983	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	983	0	-	0	2296	983
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	1313	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	703	-	-	-	43	302
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	252	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	703	-	-	-	37	302
Mov Cap-2 Maneuver	-	-	-	-	37	-
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	252	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	703	-	-	-	-	-
HCM Lane V/C Ratio	0.149	-	-	-	-	-
HCM Control Delay (s)	11	-	-	-	0	0
HCM Lane LOS	B	-	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	-	-	-

Intersection	
Int Delay, s/veh	51

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	324	613	12	0	423	57	12	6	0	20	6	414
Future Vol, veh/h	324	613	12	0	423	57	12	6	0	20	6	414
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	80	80	80	80	80	80	80	80	80	80	80	80
Heavy Vehicles, %	33	7	0	0	29	0	0	0	0	18	0	75
Mvmt Flow	405	766	15	0	529	71	15	8	0	25	8	518

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	600	0	0	781	0	0	2412	2184	774	2153	2156	565
Stage 1	-	-	-	-	-	-	1584	1584	-	565	565	-
Stage 2	-	-	-	-	-	-	828	600	-	1588	1591	-
Critical Hdwy	4.43	-	-	4.1	-	-	7.1	6.5	6.2	7.28	6.5	6.95
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.28	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.28	5.5	-
Follow-up Hdwy	2.497	-	-	2.2	-	-	3.5	4	3.3	3.662	4	3.975
Pot Cap-1 Maneuver	842	-	-	845	-	-	23	46	402	31	48	~ 409
Stage 1	-	-	-	-	-	-	138	170	-	482	511	-
Stage 2	-	-	-	-	-	-	368	493	-	124	169	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	842	-	-	845	-	-	-	24	402	~ 15	25	~ 409
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	24	-	~ 15	25	-
Stage 1	-	-	-	-	-	-	72	88	-	250	511	-
Stage 2	-	-	-	-	-	-	-	493	-	59	88	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	4.5	0		209.2
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	842	-	-	845	-	-	17	409
HCM Lane V/C Ratio	-	0.481	-	-	-	-	-	1.912	1.265
HCM Control Delay (s)	-	13.2	-	-	0	-	-	$ 895.5	166.1
HCM Lane LOS	-	B	-	-	A	-	-	F	F
HCM 95th %tile Q(veh)	-	2.7	-	-	0	-	-	4.6	22.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1457.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	729	370	43	1048	0	0
Future Vol, veh/h	729	370	43	1048	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	56	56	56	56	56	56
Heavy Vehicles, %	6	11	26	41	0	0
Mvmt Flow	1302	661	77	1871	0	0

Major/Minor	Minor1		Major1	
Conflicting Flow All	1013	1013	0	0
Stage 1	1013	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.46	6.31	-	-
Critical Hdwy Stg 1	5.46	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.554	3.399	-	-
Pot Cap-1 Maneuver	~ 260	~ 279	-	-
Stage 1	~ 345	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	~ 260	~ 279	-	-
Mov Cap-2 Maneuver	~ 260	-	-	-
Stage 1	~ 345	-	-	-
Stage 2	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	$ 2904.1	0
HCM LOS	F	

Minor Lane/Major Mvmt	NBT	NBR	WBLn1
Capacity (veh/h)	-	-	266
HCM Lane V/C Ratio	-	-	7.378
HCM Control Delay (s)	-		$ 2904.1
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	215.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	479
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1087	8	12	6	1	729
Future Vol, veh/h	1087	8	12	6	1	729
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	27	37	17	17	0	7
Mvmt Flow	1359	10	15	8	1	911
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	683.1	15.3	184.4
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	67%	99%	0%
Vol Thru, %	33%	0%	0%
Vol Right, %	0%	1%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	1095	730
LT Vol	12	1087	0
Through Vol	6	0	1
RT Vol	0	8	729
Lane Flow Rate	22	1369	912
Geometry Grp	1	1	1
Degree of Util (X)	0.046	2.469	1.322
Departure Headway (Hd)	11.719	7.197	8.228
Convergence, Y/N	Yes	Yes	Yes
Cap	308	520	447
Service Time	9.719	5.197	6.228
HCM Lane V/C Ratio	0.071	2.633	2.04
HCM Control Delay	15.3	683.1	184.4
HCM Lane LOS	C	F	F
HCM 95th-tile Q	0.1	96.6	26

Intersection	
Intersection Delay, s/veh	312.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	424	0	0	0	741	0	177	594	0	0	0
Future Vol, veh/h	0	424	0	0	0	741	0	177	594	0	0	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	0	29	0	0	0	9	0	15	27	0	0	0
Mvmt Flow	0	530	0	0	0	926	0	221	743	0	0	0
Number of Lanes	0	1	0	0	0	1	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	113.4	340.3	395.7
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	0%	0%	0%
Vol Thru, %	23%	100%	0%
Vol Right, %	77%	0%	100%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	771	424	741
LT Vol	0	0	0
Through Vol	177	424	0
RT Vol	594	0	741
Lane Flow Rate	964	530	926
Geometry Grp	1	1	1
Degree of Util (X)	1.818	1.103	1.685
Departure Headway (Hd)	7.858	10.722	8.789
Convergence, Y/N	Yes	Yes	Yes
Cap	472	345	426
Service Time	5.858	8.722	6.789
HCM Lane V/C Ratio	2.042	1.536	2.174
HCM Control Delay	395.7	113.4	340.3
HCM Lane LOS	F	F	F
HCM 95th-tile Q	52.8	14.1	41.3

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	369	25	0	0	910
Future Vol, veh/h	9	369	25	0	0	910
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	78	32	36	0	0	10
Mvmt Flow	12	486	33	0	0	1197

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1230	33	0	-	-	-
Stage 1	33	-	-	-	-	-
Stage 2	1197	-	-	-	-	-
Critical Hdwy	7.18	6.52	-	-	-	-
Critical Hdwy Stg 1	6.18	-	-	-	-	-
Critical Hdwy Stg 2	6.18	-	-	-	-	-
Follow-up Hdwy	4.202	3.588	-	-	-	-
Pot Cap-1 Maneuver	139	961	-	0	0	-
Stage 1	825	-	-	0	0	-
Stage 2	204	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	139	961	-	-	-	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	204	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	WBLn1	SBT
Capacity (veh/h)	-	842	-
HCM Lane V/C Ratio	-	0.591	-
HCM Control Delay (s)	-	15.3	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	4	-

Intersection	
Int Delay, s/veh	643.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	606	311	19	374	131	304
Future Vol, veh/h	606	311	19	374	131	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	8	10	21	36	22	11
Mvmt Flow	730	375	23	451	158	366

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	931	249	0	0	474	0
Stage 1	249	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Critical Hdwy	6.48	6.3	-	-	4.32	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.39	-	-	2.398	-
Pot Cap-1 Maneuver	~ 289	771	-	-	991	-
Stage 1	779	-	-	-	-	-
Stage 2	~ 491	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 231	771	-	-	991	-
Mov Cap-2 Maneuver	~ 231	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	~ 393	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1223.9	0	2.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	303	991	-
HCM Lane V/C Ratio	-	-	3.646	0.159	-
HCM Control Delay (s)	-	-	$ 1223.9	9.3	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	104.2	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	260	130	68	293	335	176
Future Volume (veh/h)	260	130	68	293	335	176
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1737	1678	1559	1841	1811	1530
Adj Flow Rate, veh/h	306	153	80	345	394	207
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	11	15	23	4	6	25
Cap, veh/h	424	364	92	1768	588	421
Arrive On Green	0.26	0.26	0.06	0.51	0.32	0.32
Sat Flow, veh/h	1654	1422	1485	3589	1811	1296
Grp Volume(v), veh/h	306	153	80	345	394	207
Grp Sat Flow(s),veh/h/ln	1654	1422	1485	1749	1811	1296
Q Serve(g_s), s	6.4	3.4	2.0	2.0	7.1	4.8
Cycle Q Clear(g_c), s	6.4	3.4	2.0	2.0	7.1	4.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	424	364	92	1768	588	421
V/C Ratio(X)	0.72	0.42	0.87	0.20	0.67	0.49
Avail Cap(c_a), veh/h	1116	959	428	4211	1443	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.8	11.7	17.6	5.1	11.0	10.2
Incr Delay (d2), s/veh	2.3	0.8	21.4	0.1	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.9	1.1	0.5	2.3	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.2	12.5	39.0	5.2	12.3	11.1
LnGrp LOS	B	B	D	A	B	B
Approach Vol, veh/h	459			425	601	
Approach Delay, s/veh	14.3			11.5	11.9	
Approach LOS	B			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.6		14.2	6.8	16.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		45.5		25.5	10.9	30.1
Max Q Clear Time (g_c+I1), s		4.0		8.4	4.0	9.1
Green Ext Time (p_c), s		2.5		1.4	0.1	3.2

Intersection Summary						
HCM 6th Ctrl Delay			12.5			
HCM 6th LOS			B			

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1001	1036	0	0	21
Future Vol, veh/h	21	1001	1036	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	1138	1177	0	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1177	0	-	0	2363	1177
Stage 1	-	-	-	-	1177	-
Stage 2	-	-	-	-	1186	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	593	-	-	-	39	233
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	290	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	593	-	-	-	37	233
Mov Cap-2 Maneuver	-	-	-	-	37	-
Stage 1	-	-	-	-	281	-
Stage 2	-	-	-	-	290	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	593	-	-	-	233
HCM Lane V/C Ratio	0.04	-	-	-	0.102
HCM Control Delay (s)	11.3	-	-	-	22.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1028	1083	0	0	21
Future Vol, veh/h	21	1028	1083	0	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	24	1168	1231	0	0	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1231	0	-	0	2447	1231
Stage 1	-	-	-	-	1231	-
Stage 2	-	-	-	-	1216	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	566	-	-	-	34	216
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	280	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	566	-	-	-	33	216
Mov Cap-2 Maneuver	-	-	-	-	33	-
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	280	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	566	-	-	-	216
HCM Lane V/C Ratio	0.042	-	-	-	0.11
HCM Control Delay (s)	11.6	-	-	-	23.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1022	1057	0	0	26
Future Vol, veh/h	6	1022	1057	0	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1161	1201	0	0	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1201	0	-	0	2376	1201
Stage 1	-	-	-	-	1201	-
Stage 2	-	-	-	-	1175	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	581	-	-	-	38	225
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	293	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	581	-	-	-	38	225
Mov Cap-2 Maneuver	-	-	-	-	38	-
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	293	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	581	-	-	-	-	225
HCM Lane V/C Ratio	0.012	-	-	-	-	0.131
HCM Control Delay (s)	11.3	-	-	-	0	23.4
HCM Lane LOS	B	-	-	-	A	C
HCM 95th %tile Q(veh)	0	-	-	-	-	0.4

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	364	644	13	0	530	69	14	6	0	3	7	466
Future Vol, veh/h	364	644	13	0	530	69	14	6	0	3	7	466
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	39	0	0	16	0	0	0	0	0	0	20
Mvmt Flow	607	1073	22	0	883	115	23	10	0	5	12	777

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	998	0	0	1095	0	0	3633	3296	1084	3244	3250	941
Stage 1	-	-	-	-	-	-	2298	2298	-	941	941	-
Stage 2	-	-	-	-	-	-	1335	998	-	2303	2309	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.4
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.48
Pot Cap-1 Maneuver	701	-	-	645	-	-	~ 3	~ 9	266	6	~ 9	~ 296
Stage 1	-	-	-	-	-	-	52	74	-	319	345	-
Stage 2	-	-	-	-	-	-	191	324	-	52	73	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	701	-	-	645	-	-	-	~ 1	266	-	~ 1	~ 296
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 1	-	-	~ 1	-
Stage 1	-	-	-	-	-	-	~ 7	10	-	43	345	-
Stage 2	-	-	-	-	-	-	-	324	-	-	~ 10	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	0		
HCM LOS			-	-

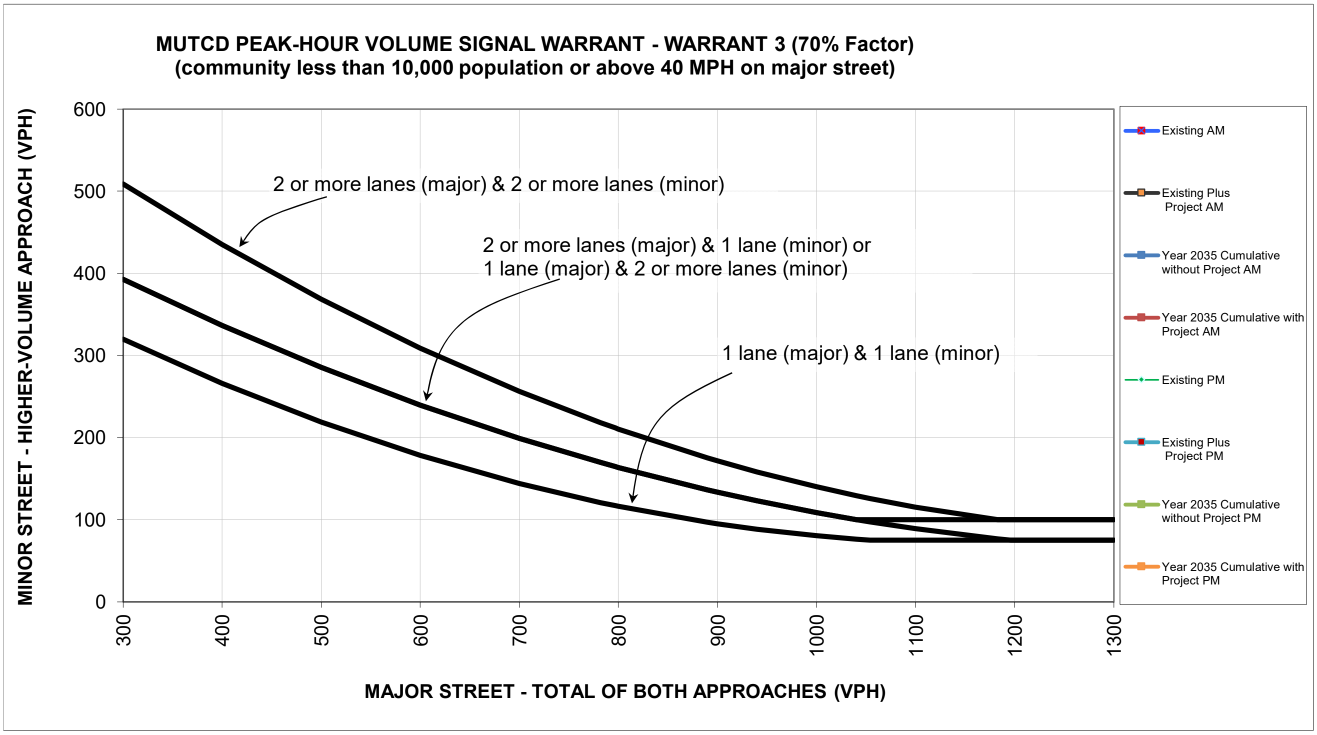
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	701	-	-	645	-	-	-	296
HCM Lane V/C Ratio	-	0.865	-	-	-	-	-	-	2.624
HCM Control Delay (s)	-	33.9	-	-	0	-	-	-	$ 767.1
HCM Lane LOS	-	D	-	-	A	-	-	-	F
HCM 95th %tile Q(veh)	-	10.3	-	-	0	-	-	-	64.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix D
Warrants

Gloria Road Agricultural Cooler

1 . US 101 NB On-Ramp/Tavernetti Road and Gloria Road



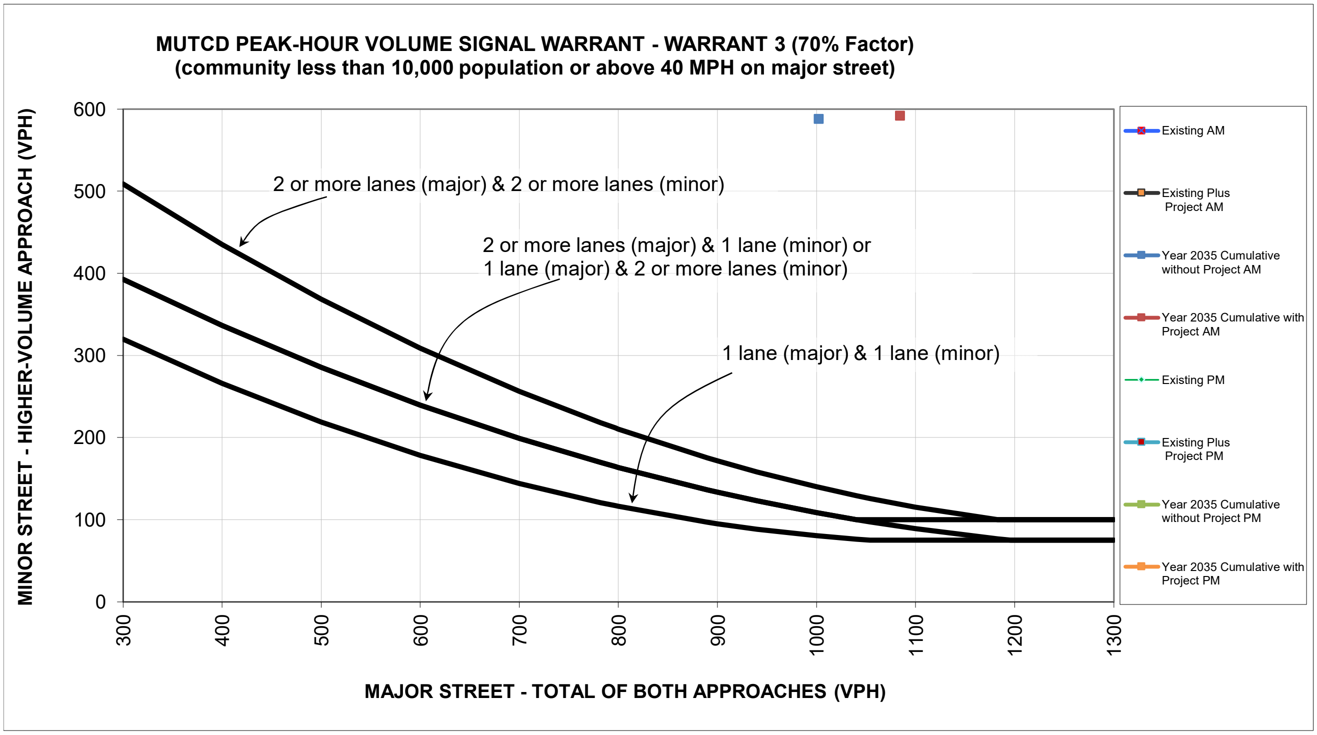
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	US 101 NB On-Ramp/Tavernetti Road	X		125	225	991	1073
Minor Street - Highest Approach	Gloria Road	X		19	27	861	869
Maximum warrant threshold for minor street volume				429	364	81	75
Difference between warrant threshold & minor street volume				410	337	780	794
		Warrant Met?		No	No	**Yes**	**Yes**

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	US 101 NB On-Ramp/Tavernetti Road	X		70	118	1044	1091
Minor Street - Highest Approach	Gloria Road	X		90	158	1036	1099
Maximum warrant threshold for minor street volume				468	434	76	75
Difference between warrant threshold & minor street volume				378	276	960	1024
		Warrant Met?		No	No	**Yes**	**Yes**

Gloria Road Agricultural Cooler

2 . Tavernetti Road and US 101 Southern Overpass



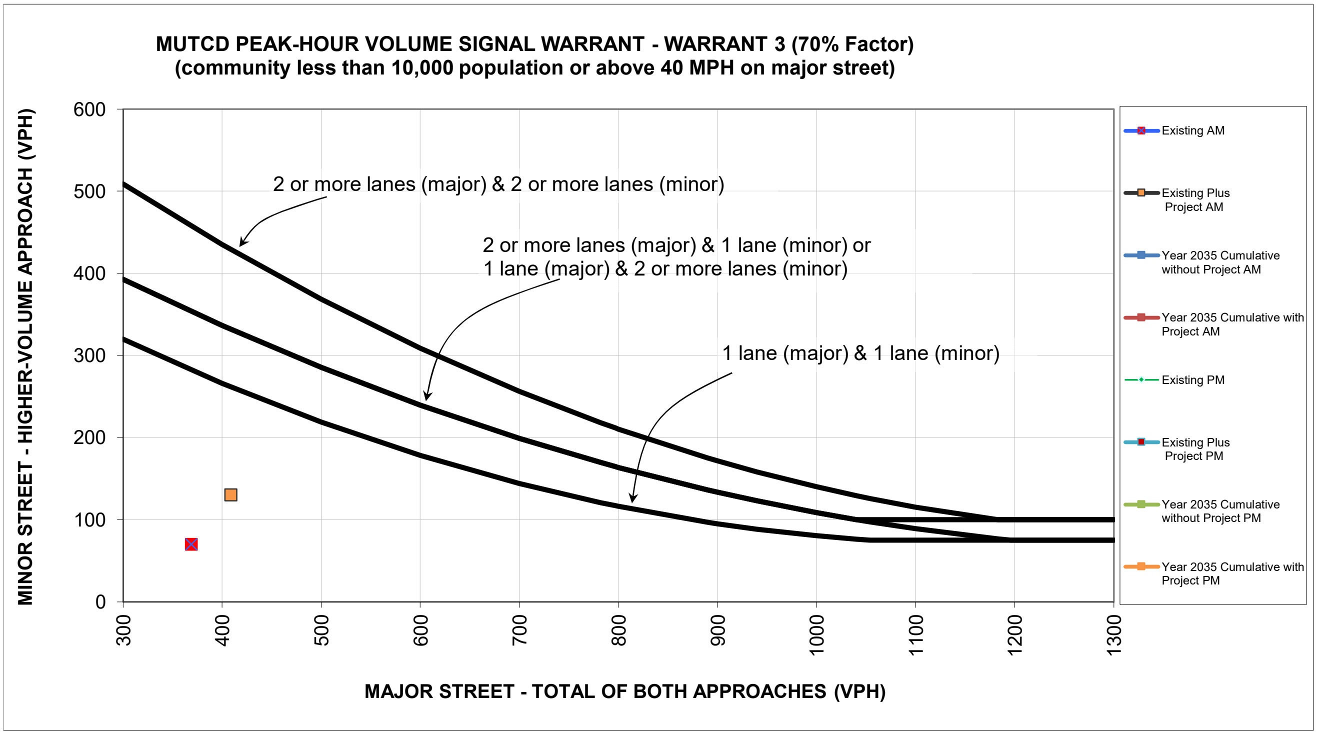
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	US 101 Southern Overpass	X		136	236	1002	1084
Minor Street - Highest Approach	Tavernetti Road	X		13	17	588	592
Maximum warrant threshold for minor street volume				422	358	80	75
Difference between warrant threshold & minor street volume				409	341	508	517
		Warrant Met?		No	No	**Yes**	**Yes**

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	US 101 Southern Overpass	X		74	122	1048	1095
Minor Street - Highest Approach	Tavernetti Road	X		47	89	693	730
Maximum warrant threshold for minor street volume				465	432	76	75
Difference between warrant threshold & minor street volume				418	343	617	655
		Warrant Met?		No	No	**Yes**	**Yes**

Gloria Road Agricultural Cooler

3 . US 101 NB Off-Ramp/US 101 Southern Overpass and US 101 Southern Ov



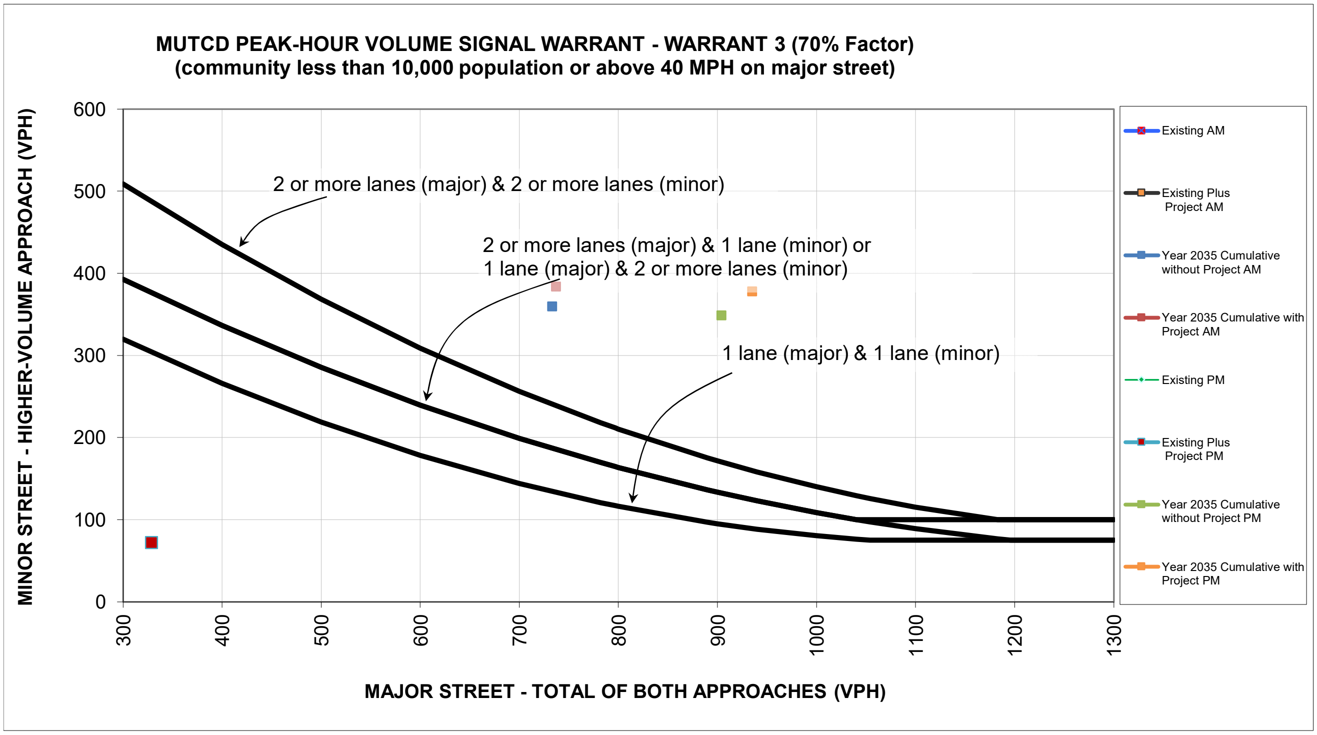
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	US 101 NB Off-Ramp/US 101 Southern Overpass	X		369	409	958	1004
Minor Street - Highest Approach	US 101 Southern Overpass	X		70	130	910	950
Maximum warrant threshold for minor street volume				282	262	86	80
Difference between warrant threshold & minor street volume				212	132	824	870
		Warrant Met?		No	No	**Yes**	**Yes**

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	US 101 NB Off-Ramp/US 101 Southern Overpass	X		146	194	1098	1165
Minor Street - Highest Approach	US 101 Southern Overpass	X		63	163	754	771
Maximum warrant threshold for minor street volume				415	384	75	75
Difference between warrant threshold & minor street volume				352	221	679	696
		Warrant Met?		No	No	**Yes**	**Yes**

Gloria Road Agricultural Cooler

4 . Alta Street and US 101 SB Off-Ramp



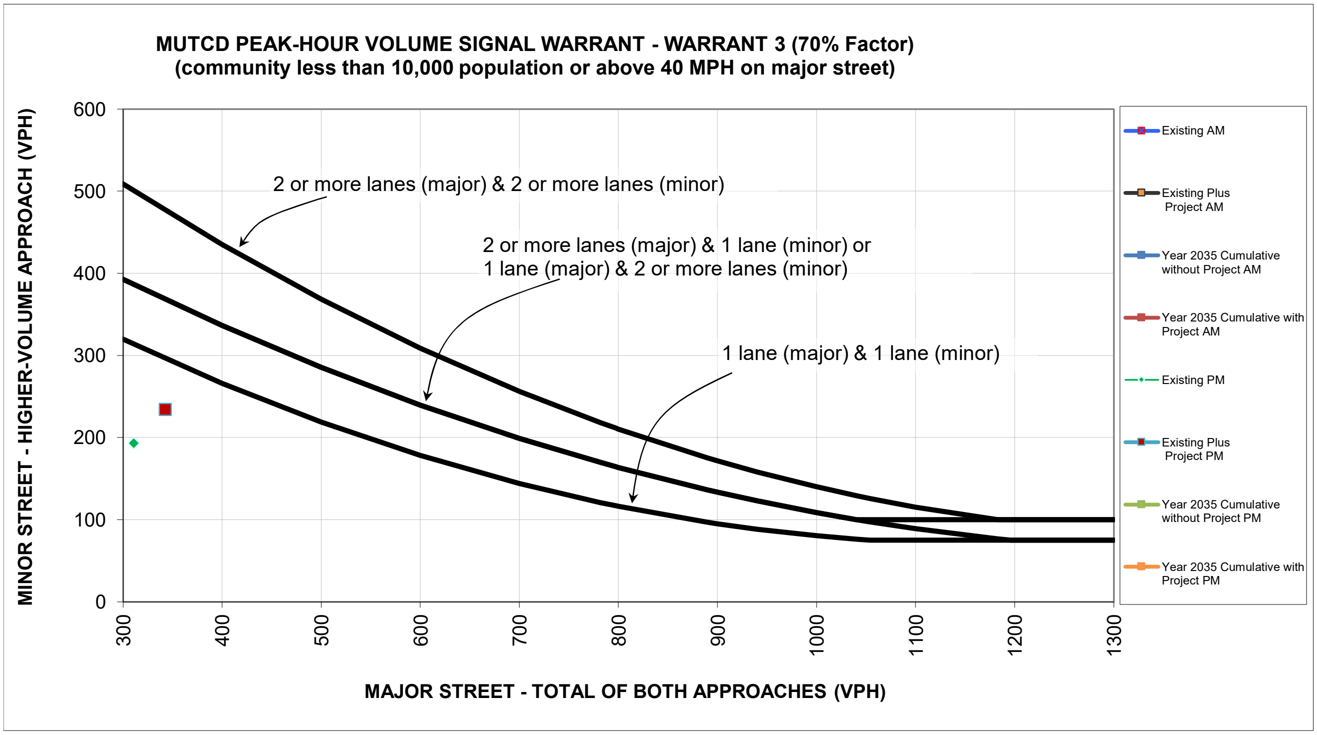
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Alta Street	X		194	198	733	737
Minor Street - Highest Approach	US 101 SB Off-Ramp	X		88	112	360	384
Maximum warrant threshold for minor street volume				384	381	134	133
Difference between warrant threshold & minor street volume				296	269	226	251
		Warrant Met?		No	No	**Yes**	**Yes**

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Alta Street	X		298	329	904	935
Minor Street - Highest Approach	US 101 SB Off-Ramp	X		43	72	349	378
Maximum warrant threshold for minor street volume				321	304	94	89
Difference between warrant threshold & minor street volume				278	232	255	289
		Warrant Met?		No	No	**Yes**	**Yes**

Gloria Road Agricultural Cooler

5 . Alta Street and US 101 Southern Overpass



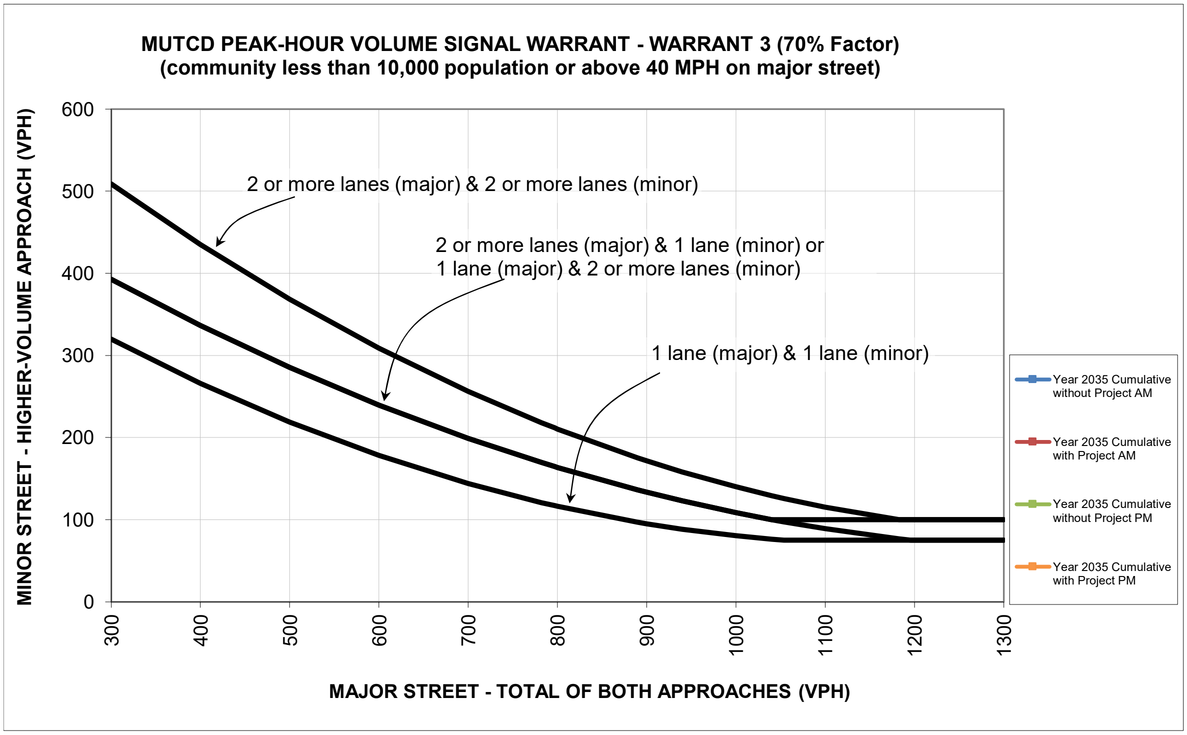
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing AM	Existing Plus Project AM	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Alta Street	X		204	265	635	677
Minor Street - Highest Approach	US 101 Southern Overpass	X		319	323	932	936
Maximum warrant threshold for minor street volume				378	340	165	151
Difference between warrant threshold & minor street volume				59	17	767	785
		Warrant Met?		No	No	**Yes**	**Yes**

		Approach Lanes: One	Approach Lanes: 2 or More	Existing PM	Existing Plus Project PM	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Alta Street	X		311	343	797	828
Minor Street - Highest Approach	US 101 Southern Overpass	X		193	234	881	917
Maximum warrant threshold for minor street volume				314	296	117	110
Difference between warrant threshold & minor street volume				121	62	764	807
		Warrant Met?		No	No	**Yes**	**Yes**

Gloria Road Agricultural Cooler

7 . Herold Parkway and Gloria Road



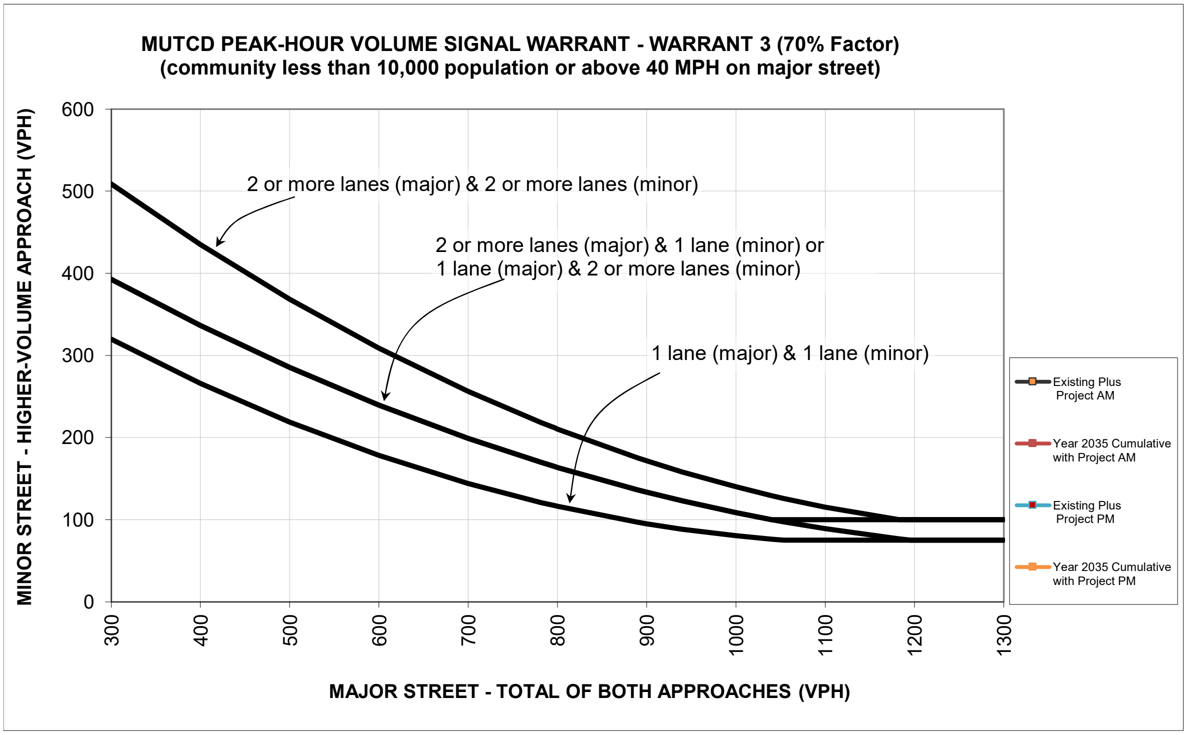
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Year 2035 Cumulative without Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Gloria Road	X		1339	1429
Minor Street - Highest Approach	Herold Parkway	X		422	440
Maximum warrant threshold for minor street volume				75	75
Difference between warrant threshold & minor street volume				347	365
		Warrant Met?		Yes	Yes

		Approach Lanes: One	Approach Lanes: 2 or More	Year 2035 Cumulative without Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Gloria Road	X		1505	1620
Minor Street - Highest Approach	Herold Parkway	X		475	476
Maximum warrant threshold for minor street volume				75	75
Difference between warrant threshold & minor street volume				400	401
		Warrant Met?		Yes	Yes

Gloria Road Agricultural Cooler

8 . Truck Western Driveway A and Gloria Road



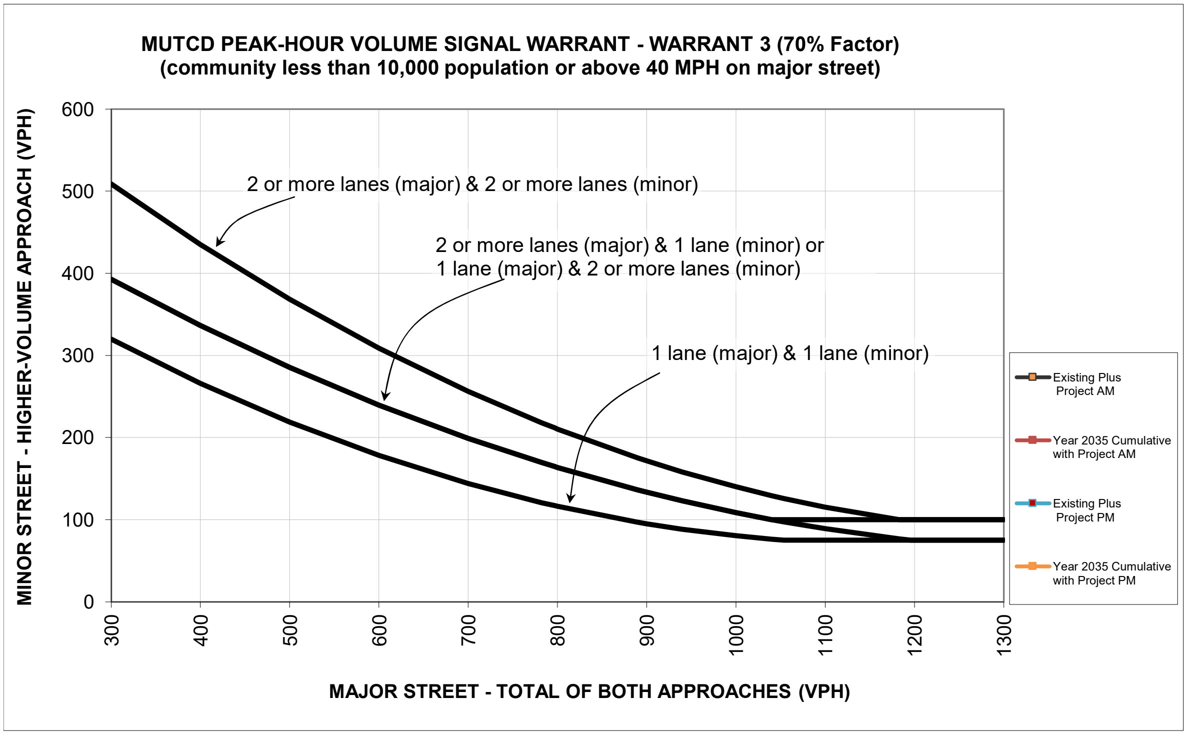
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Plus Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Gloria Road	X		224	1932
Minor Street - Highest Approach	Truck Western Driveway A	X		4	4
Maximum warrant threshold for minor street volume				365	75
Difference between warrant threshold & minor street volume				361	71
		Warrant Met?		No	No

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Plus Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Gloria Road	X		212	2132
Minor Street - Highest Approach	Truck Western Driveway A	X		21	21
Maximum warrant threshold for minor street volume				372	75
Difference between warrant threshold & minor street volume				351	54
		Warrant Met?		No	No

Gloria Road Agricultural Cooler

9 . Employee Driveway B and Gloria Road



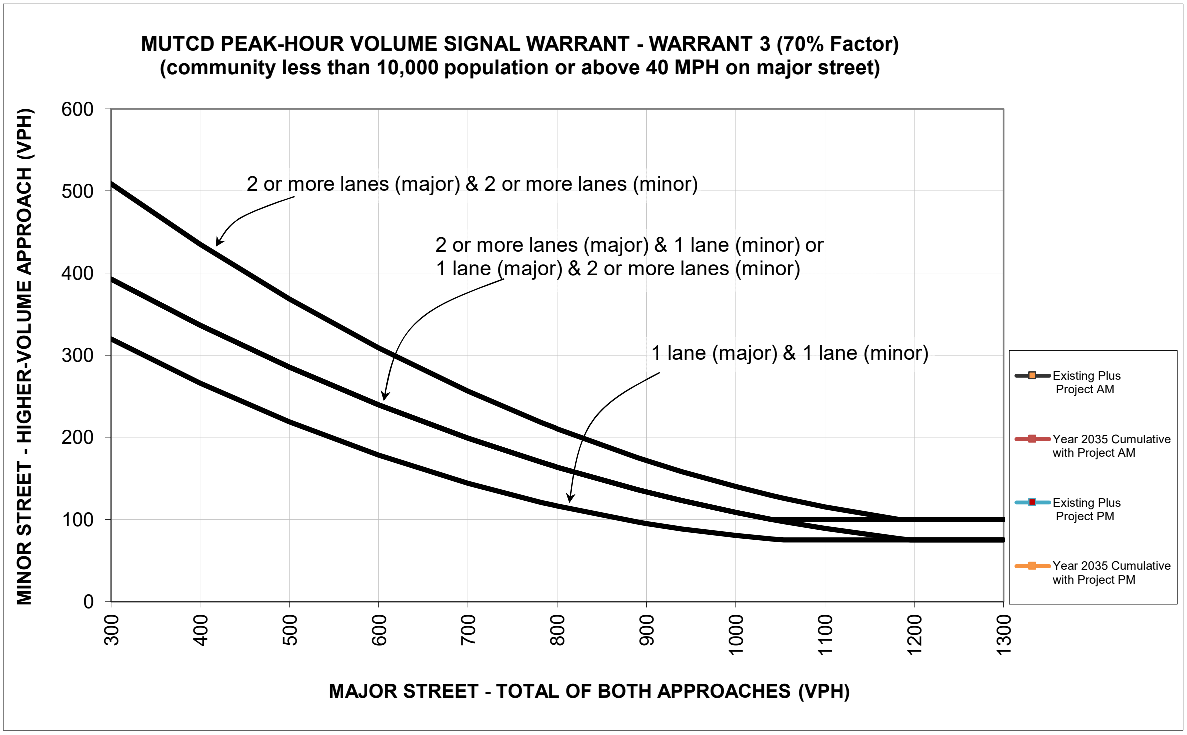
Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes One	Approach Lanes 2 or More	Existing Plus Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Gloria Road	X		220	1928
Minor Street - Highest Approach	Employee Driveway B	X		0	0
Maximum warrant threshold for minor street volume				367	75
Difference between warrant threshold & minor street volume				367	75
		Warrant Met?		No	No

		Approach Lanes One	Approach Lanes 2 or More	Existing Plus Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Gloria Road	X		165	2085
Minor Street - Highest Approach	Employee Driveway B	X		26	26
Maximum warrant threshold for minor street volume				403	75
Difference between warrant threshold & minor street volume				377	49
		Warrant Met?		No	No

Gloria Road Agricultural Cooler

10 . Truck Eastern Driveway C and Gloria Road



Source: Figure 4C-4 of the Manual on Unifrom Traffic Control and Devices (MUTCD) from California Department of Transportation (Caltrans).
* 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

		Approach Lanes: One	Approach Lanes: 2 or More	Existing Plus Project AM	Year 2035 Cumulative with Project AM
Major Street - Both Approaches	Gloria Road	X		124	1832
Minor Street - Highest Approach	Truck Eastern Driveway C	X		4	4
Maximum warrant threshold for minor street volume				430	75
Difference between warrant threshold & minor street volume				426	71
		Warrant Met?		No	No

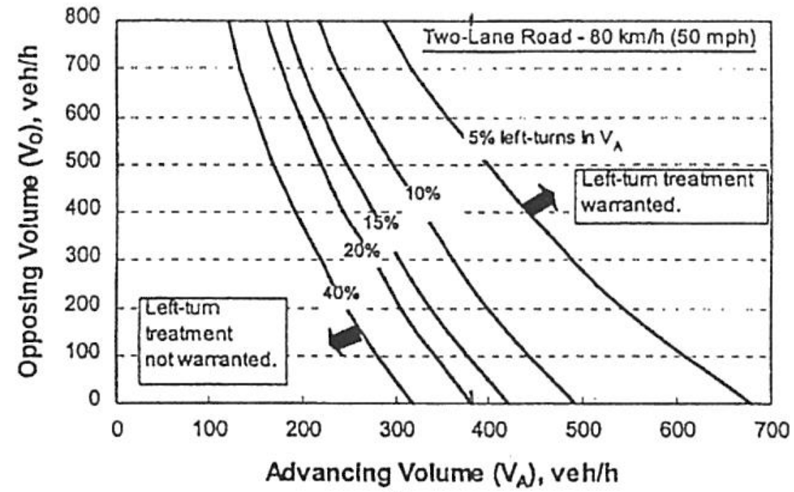
		Approach Lanes: One	Approach Lanes: 2 or More	Existing Plus Project PM	Year 2035 Cumulative with Project PM
Major Street - Both Approaches	Gloria Road	X		138	2058
Minor Street - Highest Approach	Truck Eastern Driveway C	X		21	21
Maximum warrant threshold for minor street volume				421	75
Difference between warrant threshold & minor street volume				400	54
		Warrant Met?		No	No

Left-Turn Warrants

Driveway B (Employee)	Existing Plus Project		2035 with Project	
	AM	PM	AM	PM
Opposing Volumes (WB)	23	111	865	1057
Advancing Volumes (EB)	197	54	1063	1028
Left-Turns	92	6	92	6
% Left-Turn	47%	11%	9%	1%
Warrant Met?	No	No	**Yes**	No

Driveway C (Receiving Truck)	Existing Plus Project		2035 with Project	
	AM	PM	AM	PM
Opposing Volumes (WB)	19	90	861	1036
Advancing Volumes (EB)	105	48	971	1022
Left-Turns	4	21	4	21
% Left-Turn	4%	44%	0%	2%
Warrant Met?	No	No	No	**Yes**

Driveway A (Shipping Truck)	Existing Plus Project		2035 with Project	
	AM	PM	AM	PM
Opposing Volumes (WB)	23	137	865	1083
Advancing Volumes (EB)	201	75	1067	1049
Left-Turns	4	21	4	21
% Left-Turn	2%	28%	0%	2%
Warrant Met?	No	No	No	**Yes**



(b)