

City of Galt
Community Development Department



Summerfield at Twin Cities Road Project
Initial Study/Mitigated Negative Declaration

May 2020

Prepared by



1501 Sports Drive, Suite A, Sacramento, CA 95834

TABLE OF CONTENTS

A.	BACKGROUND	1
B.	SOURCES.....	2
C.	ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED	4
D.	DETERMINATION.....	5
E.	BACKGROUND AND INTRODUCTION	6
F.	PROJECT DESCRIPTION	6
G.	ENVIRONMENTAL CHECKLIST	17
I.	AESTHETICS.	18
II.	AGRICULTURE AND FOREST RESOURCES.	21
III.	AIR QUALITY.	24
IV.	BIOLOGICAL RESOURCES.	33
V.	CULTURAL RESOURCES.	66
VI.	ENERGY.....	68
VII.	GEOLOGY AND SOILS.....	71
VIII.	GREENHOUSE GAS EMISSIONS.	75
IX.	HAZARDS AND HAZARDOUS MATERIALS.	78
X.	HYDROLOGY AND WATER QUALITY.	81
XI.	LAND USE AND PLANNING.	86
XII.	MINERAL RESOURCES.	91
XIII.	NOISE.....	92
XIV.	POPULATION AND HOUSING.	104
XV.	PUBLIC SERVICES.....	106
XVI.	RECREATION.	109
XVII.	TRANSPORTATION.....	110
XVIII.	TRIBAL CULTURAL RESOURCES.....	128
XIX.	UTILITIES AND SERVICE SYSTEMS.....	129
XX.	WILDFIRE.....	133
XXI.	MANDATORY FINDINGS OF SIGNIFICANCE.	134

APPENDICES:

Appendix A – CalEEMod Modeling Results
Appendix B – Air Quality Management Plan
Appendix C – SMAQMD Minor Project Health Effects Screening Tool
Appendix D – Technical Biological Report
Appendix E – Galt Climate Action Plan Sustainability Checklist
Appendix F – Environmental Noise Assessment
Appendix G – Traffic Impact Study

INITIAL STUDY

May 2020

A. BACKGROUND

1. Project Title: Summerfield at Twin Cities Road Project
2. Lead Agency Name and Address: City of Galt
Community Development Department
495 Industrial Drive
Galt, CA 95632
3. Contact Person and Phone Number: Chris Erias
Community Development Director
(209) 366-7230
4. Project Location: Twin Cities Road, between Waldo Road and
Hauschildt Road, at the terminus of Marengo Road
Galt, CA 95632
APN: 148-1100-006
5. Project Sponsor's Name and Address: Sheldon Business Park LTD
8940 Elder Creek Road
Sacramento, CA 95829
(916) 705-4451
6. Existing County of Sacramento General Plan Designation: Agricultural-Residential
(1-10 acres/dwelling unit)
7. Existing Sacramento County Zoning Designation: Agricultural/Residential (AR-5)
8. Existing City of Galt General Plan Designations: Commercial (C)
Rural Residential (RR)
9. Proposed City of Galt General Plan Designations: Low Density Residential (LDR)
Open Space (OS)
Public/Quasi-Public (PQP)
10. Proposed City of Galt Zoning Designations: Maximum-Density Single-Family-
Planned Development (R1C-PD)
Open Space (OS)
Public/Quasi-Public (PQP)
11. Required Approvals from Other Public Agencies: California Department of Fish
and Wildlife
Central Valley Regional Water Quality Control Board
Sacramento Local Agency Formation Commission
South Sacramento Conservation Agency

United States Army Corps of Engineers

12. Surrounding Land Uses and Setting:

The project site consists of 58 acres, located north of Twin Cities Road, between Waldo Road and Hauschildt Road, at the terminus of Marengo Road, within Sacramento County, California, within the City of Galt's Sphere of Influence. The site is currently vacant and covered in grassland and grazing land. Wetlands exist in the northeastern and center portions of the site. Surrounding land uses include low-density residential to the east and west, agricultural-residential land to the north, and single-family residences to the south, across Twin Cities Road. The Sacramento County General Plan designates the project site as Agricultural-Residential (1-10 acres/dwelling unit). The Galt General Plan designates the project site as Commercial (C) and Rural Residential (RR). The Sacramento County Zoning designation for the site is Agricultural/Residential (AR-5).

13. Project Description Summary:

The Summerfield at Twin Cities Road Project (proposed project) would include annexation of the 58-acre site into the City of Galt and development of a private, gated community consisting of 211 single-family residences with a minimum lot size of 6,500 square feet (sf). The project would include a new internal circulation system, as well as fencing, landscaping, and associated improvements. The proposed project would also include development of a 2.2-acre private park in the center of the site, as well as 7.9 acres of open space, along the northern portion of the site. The following discretionary approvals from the City of Galt would be required for the proposed project: Annexation; a General Plan Amendment; Rezoning/Pre-zoning; and a Small Lot and a Large Lot Vesting Tentative Map. Annexation of the site into the City of Galt is a formal municipal reorganization action that requires approval by the Sacramento Local Agency Formation Commission (LAFCo).

14. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1:

In compliance with AB 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the chairpersons of the Wilton Rancheria and the Torres Martinez Desert Cahuilla Indian Tribe. The letters were distributed on June 5, 2019. Requests to consult were not received within the 30-day response period.

B. SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study:

1. California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.
2. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.
3. California Building Standards Commission. *California Green Building Standards Code*. 2019.
4. California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed December 2019.

5. California Department of Conservation. *DOC Maps: Agriculture*. Available at: <https://maps.conservation.ca.gov/agriculture/#dataviewer>. Accessed January 2020.
6. California Department of Conservation. *Fault Activity Map of California*. Available at: <https://maps.conservation.ca.gov/cgs/fam/>. Accessed December 13, 2019.
7. California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2019, with 2010 Benchmark*. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Accessed December 2019.
8. California Department of Forestry and Fire Protection. *Sacramento County, Very High Fire Hazard Severity Zones in LRA*. January 30, 2008.
9. California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary Details: Sacramento County Landfill (Kiefer) (34-AA-0001)*. Available at: <https://www2.calrecycle.ca.gov/swfacilities/Directory/34-AA-0001/>. Accessed October 2019.
10. California Department of Transportation. *Scenic Highways*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed January 2020.
11. California Geologic Survey. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed December 19, 2019.
12. Caltrans. *Transportation Related Earthborne Vibrations. TAV-02-01-R9601*. February 20, 2002.
13. City of Galt. *Community Profile: City of Galt Demographic Overview*. Available at: <http://www.ci.galt.ca.us/city-departments/economic-development/community-profile>. Accessed December 2019.
14. City of Galt. *Galt 2030 General Plan, Existing Conditions Report*. November 2005.
15. City of Galt. *Galt Municipal Code*. April 16, 2019.
16. City of Galt. *Galt 2030 General Plan Policy Document*. April 2009.
17. City of Galt. *2015 Urban Water Management Plan Update*. June 2016.
18. City of Galt. *Wastewater Treatment Plant*. Available at: <http://www.ci.galt.ca.us/city-departments/public-works/utilities-division/wastewater-services/wastewater-treatment-plant>. Accessed October 2019.
19. County of Sacramento. *County of Sacramento General Plan, Conservation Element*. November 9, 2011.
20. Department of Toxic Substances Control. *Hazardous Waste and Substances Site List (Cortese)*. Available at: <https://www.envirostor.dtsc.ca.gov/public/>. Accessed January 2020.
21. Federal Emergency Management Agency. *Flood Insurance Rate Map 06067C0467J*. Effective October 20, 2016.
22. Federal Highway Administration. *Roadway Construction Noise Model User's Guide*. January 2006.
23. Federal Transit Administration. *Transit Noise and Vibration Impact Assessment Guidelines*. May 2006.
24. GHD, Inc. *Summerfield Traffic Impact Study*. February 19, 2020.
25. Live Oak Associates. *Twin Cities, Technical Biological Report, Galt, Sacramento County, California*. October 1, 2019.
26. North Central Information Center. *Records Search Results for Summerfield at Twin Cities Annexation Project*. August 20, 2019.
27. Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. January 31, 2020.

28. Sacramento Metropolitan Air Management District. *Guide to Air Quality Assessment in Sacramento County*. May 2017.
29. Saxelby Acoustics. *Environmental Noise Assessment, Summerfield Residential, City of Galt, California*. December 19, 2019.
30. Wood Rodgers, Inc. *Subject: Summerfield at Twin Cities Road*. September 25, 2019.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is “Less Than Significant with Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology and Soils | <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

D. DETERMINATION

On the basis of this initial study:

- ☐ 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 applicant. 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” 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 (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Chris Erias

Printed Name

Date

City of Galt

For

E. BACKGROUND AND INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) identifies and analyzes the potential environmental impacts of the Summerfield at Twin Cities Road Project (proposed project). The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures are prescribed. The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the project, as required by CEQA. The mitigation measures would be incorporated into the project through conditions of approval. The City would adopt findings and a Mitigation Monitoring/Reporting Program for the project in conjunction with approval of the project.

In April 2009, the City of Galt completed a comprehensive General Plan Update (GPU). An EIR was prepared for the GPU. The GPU EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 et seq.). The Galt GPU EIR analyzed full implementation of the Galt GPU and identified measures to mitigate the significant adverse impacts associated with the General Plan.

In addition, the Sacramento LAFCo approved the City of Galt Sphere of Influence (SOI) Amendment and an associated EIR in 2010. The SOI Amendment included both a detachment of lands on the western boundary of the City's previous SOI, and the addition of lands north of Twin Cities Road between the Union Pacific Railroad Mainline and Cherokee Lane to the East into the City's SOI. The project site is located within the SOI Amendment area and, thus, general development of the site has been anticipated and analyzed in the SOI Amendment EIR. As such, the analysis presented in this IS/MND incorporates the analysis and information from both the General Plan EIR and SOI Amendment EIR where applicable.

Several technical reports were prepared for the proposed project, including a Technical Biological Report prepared by Live Oak Associates, Inc. Saxelby Acoustics prepared an Environmental Noise Assessment for the proposed project. In addition to the foregoing reports, a Traffic Impact Study (TIS) was prepared for the proposed project by GHD, Inc. All of the technical reports used for the project analysis are available as appendices to this IS/MND.

F. PROJECT DESCRIPTION

The following provides a description of the project site's current location and setting, as well as the proposed project components and the discretionary actions required for the project.

Project Location and Setting

The project site consists of 58 acres located on the north side of Twin Cities Road, between Waldo Road and Hauschildt Road, at the terminus of Marengo Road, in an unincorporated portion of Sacramento County (see Figure 1 and Figure 2). The site is identified as Assessor's Parcel Number (APN) 148-1100-006. The site is located outside of the City of Galt city limits but is within the City's SOI.

Currently, the project site is vacant and undeveloped. The land has primarily been used for grazing and is regularly disked. A total of 3.02 acres of aquatic resources exist within the central and northern portions of the site. The aquatic resources consist of 1.79 acres of seasonal wetlands, 0.49-acre of marsh, 0.73-acre of ditches, and 0.02-acre of pond.

Figure 1
Regional Project Location

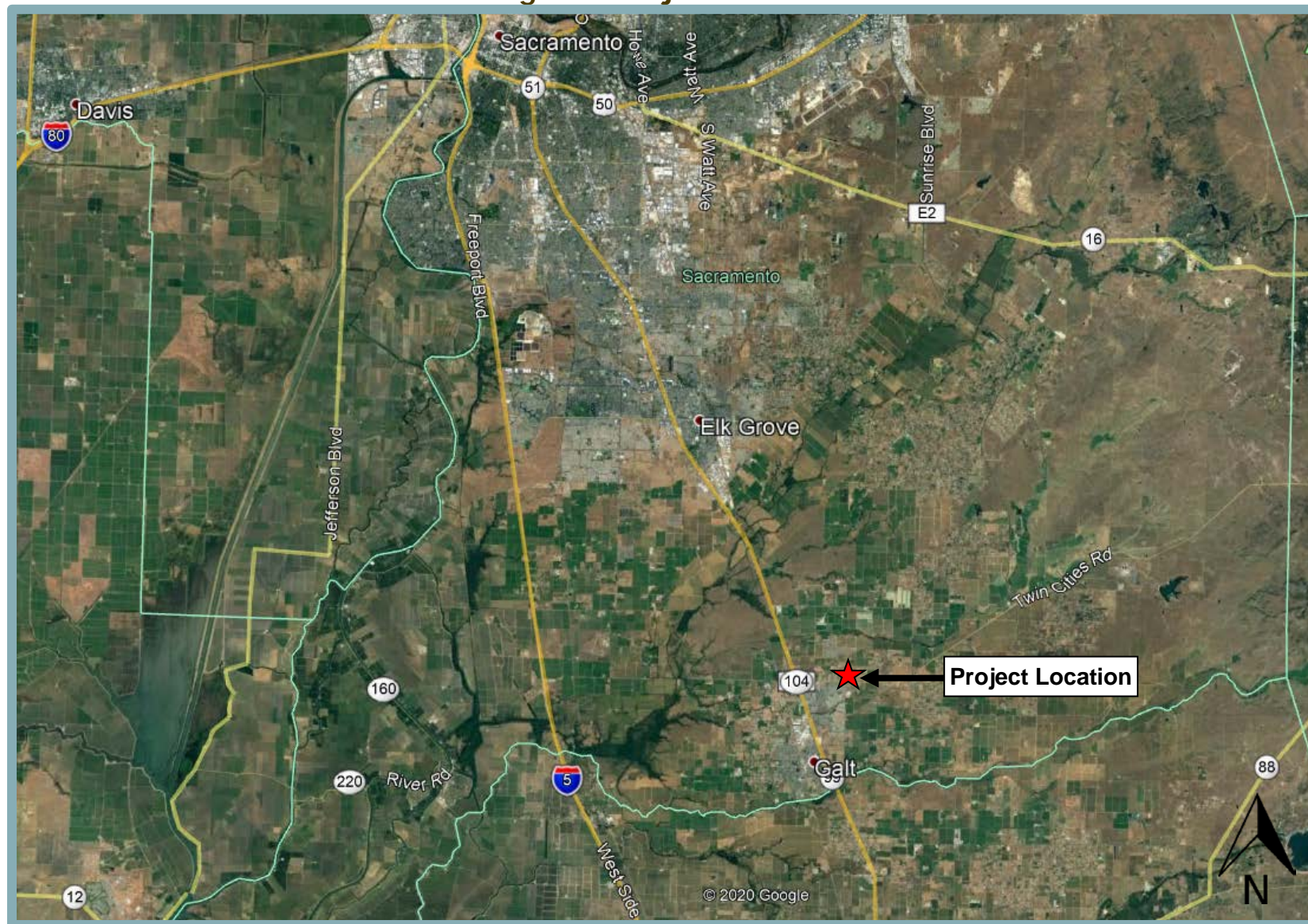
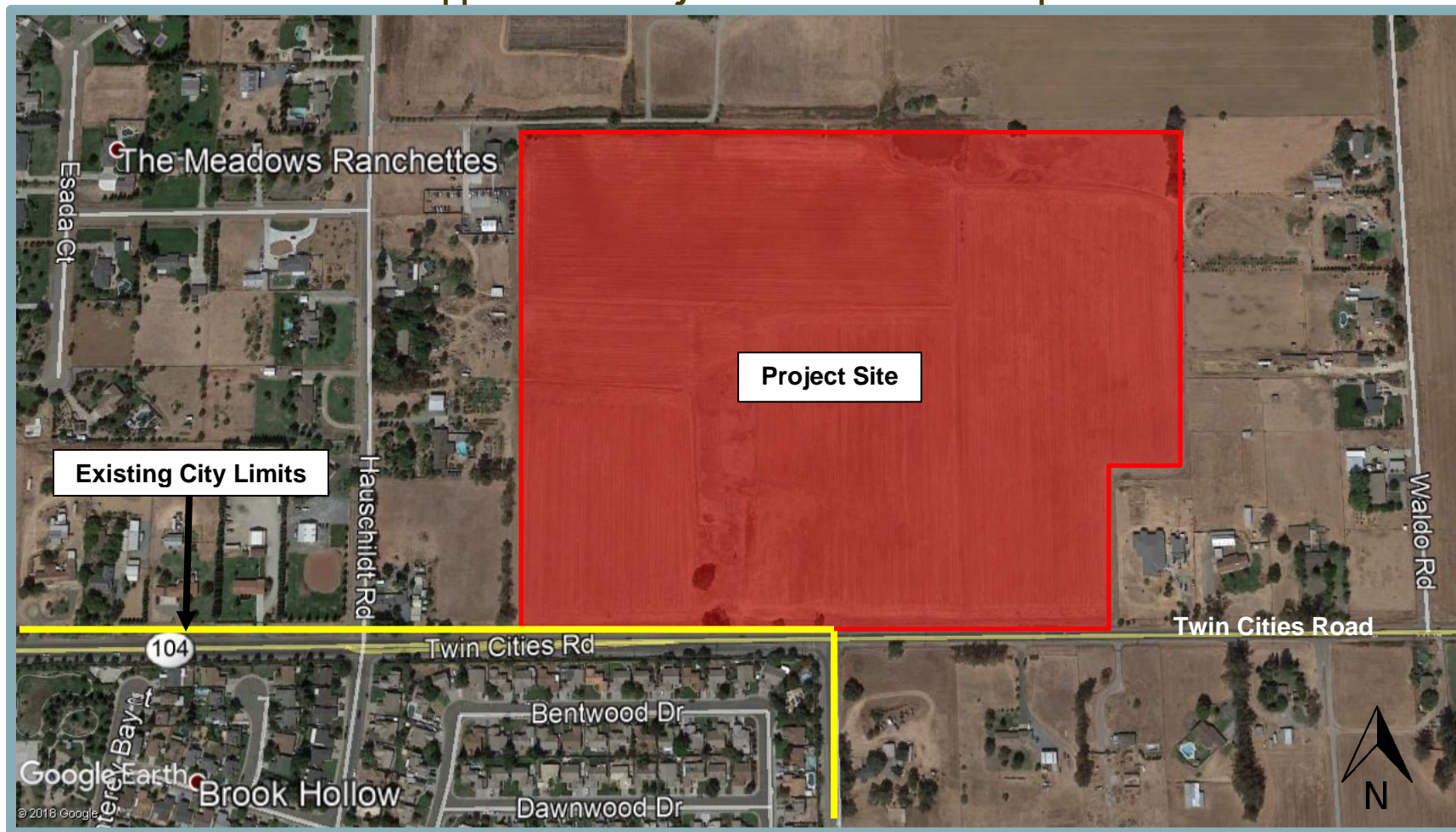


Figure 2
Approximate Project Site Boundaries Map



Although the site is not located within the City of Galt boundaries, the Galt General Plan designates the site C and RR. The site is zoned by Sacramento County as Agricultural/Residential (AR-5). Surrounding land uses include low-density residential to the east and west, agricultural-residential to the north, and single-family residential to the south, across Twin Cities Road.

Project Components

The proposed project would include annexation of the project site and development of a 108-unit single-family residential subdivision with a private circulation system, landscape areas, a trail, a 2.2-acre private park, 7.9 acres of open space, and associated improvements. The project would require approval of the requested annexation, a General Plan Amendment, a Rezone/Prezone, and a Small Lot and a Large Lot Vesting Tentative Map.

The proposed annexation, General Plan Amendment, Rezone/Prezone, and Vesting Tentative Maps are described separately in further detail below.

Annexation

As stated above, the proposed project would include annexation of the 58-acre project site into the City of Galt. Annexation of the site to the City of Galt is a formal municipal reorganization action that requires approval by the Sacramento LAFCo. For this annexation to occur, first, the City would approve an annexation resolution for the project, which would subsequently be submitted to the Sacramento LAFCo for approval as a responsible agency. A Property Tax Exchange Agreement must be executed between the County (including any affected special districts) and the City prior to consideration of the Reorganization request by LAFCo.

The annexation would formally transfer all local governmental powers and municipal services pertaining to the project site from the County of Sacramento to the City of Galt. Annexation would require detachment of the project site from the Galt Irrigation District and Sloughhouse Resource Conservation District. Detachment of the project site from the Galt Irrigation District and Sloughhouse Resource Conservation District would also require approval from the Sacramento LAFCo. Upon annexation, the City would be responsible for providing water service, sewer service, police protection, fire protection, library and general government services, along with maintaining water and sewer mains, the on-site storm drainage system, and local parks and recreation resources.

General Plan Amendment

A General Plan Amendment would be required to change the existing City land use designations of the site of RR and C to LDR, OS, and PQP. Per the City's General Plan, the LDR land use designation allows a density range of 0.0 to 6.0 dwelling units per acre (du/acre). The redesignation would allow for development of single-family residences at the proposed density, as well as landscaping and open space.

Rezone/Prezone

As part of the annexation action, pre-zoning would be required for the project site. The project site is currently zoned AR-5 by the County of Sacramento. The project would include rezoning/prezoning the site to R1C-PD, OS, and PQP to be consistent with the proposed General Plan land use designations discussed above. The R1C-PD zoning designation is intended for areas appropriate for single-family detached homes and secondary residential units. The zoning district is characterized by small residential lots designed to promote the development of single-family dwellings at higher suburban density with cohesive neighborhoods and easy access to urban facilities. The proposed project would include minimum lot size of approximately 6,500 sf.

The R1C-PD designation allows for approximately 40 lots within the project site to be slightly less than the R1C standard of 65 feet in width, while still meeting the 6,500-sf minimum lot size criteria. The OS-zoned portion of the site would be comprised of the proposed wetland area and detention basin, while the PQP-zoned portion of the site would be intended for park use.

Tentative Subdivision Maps

Two Tentative Subdivision Maps have been proposed in order to divide the site into the necessary lot sizes. The Large Lot Map would create large lots consisting of one or more development phases that could be used to secure financing for site development and infrastructure improvements or sold to merchant builders.

The Large Lot Tentative Subdivision Map includes a total of seven parcels for the following uses:

- Parcels 1, 2, 3, and 4: Low-Density Residential;
- Parcel 5: Park;
- Parcel 6: Open Space/Basin; and
- Parcel 7: Open Space/Wetland.

The Small Lot Tentative Subdivision Map would include individual residential lots, rights-of-way for the streets, utilities and energy infrastructure, and common open space areas (see Figure 3). The infrastructure required to serve the development, including stormwater, wastewater, water, electric, gas, and telephone services, is reflected on the Small Lot Tentative Subdivision Map.

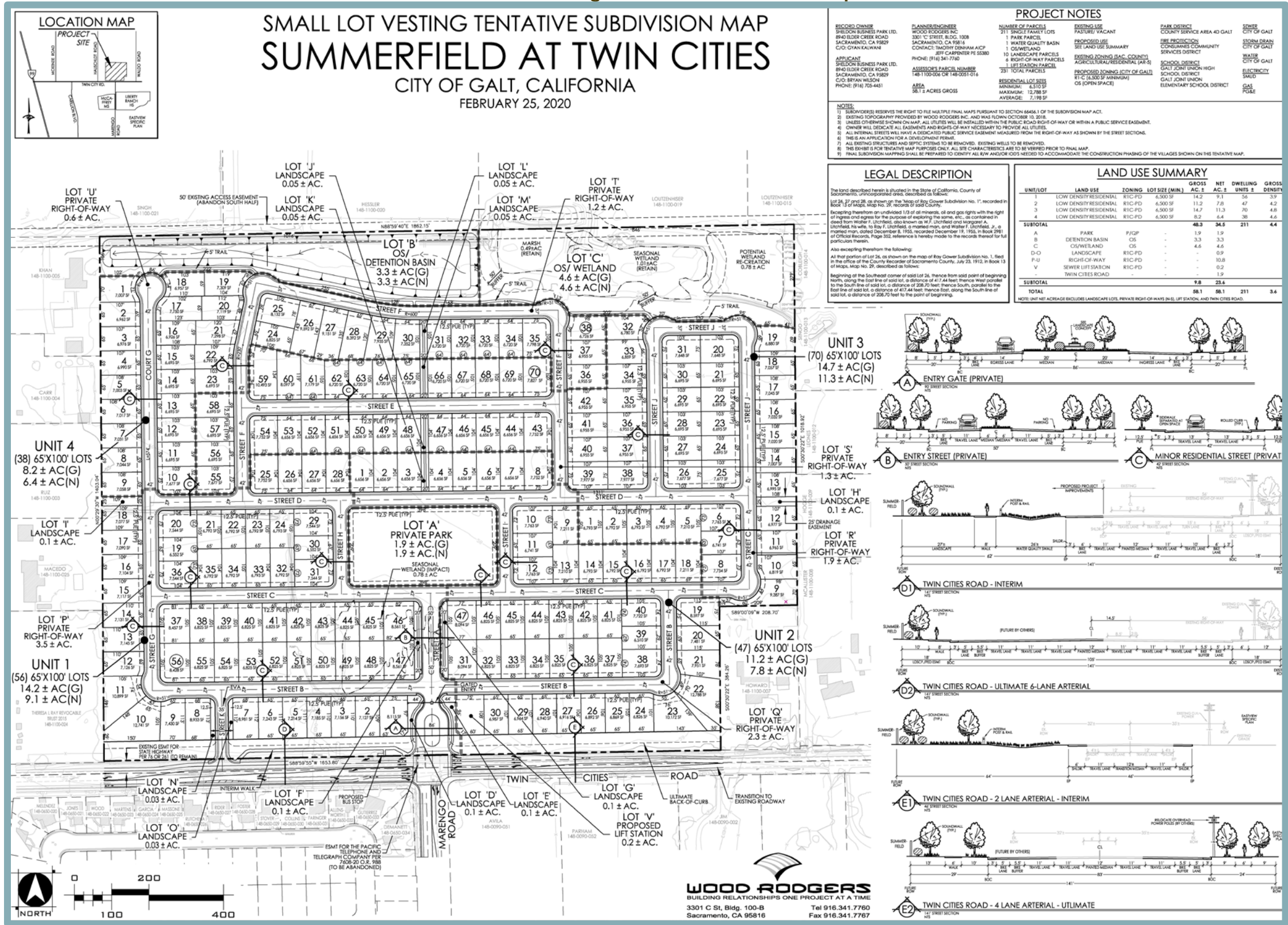
The single-family residential lots would range from 6,510 sf to 12,788 sf, with an average lot size of 7,216 sf. Each unit would have private driveways with access from new private drive aisles, as well as a front, side, and rear private yard. Landscaping lots would be provided along the project site frontage on Twin Cities Road and throughout the site. The following sections discuss the details of the proposed access and circulation, landscaping, park, and utilities.

Access and Circulation

Vehicle access to the project site would be provided by a driveway from Twin Cities Road. The driveway would have an ingress and egress lane, separated by a median. The entrance to the project site would be protected by a private access gate. Private streets would be constructed to internally circulate the project site and provide access to all lots. The internal streets would be designated sufficient to adequately accommodate two-way traffic and emergency vehicles. Additionally, a roadway named "Street K" would be for emergency vehicles only, and is located approximately 540 feet west of the main access, on Twin Cities Road.

Pedestrian access would be provided by two access points. One access point would be a pedestrian gate located directly east of the vehicle entrance point, and the other access point would be a pedestrian-only access gate near the southeast corner of the project site. An eight-foot-wide sidewalk would be constructed on each side of the internal private streets for pedestrian circulation throughout the development. Additionally, a six-foot-wide bike lane is proposed on the north side of Twin Cities Road. A bus turnout is proposed to the west of the site's vehicle access point.

Figure 3
Small Lot Vesting Tentative Subdivision Map



Landscaping, Park, and Fencing

Figure 4 and Figure 5 provide an overview of the proposed landscaping plan, park, and fencing plan. As shown in the figures, grass and shrubs would be planted along the entire frontage of the site on Twin Cities Road. The vehicle entry point would be designed with several plants and trees, as well as a median with a fountain and accent flowers. The internal streets would be planted with trees and shrubs in order to provide shade, as well as for aesthetic purposes. The northern border of the project site would be developed with an open space drainage basin. The basin would be covered in a hydroseed base and surrounded by trees and shrubs. The northern portion of the site also contains a wetland area, which would be maintained in the current condition and planted with surrounding shrubs and trees.

The proposed park in the center of the project site would consist of 1.9 acres, covered primarily in grass, and designed to be used as a soccer field. The portion of the park not used as a soccer field would contain benches and tables for use by future residents. The entire park area would be surrounded with trees and shrubs.

New tube steel fencing with a masonry base would be constructed along the east and west perimeters of the project site. Along the frontage of the site, and bordering the first row of houses, a sound wall would be constructed of brick or masonry. Along the northern border of the site, separating the open space and bioretention basin from the proposed residences, a post and cable fence would be constructed. Finally, each lot within the site would be separated from the adjacent lot by a good neighbor fence.

Utilities

The proposed project would include construction of sewer and water infrastructure necessary to connect to the existing City infrastructure in Twin Cities Road. The proposed utilities plan is shown in Figure 6 below. As shown in the figure, the project would include construction of new eight-inch water lines within each private street and connecting to an existing 12-inch water line within Twin Cities Road. A new eight-inch sanitary sewer line would be located beneath the private streets, and would connect to a lift station on the west side of the site. From the lift station, wastewater would be directed to an existing manhole within Twin Cities Road through a four-inch sewer force main.

Stormwater runoff from the project site would be directed to the stormwater basin located north of the proposed residences through a series of 18-inch and 15-inch storm drains within the private streets (see Figure 7). Stormwater would be detained and treated within the basin located on the project site. Treated runoff from the stormwater detention basin would be routed off-site through a series of 18-inch storm drains before being discharged into the City's stormwater system within Twin Cities Road.

Required City of Galt Approvals

The proposed project would require the following approvals from the City of Galt:

- Approval of this Initial Study/Mitigated Negative Declaration;
- Adoption of a Mitigation Monitoring and Reporting Plan (MMRP);
- Annexation into the City of Galt;
- General Plan Amendment (land use designations);
- Rezone/Pre-Zone;
- Approval of a Large Lot Vesting Tentative Map; and
- Approval of a Small Lot Vesting Tentative Map.

Figure 4
Landscape Plan



Figure 5
Fencing Plan

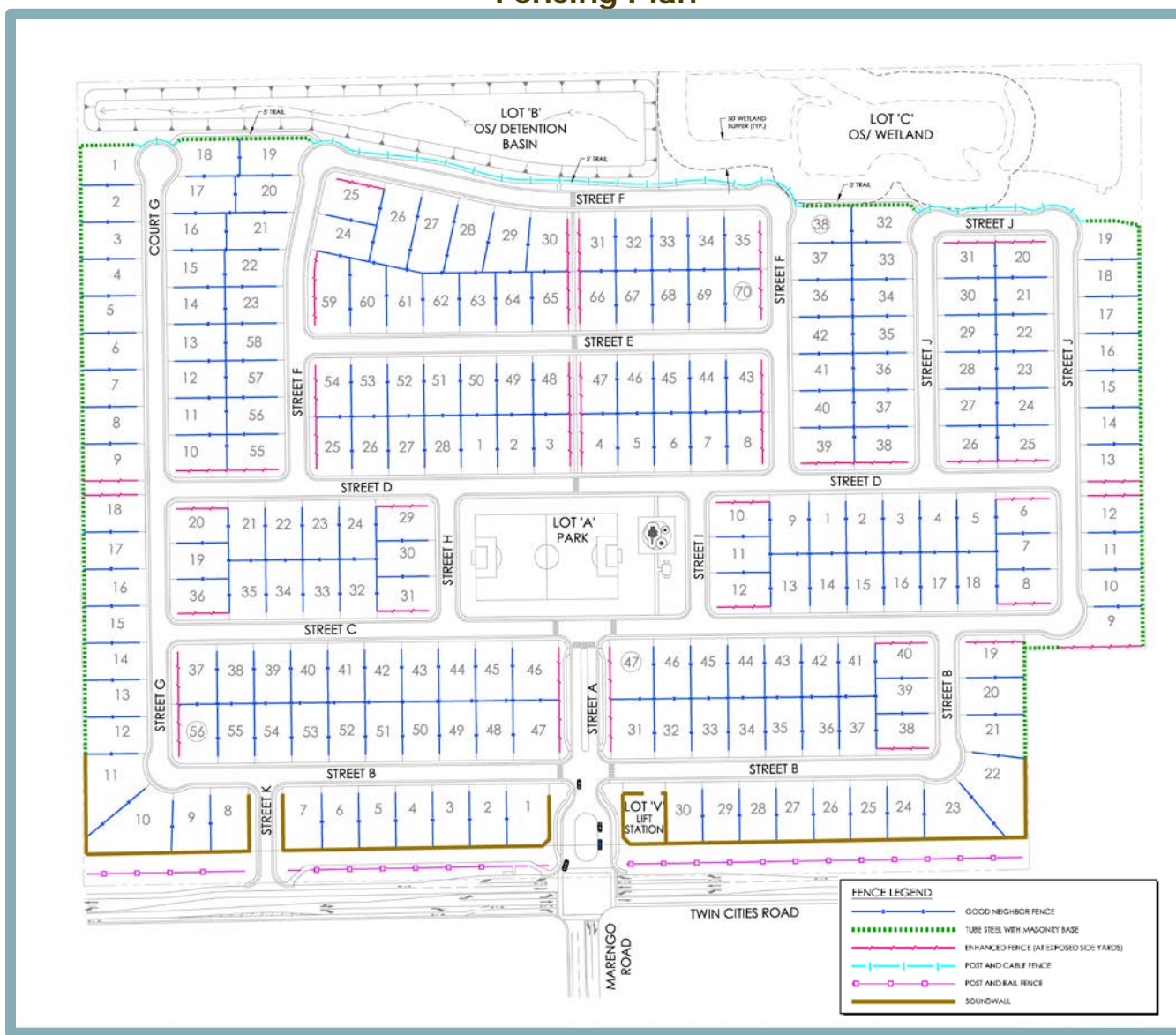


Figure 6
Proposed Sewer and Water Plan

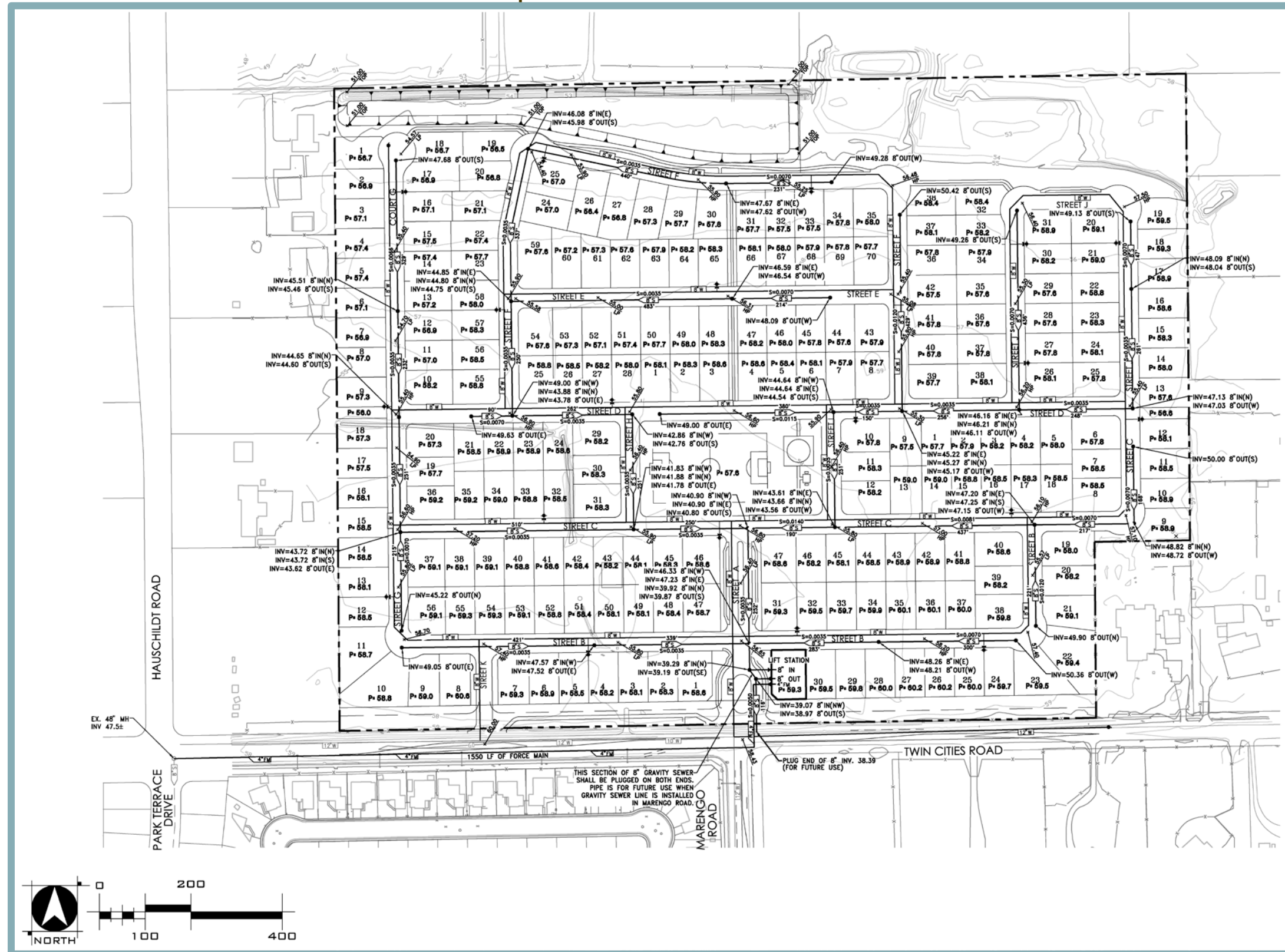
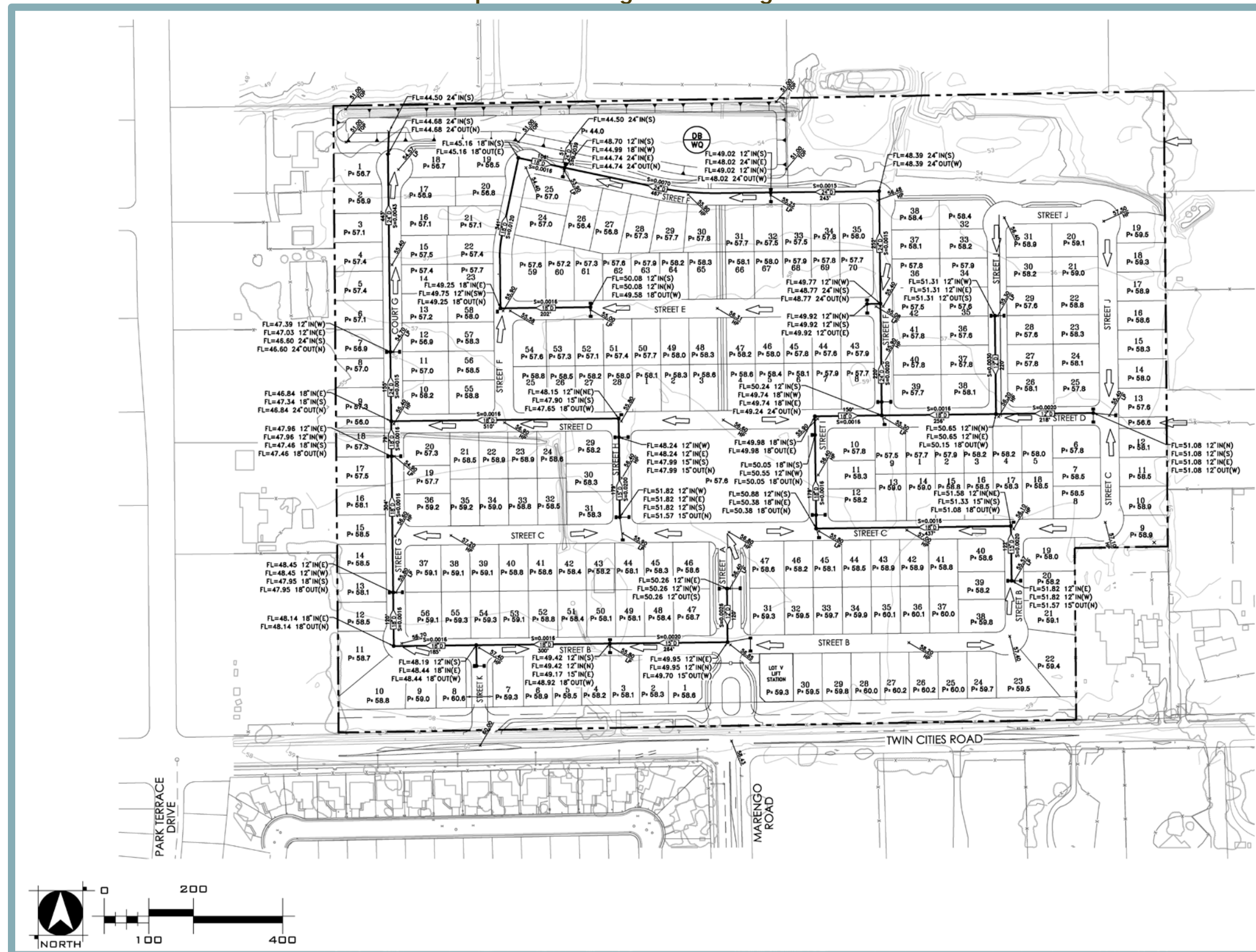


Figure 7
Proposed Grading and Drainage Plan



Required Approvals from Other Agencies

As a responsible agency, the Sacramento LAFCo would be required to approve a reorganization which includes the requested annexation into the City of Galt and detachment from the Galt Irrigation District and Sloughhouse Resources Conservation District.

G. ENVIRONMENTAL CHECKLIST

The following checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

I. AESTHETICS.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. Examples of typical scenic vistas include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. The visual landscape of the surrounding area is characterized by low-density residential uses to the east and west, agricultural-residential land to the north, and single-family residences to the south, across Twin Cities Road. The Galt General Plan does not designate any scenic vistas within the City's Planning Area. Furthermore, mountain ranges, ridgelines, or bodies of water are not located in the vicinity of the project site and would not be affected by development of the site. Therefore, the proposed project would not substantially affect a scenic vista, and the project would have a ***less-than-significant*** impact.
- b. According to the California Scenic Highway Mapping System, the project site is not located within the vicinity of an officially designated State Scenic Highway. In addition, the General Plan does not designate any scenic vistas within the City's Planning Area. Therefore, the proposed project would not substantially damage scenic resources within a state scenic highway, and the project would have ***no impact***.
- c. The project site is currently vacant and covered in disked grasses and ruderal vegetation. The site is bordered by rural residential uses and a single-family residential development to the southwest. It should be noted that the City has anticipated development of commercial uses on the portion of the site closest to Twin Cities Road, while the area further north was anticipated for rural residential uses. The proposed project would develop the site with single-family residential uses only. The character of the site would change from an undeveloped, agricultural area to a well-designed and landscaped site.

The frontage of the site would be designed with natural materials and several types of trees and shrubs. The design would improve the existing vacant lot with well-maintained landscaping. The residences would be a maximum height of 30 feet, which is consistent with the City's Municipal Code for the R1C-PD zone.

According to the City's General Plan, routes that provide views of the City's scenic qualities, such as agricultural land, could include Christensen Road, Marengo Road, and Twin Cities Road east of the City of Galt city limits. It is also important to note that the

aforementioned roadways are not designated as scenic roadways in any City or County planning documents. With implementation of the proposed project, views along Twin Cities Road would be modified from vacant land to residential development. However, the proposed project includes community design elements which are generally consistent with the City's General Plan policies related to City image and neighborhood design. For example, Policy CC-1.4 of the General Plan requires new neighborhoods to have a unique sense of place that sets them apart from existing neighborhoods. Through the design vernacular of landscape and building architecture, streetscapes, entry and edge features, yards, and private and public open spaces, the project would provide both community-level and neighborhood identities.

Construction of the proposed project would change the site's existing visual character from a primarily undeveloped area, to a residential subdivision with 211 proposed single-family residences, 1.9 acres of park, and 7.9 acres of open space. Development of the project site or commercial and rural residential development was previously analyzed within the City's General Plan EIR. Although the proposed project would include amendments to the General Plan, general development of the project site has been previously anticipated and analyzed in the General Plan EIR.

Furthermore, pursuant to Section 18.68.100 of the Galt Municipal Code, future development of homes on the project site would be subject to Design Review by the City of Galt. The purpose of Design Review is to establish procedures and standards to promote excellence in site planning and building design, to encourage the harmonious appearance of buildings and sites, to ensure that new and modified uses will be compatible with existing and potential development of the surrounding area, to ensure that projects comply with the design standards and intent of specific plans, and to produce and environment of stable and desirable character.

Although implementation of the proposed project would result in a change in visual character from existing conditions, development of the proposed project would be consistent with the residential development to the southwest. Furthermore, the project site was anticipated for development and would be subject to the City of Galt's Design Review process. As such, the proposed project would not result in a degradation of the existing visual character or quality of the site or the surroundings, and a ***less-than-significant*** impact would occur.

- d. The project site is currently vacant without any sources of light or glare. The change from a vacant area to a development containing residential uses would generate new sources of light. In addition, new sources of potential glare, such as windows or other potentially reflective surfaces or materials, could be introduced by development of new structures. The introduction of new sources of light and glare due to buildout of the project site would be evident to the surrounding properties.

However, the proposed project would be required to implement all relevant goals and policies of the City's General Plan. Applicable General Plan goals and policies designed to minimize impacts resulting from new sources of substantial light or glare include, but are not limited to, the following:

- Policy CC-1.11: Outdoor Lighting. The City shall ensure that future development includes provisions for the design of outdoor light fixtures to be directed/shielded

downward and screened to avoid nighttime spillover effects on adjacent land uses and nighttime sky conditions.

- Policy CC-1.12: Reflective Materials. The City shall consider a range of building materials to ensure that future building design reduces the impacts of daytime glare.

Despite the required compliance of development within the project site with the foregoing General Plan policies, considering the size of the area proposed for development, the proposed project would increase the amount of light and glare on-site from currently unlit conditions, which could be visible from nearby sensitive visual receptors. Therefore, because the project would introduce land uses and structures that could result in the creation of substantial new sources of light and glare affecting nighttime views in the area, the impact is considered **potentially significant**.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

I-1. Prior to the approval of Improvement Plans and issuance of building permits for any development on the project site, the project applicant(s) shall submit a lighting plan for the project to the Community Development Department for review and approval. The lighting plan shall include, but shall not be limited to, the following provisions:

- *Shield or screen lighting fixtures to direct the light downward and prevent light spill on adjacent properties;*
- *Place and shield or screen flood and area lighting needed for construction activities and/or security so as not to disturb adjacent residential areas and passing motorists;*
- *For public lighting in residential neighborhoods, prohibit the use of light fixtures that are of unusually high intensity or brightness (e.g., harsh mercury vapor, low-pressure sodium, or fluorescent bulbs) or that blink or flash;*
- *Use appropriate building materials (such as low-glare glass, low-glare building glaze or finish, neutral, earth-toned colored paint and roofing materials), shielded or screened lighting, and appropriate signage (in the commercial land use area) to prevent light and glare from adversely affecting motorists on nearby roadways.*

II. AGRICULTURE AND FOREST RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a.e. Currently, the project site is vacant and covered in grassland. The site is known to have been used as grazing land and other agricultural purposes in the past; however, the site is not currently used for such purposes. According to the California Department of Conservation, the entire project site consists of Farmland of Local Importance.¹ As such, the development of the site with residential uses would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Furthermore, the Galt General Plan does not identify farmland resources within the project area, and the site is not designated for farmland uses by the Galt General Plan. However, due to the existing California Department of Conservation designations, implementation of the proposed project would convert land designated as Farmland of Local Importance to non-agricultural uses. Given that the project site has been anticipated for commercial and residential development by the General Plan, the conversion of Farmland of Local Importance on the site to non-agricultural uses has been anticipated. Furthermore, while the project site has been used as grazing land and for other agricultural uses in the past, the site is not currently used for agricultural purposes.

Sacramento LAFCo is required to make findings regarding five tests of “prime agricultural land” as defined by Government Code §56064, which is different than CEQA. LAFCo has specific qualifications to help define prime agricultural lands. Prime agricultural land means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the qualifications outlined below. Table 1 compares the characteristics of the proposed project to the six qualifications outlined by LAFCo.

¹ California Department of Conservation. *DOC Maps: Agriculture*. Available at: <https://maps.conservancy.ca.gov/agriculture/#dataviewer>. Accessed January 2020.

Table 1 Sacramento LAFCo "Prime Agricultural Land" Comparison	
Criteria	Discussion
(a) Land that qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classification.	All of the on-site soils are Class III. Class III soils have severe limitations that restrict the choice of plants or that require special or very careful conservation practices. As such, the on-site soils do not meet criteria (a).
(b) Land that qualifies for rating 80 through 100 Storie Index Rating.	The on-site soils have a Storie Index Rating of Grade 4 (21 to 40). Soils with a Storie Index Rating ranging from 21 to 40 are severely limited and require special management. As such, the on-site soils do not meet criteria (b).
(c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Handbook on Range and Related Grazing Lands, July 1967, developed pursuant to Public Law 46, December 1935.	The project site does not support livestock used for the production of food or fiber or have a carrying capacity of one animal unit per acre. As such, the land does not meet criteria (c).
(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual bases from the production of unprocessed agricultural plant production not less than four hundred dollars (\$400) per acre.	Fruit or nut-bearing trees, vines, bushes, or crops have not been grown on the property within the past five years. As such, the land does not meet criteria (d).
(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars (\$400) per acre for three of the previous five calendar years.	The project site is currently vacant and regularly disked. Therefore, the site does not include the production of unprocessed agricultural plant products. As such, the land does not meet criteria (e).
(f) Land which is used to maintain livestock for commercial purposes.	The project site is not being used to maintain livestock for commercial purposes. As such, the land does not meet criteria (f).
Source: Sacramento Local Agency Formation Commission. Policy, Standards and Procedures Manual. September 2007.	

In summary, approval of the proposed annexation by the Sacramento LAFCo requires the statutory goals related to the development of logical local boundaries, the preservation of prime agricultural land and open space, and Williamson Act contracts to be met. As discussed above, the project site is not located on a site that contains Prime Farmland and the proposed project would not conflict with the agricultural preservation goals and policies of LAFCo. Furthermore, considering the project site does not contain lands under a Williamson Act contract, the Sacramento LAFCo goals and provisions related to

Williamson Act Territory would not apply. Therefore, the proposed project would result in a less-than-significant impact related to compliance with LAFCo's policies associated with conversion of agricultural lands to urban uses.

Conclusion

Based on the above, because the site is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, the project site would have a ***less-than-significant*** impact related to the conversion of such.

- b. The project site is currently zoned AR-5 by the County of Sacramento. The County's Zoning Code allows for use of the site for animals or crops for educational, recreational, or income purposes. The intention of the AR-5 zoning is to establish living areas within the County where development is limited to low density concentrations. However, given recent development in the area, the City has determined that the site is best suited for higher density residential development. In addition, the project site is not currently used for agricultural purposes. The project site would be rezoned/pre-zoned to be R1C-PD, OS, and PQP, consistent with the proposed General Plan land use designations for the site of LDR, OS, and PQP.

Although the project site is currently located within Sacramento County, the site is within the City of Galt SOI and is designated for urban development in the City's General Plan. Additionally, the project site is not under a Williamson Act contract. Based on the above, the proposed project would result in a ***less-than-significant*** impact related to a conflict with existing zoning for agricultural use, or a Williamson Act contract.

- c,d. The project site is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and the project would not otherwise result in the loss of forest land or conversion of forest land to non-forest use. Thus, ***no impact*** would occur.

III. AIR QUALITY.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a,b. The City of Galt is located within the boundaries of the Sacramento Valley Air Basin (SVAB) and under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Federal and State ambient air quality standards (AAQS) have been established for six common air pollutants, known as criteria pollutants, due to the potential for pollutants to be detrimental to human health and the environment. The criteria pollutants include particulate matter (PM), ground-level ozone, carbon monoxide (CO), sulfur oxides, nitrogen oxides (NOX), and lead. At the federal level, Sacramento County is designated as severe nonattainment for the 8-hour ozone AAQS, nonattainment for the 24-hour PM_{2.5} AAQS, and attainment or unclassified for all other criteria pollutant AAQS. At the State level, the area is designated as a serious nonattainment area for the 1-hour ozone AAQS, nonattainment for the 8-hour ozone AAQS, nonattainment for the PM₁₀ and PM_{2.5} AAQS, and attainment or unclassified for all other State AAQS.

Due to the nonattainment designations, SMAQMD, along with the other air districts in the SVAB region, is required to develop plans to attain the federal and State AAQS for ozone and particulate matter. The attainment plans currently in effect for the SVAB are the 2013 Revisions to the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 Ozone Attainment Plan), PM_{2.5} Implementation/Maintenance Plan and Re-designation Request for Sacramento PM_{2.5} Nonattainment Area (PM_{2.5} Implementation/Maintenance Plan), and the 1991 Air Quality Attainment Plan (AQAP), including triennial reports. The air quality plans include emissions inventories to measure the sources of air pollutants, to evaluate how well different control measures have worked, and show how air pollution would be reduced. In addition, the plans include the estimated future levels of pollution to ensure that the area would meet air quality goals.

Nearly all development projects in the Sacramento region have the potential to generate air pollutants that may increase the difficulty of attaining federal and State AAQS. Therefore, evaluation of air quality impacts is required. In order to evaluate ozone and other criteria air pollutant emissions and support attainment goals for those pollutants that the area is designated nonattainment, SMAQMD has developed the Guide to Air Quality Assessment in Sacramento County (SMAQMD Guide), which includes recommended thresholds of significance, including mass emission thresholds for construction-related and operational ozone precursors, as the area is under nonattainment for ozone. The SMAQMD's recommended thresholds of significance for the ozone precursors reactive organic compounds (ROG) and NO_x, which are expressed in pounds per day (lbs/day) and tons per year (tons/yr), are presented in Table 2.

Table 2 SMAQMD Thresholds of Significance		
Pollutant	Construction Thresholds	Operational Thresholds
ROG	N/A	65 lbs/day
NO _x	85 lbs/day	65 lbs/day
PM ₁₀	80 lbs/day 14.6 tons/yr	80 lbs/day 14.6 tons/yr
PM _{2.5}	82 lbs/day 15 tons/yr	82 lbs/day 15 tons/yr
Source: SMAQMD, CEQA Guidelines, May 2017.		

The project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 - a Statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including greenhouse gas (GHG) emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, vehicle mix, trip length, average speed, etc. Where project-specific information is available, such information should be applied in the model. Accordingly, the project's modeling assumed the following:

- Land uses would include:
 - 212 single-family residences; and
 - 1.9 acres of parkland.
- Construction would commence in March of 2021;
- Construction would occur over an approximately 3.5-year period;
- A total of 54 acres would be disturbed during grading activities;
- The proposed project would generate 2,076 total daily trips;
- The proposed project would improve connectivity of the local pedestrian network; and
- Only natural gas hearths would be installed.

The project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the project's contribution to cumulative air quality conditions is provided below as well. It should be noted that project modeling was conducted based on a previous iteration of the project, which included 212 units rather than 211 units. Thus, the analysis presented below would be considered conservative. All CalEEMod results are included in Appendix A of this IS/MND.

Construction Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 3. As shown in the table, the project's construction emissions would be below the applicable SMAQMD thresholds of significance for NO_x, ROG, PM₁₀, and PM_{2.5}. In addition, development within the project site would be required to comply with the SMAQMD Basic Construction Emission Control Practices, which would likely further reduce emissions beyond the estimates shown in the table below. Thus, in accordance with the SMAQMD Guide, the proposed project would be considered to have a less-than-significant impact on air quality during construction.

Table 3 Maximum Unmitigated Construction Emissions			
Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	9.22 lbs/day	N/A	NO
NO _x	46.45 lbs/day	85 lbs/day	NO
PM ₁₀	20.25 lbs/day 0.54 tons/yr	80 lbs/day 14.6 tons/yr	NO
PM _{2.5}	11.85 lbs/day 0.32 tons/yr	82 lbs/day 15 tons/yr	NO
Source: CalEEMod, December 2019 (see Appendix A).			

Operational Emissions

According to the CalEEMod results, the proposed project would result in maximum unmitigated operational criteria air pollutant emissions, presented in Table 4. As shown in the table, the project's operational emissions would be below the applicable thresholds of significance. As such, the proposed project would not result in a significant air quality impact during operations.

Table 4 Maximum Unmitigated Operational Emissions			
Pollutant	Proposed Project Emissions	Threshold of Significance	Exceeds Threshold?
ROG	13.52 lbs/day	65 lbs/day	NO
NO _x	12.59 lbs/day	65lbs/day	NO
PM ₁₀	11.30 lbs/day 1.98 tons/yr	80 lbs/day 14.6 tons/yr	NO
PM _{2.5}	3.19 lbs/day 0.56 tons/yr	82 lbs/day 15 tons/yr	NO
Source: CalEEMod, December 2019 (see Appendix A).			

Air Quality Management Plan

In 2010, the LAFCo prepared an EIR for an Amendment to the City of Galt's SOI. As required per the SOI EIR, LAFCo requires an Air Quality Management Plan (AQMP) be prepared prior to annexation of land into the City of Galt in the area north of Twin Cities Road, including the annexation proposed as part of the project. The AQMP is intended to provide air quality impact mitigation measures that would be applied to the project necessary for the project to comply with the regional air quality plan. The AQMP is attached as Appendix B to this IS/MND.

As discussed in further depth within the AQMP, the SMAQMD's *Recommended Guidance for Land Use Emission Reductions* requires that projects not considered in the SIP must include a plan to reduce the operational ozone precursor emissions (ROG and NO_x) by 35 percent when compared to the potential emissions that could occur.² According to SMAQMD, a project's NO_x and ROG emissions reduction target should be based on mobile emissions only; however, reductions of ozone precursors from non-mobile emission reduction measures (e.g., natural gas or energy reductions) can still be accounted for and applied. It should be noted that since the adoption of the 35 percent

² Sacramento Metropolitan Air Quality Management District. *Recommended Guidance for Land Use Emission Reductions Version 4 (for Operational Emissions)*. November 30, 2017.

reduction requirement, certain construction and operation activities have become less emission-intensive due to current code requirements. For example, vehicle fleets, such as those associated with construction activities, are now subject to more strict emissions standards.

In order to establish reduction targets, CalEEMod was used to model the unmitigated baseline operations of the proposed project. Based on 35 percent of the modeled mobile emissions, the project would be required to reduce ROG emissions by 0.168 tons/year and NO_x emissions by 0.711 tons/year. The AQMP requires implementation of the following measures in order to achieve the emissions reduction goal:

- Limit natural gas use to cooking appliances only (no natural gas water or space heating);
- Include anti-idling and anti-congestion strategies on roadways; and
- Purchase and retirement of criteria pollutant emission credits from sources within a 50-mile radius of the project site, subject to approval by SMAQMD.

In addition, both the AQMP and Mitigation Measure VIII-1 included in this IS/MND require the inclusion of traffic calming measures on 50 percent of all local roadways. Implementation of the aforementioned measures would ensure that the proposed project would achieve the 35 percent ozone precursor emissions goal as required by the SOI EIR. A detailed discussion of the emissions reduction requirements and the estimated emissions reductions provided by the mitigation measures is provided in the complete text of the AQMP.

Cumulative Emissions

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, SMAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 2 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SVAB's existing air quality conditions. In addition, the implementation of the AQMP would further reduce the project's operational emissions beyond what was shown in Table 4. Because the proposed project would result in emissions substantially below the applicable thresholds of significance established by SMAQMD for criteria pollutants, the project would not result in a cumulatively considerable contribution to the region's existing air quality conditions.

Conclusion

As discussed above, the proposed project would be below the applicable thresholds of significance developed by SMAQMD for both construction and operations. Thus, the proposed project would not be expected to result in construction or operational emissions in excess of the applicable thresholds of significance. Because the proposed project would result in emissions below the applicable thresholds of significance during both construction and operations, the proposed project would not result in a cumulatively considerable net

increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state AAQS. However, as required by the SOI EIR, an AQMP must be prepared and implemented to reduce ozone precursor emissions by 35 percent. If the AQMP were not implemented, the project would conflict with or obstruct implementation of the applicable air quality plan and a ***potentially significant*** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a less-than-significant level.

- III-1. Prior to the issuance of building permits, the project applicant/developer shall incorporate traffic calming measures into project Improvement Plans, on 50 percent of project roadways and intersections, for review and approval by the City Engineer. Traffic calming features may include, but are not limited to, the following features: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, and chicanes/chokers.*
- III-2. Prior to the issuance of building permits, the project applicant/developer shall demonstrate, to the satisfaction of the City, the incorporation of all-electric (no natural gas) appliances into project Improvement Plans for review and approval by the City Engineer. Natural gas cooking appliances shall be allowed.*
- III-3. Prior to the issuance of building permits, the project applicant/developer shall incorporate anti-idling/congestion strategies into project Improvement Plans to the maximum extent feasible, for review and approval by the City Engineer. Anti-idling/congestion strategies include the following features: the installation of roundabouts, removal of four-way stop signs, diverging diamond intersections, permissive-protective left-turns, or other approved strategies to reduce vehicle idling or remove impediments to the free flow of motor vehicles.*
- III-4. At the time of approval or issuance of Improvement Plans, the project applicant shall purchase Emission Reduction Credits (ERCs) sufficient to reduce ROG emissions by 0.1578 tons/year and NO_x emissions by 0.5688 tons/year, for the review and approval of the SMAQMD and the City of Galt Community Development Department. The ERCs shall be purchased from certified owners within 50 miles of the project site.*
- c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and

medical clinics. The nearest existing sensitive receptors would be the single-family residence located approximately 45 feet west of the project site. There are also a number of single-family residences located approximately 100 feet south of the site, across Twin Cities Road.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions, as well as regional effects of emissions of criteria pollutants, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Per the SMAQMD's CEQA Guidelines, emissions of CO are generally of less concern than other criteria pollutants, as operational activities are not likely to generate substantial quantities of CO, and the SVAB has been in attainment for CO for multiple years. Consequently, the proposed project is not anticipated to result in significant impacts to air quality related to localized CO emissions.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk. The nearest existing sensitive receptors to the project site are the single-family residences located approximately 100 feet south of the project site across Twin Cities Road.

The proposed project does not include any operations that would be considered a substantial source of TACs. Accordingly, operations of the proposed project would not expose sensitive receptors to excess concentrations of TACs.

Construction-related activities have the potential to generate concentrations of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, construction would be temporary and would occur over a relatively short duration in comparison to the operational lifetime of the proposed project. While methodologies for conducting health risk assessments are associated with long-term exposure periods (e.g., over a 30-year period or longer), construction activities associated with the proposed project were estimated to occur over an approximately 3.5-year period. Only portions of the site would be disturbed at a time throughout the construction period, with operation of construction equipment occurring intermittently throughout the course of a day rather than continuously at any one location on the project site. In addition, all construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation includes emissions reducing requirements such as limitations on vehicle idling, disclosure, reporting, and labeling requirements for existing vehicles, as well as standards relating to fleet average emissions and the use of Best Available Control Technologies. Additionally,

DPM is a highly dispersive gas, and concentrations of DPM decline rapidly with distance.³ Thus, the likelihood that any one sensitive receptor would be exposed to high concentrations of DPM for any extended period of time would be low.

Criteria Pollutant Emissions

Recent rulings from the California Supreme Court (including the *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 case regarding the proposed Friant Ranch Project) have underscored the need for potential health impacts resulting from the emission of criteria pollutants during operations of proposed projects. Although analysis of project-level health risks related to the emission of CO and TACs has long been practiced under CEQA, the analysis of health impacts due to individual projects resulting from emissions of criteria pollutants is a relatively new field. In fact, the analysis of potential health impacts resulting from criteria pollutant emissions has long been focused on a regional or air basin wide level. The reason for a wide geographic focus on health impacts from criteria pollutants is that criteria pollutants act on a large, regional scale, whereas TACs and CO act on a more localized level. For instance, according to the CARB's *Air Quality and Land Use Handbook: A Community Health Perspective*, health impacts related to many common sources of TACs are experienced within the first 500 to 1,000 feet from a source of emissions.⁴ The localized nature of impacts from TACs allows for dispersion modeling of TACs to be undertaken with a detailed scope of focus and high degree of confidence. In contrast, health risks from criteria pollutants occur over entire air basins, such as the Sacramento Federal Nonattainment Area (SFNA) for ground-level ozone, which encompasses all of Sacramento and Yolo counties, and portions of Placer, El Dorado, Solano, and Sutter counties.

In many cases, the concern regarding health risks from criteria pollutants is not related to the specific pollutant itself, such as ROG or NO_x, but the potential for the pollutant to undergo reactions within the atmosphere and form secondary pollutants, such as ozone. In such cases, the secondarily formed ozone is the pollutant of concern related to health risks, rather than the pollutant ROG or NO_x itself. The formation of ozone is dependent upon various regional factors, including the presence or absence of chemicals and elements in the atmosphere, geography of the given area, the presence of solar energy, as well as meteorological and climatological conditions. In addition, while PM can be emitted directly to the atmosphere by projects, PM can also be formed secondarily by precursor emissions. Thus, the formation of PM can similarly be dependent on regional atmospheric chemistry, geography, weather, and climate. The complex reactions and conditions that lead to the formation of ozone and PM in the atmosphere can also result in the transport of pollutants over wide areas. For instance, transport of emissions from development within the San Francisco Bay Area are often cited as a leading cause of poor air quality in the SFNA. The potential for criteria pollutant emissions to be transported over wide areas means that the emissions of ozone precursor pollutants, such as ROG and NO_x, from a single project does not necessarily translate directly into a specific concentration of ozone, or a specific level of health risk, in that area.

In December of 2019, SMAQMD released the *Draft Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* (Draft Guidance) for the analysis of

³ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

⁴ California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. April 2005.

criteria emissions in areas within the District's jurisdiction.⁵ The Draft Guidance represents SMAQMD's effort to develop a methodology that provides a consistent, reliable and meaningful analysis in response to the Supreme Court's direction on correlating health impacts to a project's emissions.

The Draft Guidance was prepared by conducting regional photochemical modeling, and relies on the USEPA's Benefits Mapping and Analysis Program (BenMAP) to assess health impacts from ozone and PM_{2.5}. SMAQMD has prepared two draft tools that are intended for use in analyzing health risks from criteria pollutants. Small projects with criteria pollutant emissions close to or below SMAQMD's adopted thresholds of significance may use the Minor Project Health Screening Tool, while larger projects with emissions between two and six times greater than SMAQMD's adopted thresholds may use the Strategic Area Project Health Screening Tool.⁶ Considering the proposed project would result in emissions lower than the SMAQMD's thresholds of significance, the project would qualify for the Minor Project Health Effects Screening Tool. Based on the Minor Project Health Effects Screening Tool, the proposed project would result in 1.32 premature deaths per year due to the project's PM impacts, and would result in 0.021 premature deaths per year due to the project's ozone impacts (see Appendix C). Such numbers represent a very small increase over the background incidence of pre-mature deaths due to PM and ozone concentrations (0.00071 percent and 0.0002 percent, respectively).

As discussed above, the nature of criteria pollutants is such that the emissions from an individual project cannot be directly identified as responsible for health impacts within any specific geographic location. As a result, attributing health risks at any specific geographic location to a single proposed project is not feasible. Nonetheless, the results of the Minor Project Health Effects Screening Tool have been presented for informational purposes. Overall, because the proposed project would be relatively small compared to the regional growth and development that drives health impacts from criteria pollutants, and the anticipated air quality emissions would fall below all applicable thresholds of significance, potential health impacts related to criteria air pollutants would be less-than-significant.

Conclusion

Based on the above discussion, the proposed project would not expose any sensitive receptors to substantial concentrations of pollutants, including localized CO, TACs, or criteria air pollutants, during construction or operation. Therefore, the proposed project would result in a **less-than-significant** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

- d. Emissions such as those leading to odor have the potential to adversely affect people. Emissions of principal concern include emissions leading to odors, emission that have the potential to cause dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in sections "a" through "c" above. Therefore, the following discussion focuses on emissions of odors and dust.

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen

⁵ Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District*. December, 2019.

⁶ Sacramento Metropolitan Air Quality Management District. *Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District* [pgs 5-10]. January 31, 2020.

complaints to local governments and air districts. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative or formulaic methodologies to determine the presence of a significant odor impact do not exist. Adverse effects of odors on residential areas and other sensitive receptors warrant the closest scrutiny; but consideration should also be given to other land use types where people congregate, such as recreational facilities, worksites, and commercial areas. The potential for an odor impact is dependent on a number of variables including the nature of the odor source, distance between a receptor and an odor source, and local meteorological conditions.

Examples of land uses that have the potential to generate considerable odors include, but are not limited to, wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The proposed project would not introduce any such land uses. Furthermore, residential land uses are not typically associated with the creation of substantial objectionable odors. As a result, the proposed project operations would not create any objectionable odors that would affect a substantial number of people.

With regard to dust, the proposed project is required to comply with all applicable SMAQMD rules and regulations for construction, including, but not limited to, Rule 403 (Fugitive Dust) and Rule 404 (Particulate Matter). Furthermore, all projects are required to implement the SMAQMD's Basic Construction Emission Control Practices (BCECP). Compliance with SMAQMD rules and regulations and BCECP would help to ensure that dust is minimized during project construction.

The SMAQMD regulates objectionable odors through Rule 402 (Nuisance), which prohibits any person or source from emitting air contaminants that cause detriment, nuisance, or annoyance to a considerable number of persons or the public. Rule 402 is enforced based on complaints. If complaints are received, the SMAQMD is required to investigate the complaint, as well as determine and ensure a solution for the source of the complaint, which could include operational modifications. Thus, although not anticipated, if odor complaints are made after the proposed project is approved, the SMAQMD would ensure that such odors are addressed and any potential odor effects reduced to less than significant. Because the proposed project is not expected to create any objectionable odors that would affect a substantial number of people, a ***less-than-significant*** impact would result.

IV. BIOLOGICAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. The following discussion is based primarily on a Technical Biological Report prepared for the proposed project by Live Oak Associates, Inc. (see Appendix D).⁷

Currently, the project site is vacant and undeveloped. The site is primarily vacant and undeveloped and is regularly disked. The site has been used as grazing land and for other agricultural uses in the past; however, such uses do not currently occur on-site. A total of 3.02 acres of aquatic resources exist within the central and northern portions of the site. The aquatic resources consist of 1.79 acres of seasonal wetlands, 0.49-acre of marsh, 0.73-acre of ditches, 0.02-acre of pond. A few trees are located within the northern and southern portions of the site. Surrounding land uses include low-density residences to the east and west, agricultural-residential land to the north, and single-family residences to the south, across Twin Cities Road.

Several species of plants and animals within the State of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the State’s human population grows and the habitats the species occupy are converted to agricultural and urban uses. State and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the State. A sizable number of native plants and animals have been

⁷ Live Oak Associates. *Twin Cities, Technical Biological Report, Galt, Sacramento County, California*. October 1, 2019.

formally designated as threatened or endangered under State and federal endangered species legislation. Others have been designated as “candidates” for such listing. Still others have been designated as “species of special concern” by CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as “special-status species.” Although CDFW Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal. In addition, plant species on CNPS Lists 1 and 2 are considered special-status plant species and are protected under CEQA.

The project site is located within the boundaries of the *South Sacramento Habitat Conservation Plan* (SSHCP), which is intended to provide an effective framework to protect natural resources in south Sacramento County, including special-status species. Per the Technical Biological Report, the land cover types on the project site include Agriculture, Seasonal Wetland, Freshwater Marsh, Open Water (pond), and Low-density Development.

Live Oak Associates, Inc. conducted a search of the California Natural Diversity Database (CNDDDB) for the project site. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the project area, to determine their locations relative to the project site, and to evaluate whether the site meets the habitat requirements of such species. Based on the results of the CNDDDB search, a total of 22 special-status plant species and 31 special-status wildlife species are known to occur within the project region. In addition, a field survey of the project site was undertaken by Live Oak Associates, Inc. on July 1, 2019.

The potential for species covered by the SSHCP and other special-status species to occur on the project site is discussed in further detail below.

Special-Status Plants

Of the 22 special-status plant species known to occur within the project region, 21 do not have the potential to occur on the project site based on habitat requirements, which include coastal marshes, swamps, and vernal pools. The project site has been subject to prior disturbance and does not provide suitable habitat for such species. However, the SSHCP indicates that the project site includes modeled habitat for Sanford's arrowroot, which is covered by the SSHCP. Construction activities, such as soil removal and site grading, could adversely affect the species should the proposed project be approved.

Based on the above, construction activities associated with the proposed project could result in adverse effects to special-status plant species.

Special-Status Wildlife

Of the 31 special-status wildlife species known to occur within the project region, 14 are unlikely to occur within the proposed disturbance areas, as the species have habitat requirements that are not present within the project site (i.e., swamp, chaparral, oak woodland, etc.). The remaining 17 special-status wildlife species include the California tiger salamander, western spadefoot toads, giant gartersnake, western pond turtle, burrowing owl, white-tailed kite, ferruginous hawk, Cooper's hawk, northern harrier,

Swainson's hawk, greater sandhill crane, loggerhead shrike, Modesto song sparrow, yellow-headed blackbird, tricolored blackbird, western red bat, and American badger. Of the 16 species that could potentially occur on the project site, all are considered covered species under the SSHCP, with the exception of the Modesto song sparrow and yellow-headed blackbird.

California Tiger Salamander

California tiger salamander is known to breed in vernal pools and stock ponds of central California. Adults are also known to inhabit grassland adjacent to breeding sites. Per the Technical Biological Report, although the species was not observed on the site and evidence of the species' presence was not detected, the project site contains marsh and seasonal wetlands, which could provide breeding habitat for the California tiger salamander. In addition, the project site is within the SSHCP modeled range of the species and is mapped as aquatic habitat. Thus, the ground-disturbing activities associated with the proposed project could result in a significant impact to the California tiger salamander.

Western Spadefoot Toad

Western spadefoot toad is listed as a CDFW species of special concern. The species' habitat requirements include loose soils in which to burrow, and breeding ponds. Western spadefoots spend most of their adult life in underground burrows, and breed in temporary rain pools or seasonal wetlands. The SSHCP modeled species habitat is present within the project site. Ground disturbance associated with development on the site could reduce suitable western spadefoot habitat, and a potentially significant impact could occur.

Giant Gartersnake

Although giant gartersnakes were not observed on the project site, the large irrigation ditch and marsh in the northern portion of the site support potential habitat for the species. In addition, the project site is within the SSHCP modeled upland habitat for the species. As such, the construction of the proposed project could result in a significant impact to giant gartersnake.

Western Pond Turtle

The northwestern pond turtle is known to occur within a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams. The northern portion of the site supports an irrigation ditch and marsh that may provide aquatic habitat for the western pond turtle, although the thick vegetation within these aquatic features reduce their suitability for the species. In addition, the project site is within the SSHCP modeled upland habitat for the species. Thus, the ground-disturbing activities associated with the proposed project could result in a significant impact to the western pond turtle.

Western Burrowing Owl

The primary habitat requirement for western burrowing owls is small mammal burrows that the species uses for nesting. Typically, the species uses abandoned ground squirrel burrows, but western burrowing owls have been known to dig burrows in softer soils. In urban areas, western burrowing owls may use pipes, culverts, and piles of material as artificial burrows. Western burrowing owls breed semi-colonially from March through August.

Burrowing owls or burrows with evidence of burrowing owl occupancy were not observed during the survey. However, the project site is located within the SSHCP modeled

wintering habitat for the burrowing owl. The project site also includes suitable habitat in the form of ground squirrel burrows. Therefore, should burrowing owls be present within the site during project construction, development of the proposed project could result in a significant adverse effect to western burrowing owl.

Swainson's Hawk

A few trees within the center of the site and some eucalyptus occurring along the borders of the site support suitable nesting habitat for the Swainson's hawk, and the vacant grassland supports foraging habitat. Additionally, juvenile Swainson's hawks were observed flying over the site during the 2019 site visit. Furthermore, the project site is within a modeled high-value foraging habitat for Swainson's hawk with a nesting occurrence adjacent to the project site. Therefore, development of the site could result in a significant adverse impact to the species.

Greater Sandhill Crane

Greater sandhill crane habitat includes open grasslands, marshes, and edges of lakes, ponds and river banks. Wintering habitat includes a communal roost in shallow water. Although the 2019 survey of the site did not detect the presence of the species and nesting habitat for the species is absent from the site, the species may roost on-site and forage in the vacant grassland during the winter months and during migration times. In addition, the project site is located with the SSHCP modeled foraging and roosting habitat for the greater sandhill crane. Thus, a potentially significant impact could occur to greater sandhill crane.

Tricolored Blackbird

Tricolored blackbird is known to breed near fresh water in dense emergent vegetation, near adjacent foraging habitat. The project site may contain suitable nesting habitat for tricolored blackbird, including dense blackberry bushes and other dense vegetation. In addition, the project site is located within modeled foraging and nesting-foraging habitat for the species. Should tricolored blackbird occupy the site prior to the start of construction, the proposed project could result in a potentially significant impact to the species.

Nesting and Migratory Birds

The project site contains existing trees, shrubs, grassland, and edge habitats that could be used by nesting and migratory birds protected by the MBTA including, but not limited to, special-status birds such as Modesto song sparrow, yellow-headed blackbird, and tricolored blackbird. Construction activities that adversely affect the nesting success of migratory birds (i.e., lead to the abandonment of active nests) or result in mortality of individual birds constitute a violation of State and federal laws. Thus, in the event that such species occur on-site during the breeding season, project construction activities could result in an adverse effect to species protected under the MBTA.

Raptors

The project site contains existing trees, shrubs, agricultural fields, and edge habitats that could be used by raptors including, but not limited to, special-status birds such as white-tailed kite, Cooper's hawk, northern harrier, and loggerhead shrike. Construction activities that adversely affect the nesting success of migratory birds (i.e., lead to the abandonment of active nests) or result in mortality of individual birds constitute a violation of State and federal laws. Thus, in the event that such species occur on-site during the breeding season, project construction activities could result in an adverse effect to raptor species.

Western Red Bat and Other Special-Status Bats

Western red bat and other special-status bats are known to roost in trees or shrub foliage, as well as caves and vacant structures. Although bats were not observed on the project site at the time of the field survey, roosting habitat is available on-site and along the border of the site in the form of trees with dense foliage and eucalyptus trees with peeling bark. Such habitat is suitable for western red bats and other foliage-roosting bats. Buildings do not exist on-site; therefore, bat species that do not roost in trees would only occur on-site when foraging over the site. In addition, the site supports SSHCP modeled foraging habitat for the species. Thus, development of the project site could result in a potentially significant impact to the western red bat and other special-status bats.

American Badger

American badger can be found in drier open areas of shrub, forest, and herbaceous habitats with friable soils, specifically grassland environments. Although badgers were not observed during the field survey, the presence of grassland on the project site supports California ground squirrels, which provide a prey base for the species. In addition, the site supports SSHCP modeled habitat for the species. Thus, in the event that the species occurs on-site, project grading and construction activities could result in an adverse effect to American badger.

Conclusion

Based on the above, the proposed project could have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in local or regional plans, policies, or regulations, or by the CDFW or the USFWS, and a **potentially significant** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures, as adapted from the SSHCP, would reduce the above potential impact to a *less-than-significant* level.

Special-Status Plants

IV-1(a). *SSHCP PLANT-1 (Rare Plant Surveys): If a Covered Activity project site contains modeled habitat for Ahart's dwarf rush (Juncus leiospermus var. ahartii), Bogg's Lake hedge-hyssop (Gratiola heterosepala), dwarf downingia (Downingia pusilla), legenere (Legenere limosa), pincushion navarretia (Navarretia myersii), or Sanford's arrowhead (Sagittaria sanfordii), the Covered Activity project site shall be surveyed for the rare plant by an approved biologist and following the California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities dated March 20, 2018 or the most recent CDFW rare plant survey protocols. An approved biologist shall conduct the field surveys and shall identify and map plant species occurrences according to the protocols. See Chapter 10 of the SSHCP for the process to submit survey information to the Plan Permittee and the Permitting Agencies. (SSHCP 2018). The appropriate timing of surveys and use of reference populations is applicable to all covered rare plant species, as described in the 2018*

CDFW survey protocol referenced above. For Bogg's Lake hedge-hyssop which is an annual plant with seed banks that may not germinate every year, the project proponent may be required to survey a project site for more than one year to substantiate negative findings if the previous year was either extremely dry or extremely wet (which may be found in the Department of Water Resources Water Supply Index Bulletin (<http://cdec.water.ca.gov/reportapp/javareports?name=WSI>)). However, if local reference populations of the species are detectable at the time of survey and none of the species are observed on a project site, a negative finding will be made. If rare plants are not found during surveys, the additional mitigation measures for special-status plants are not necessary.

- IV-1(b). SSHCP PLANT-2 (Rare Plant Protection): If a rare plant listed in Mitigation Measure IV-1(a) is detected within an area proposed to be disturbed by a Covered Activity or is detected within 250 feet of the area proposed to be disturbed by a Covered Activity, the Implementing Entity shall assure one unprotected occurrence of the species is protected within a SSHCP Preserve before any ground disturbance occurs on the project site (SSHCP 2018).
- IV-1(c). SSHCP Objective SA1: Prior to take of an occurrence of Sanford's arrowhead (*Sagittaria sanfordii*), protect one currently unreserved and "biologically equivalent or superior" (as defined by the TAC) occurrence of Sanford's arrowhead within the Plan Area.
- IV-1(d). SSHCP Objective SA 2: During re-establishment and/or establishment of Seasonal Wetland, Freshwater Marsh, Open Water, and Stream/Creek, translocate impacted Sanford's arrowhead (*Sagittaria sanfordii*) from other sites.

California Tiger Salamander

- IV-2(a). SSHCP CTS-1 (California Tiger Salamander Daily Construction Schedule): Ground-disturbing Covered Activities within California tiger salamander modeled habitat (Figure 3-16 [of the SSHCP]) shall occur outside the breeding and dispersal season (occur after July 31 and before October 15), to the maximum extent practicable. If Covered Activities must be implemented in modeled habitat (Figure 3-16 [of the SSHCP]) during the breeding and dispersal season (after October 15 and before July 31), construction activities shall not start until 30 minutes after sunrise and must be complete 30 minutes prior to sunset.
- IV-2(b). SSHCP CTS-2 (California Tiger Salamander Exclusion Fencing): If a Covered Activity must be implemented in modeled habitat (Figure 3-16 [of the SSHCP]) during the breeding and dispersal season (after October 15 and before July 31), exclusion fencing shall be installed around the project footprint before October 15. Temporary high-visibility construction fencing shall be installed along the edge of work areas, and exclusion fencing shall be installed immediately outside of the temporary high-visibility construction fencing to exclude California tiger salamanders from entering the construction area or becoming entangled in the construction fencing. Exclusion fencing shall be at least 1 foot tall and be buried at least 6 inches

below the ground to prevent salamanders from going under the fencing. Fencing shall remain in place until all construction activities within the construction area are complete. No project activities shall occur outside the delineated project footprint. An approved biologist must inspect the exclusion fencing and project site every morning before 7:00 a.m. for integrity and for any entrapped California tiger salamanders. If a California tiger salamander is encountered, refer to CTS- 5 [Mitigation Measure IV-2(e)], below. (However, the Implementing Entity may, with approval of the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), determine that it is appropriate for a Covered Activity project to not implement CTS-2 [Mitigation Measure IV-2(b)] for certain long and linear roadway Covered Activity projects if it appears that the exclusion fencing shall likely trap individuals or cause more take of California tiger salamander than it would prevent).

- IV-2(c). SSHCP CTS-3 (California Tiger Salamander Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-16 [of the SSHCP]), an approved biologist experienced with California tiger salamander identification and behavior shall monitor the project site, including the integrity of any exclusion fencing. The approved biologist shall be on site daily while construction-related activities are taking place, and shall inspect the project site for California tiger salamander every morning before 7:00 a.m., or prior to construction activities. As required by BMP-8 (Training of Construction Staff), the approved biologist shall also train construction personnel on the required California tiger salamander avoidance procedures, exclusion fencing, and correct protocols in the event that a California tiger salamander enters an active construction zone. If a California tiger salamander is encountered, refer to CTS-5 [Mitigation Measure IV-2(e)], below.*
- IV-2(d). SSHCP CTS-4 (Avoid California Tiger Salamander Entrapment): If Covered Activities must be implemented in modeled habitat, all excavated steep-walled holes or trenches more than 6 inches deep shall be provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes or trenches shall be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within California tiger salamander modeled habitat shall be inspected for California tiger salamanders by the approved biologist prior to being moved. If a California tiger salamander is encountered, refer to CTS-5 [Mitigation Measure IV-2(e)], below.*
- IV-2(e). SSHCP CTS-5 (California Tiger Salamander Encounter Protocol): If a California tiger salamander is encountered during construction activities, the approved biologist shall notify the Wildlife Agencies immediately (California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS)). Construction activities shall be suspended in a 100-foot radius of the animal until the animal is relocated (as described in the Relocation Plan, SSHCP CTS-8) by an approved biologist with appropriate handling permits from the Wildlife Agencies. Prior to relocation,*

the approved biologist shall notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report shall be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the salamander, within 1 business day to the Wildlife Agencies. The biologist shall report any take of listed species to USFWS and CDFW immediately. Any worker who inadvertently injures or kills a California tiger salamander or who finds dead, injured, or entrapped California tiger salamander(s) must immediately report the incident to the approved biologist.

- IV-2(f). *SSHCP CTS-6 (Erosion Control Materials in California Tiger Salamander Habitat): If erosion control (BMP-2) is implemented within California tiger salamander modeled habitat (Figure 3-16 [of the SSHCP]), non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used to ensure that salamanders are not trapped (no monofilament). Coconut coir matting and fiber rolls with burlap are examples of acceptable erosion control materials. This limitation shall be communicated to the contractor through use of special provisions included in the bid solicitation package.*
- IV-2(g). *SSHCP CTS-7 (Rodent Control): CTS-7 [Mitigation Measure IV-2(g)] only applies to projects that are within California tiger salamander modeled habitat (Figure 3-16 [of the SSHCP]) and on Covered Activities. Rodent control shall be allowed only in developed portions of a Covered Activity project site. Where rodent control is allowed, the method of rodent control shall comply with the methods of rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service's (2004) final listing rule for tiger salamander.*
- IV-2(f). *SSHCP CTS-8 (California Tiger Salamander Relocation Plan): Project proponents shall prepare a California tiger salamander Relocation Plan (Relocation Plan) for Covered Activities occurring in California tiger salamander modeled habitat. The Relocation Plan shall include the name(s) of the approved biologist(s) who shall relocate California tiger salamander; pre-construction habitat assessment methodology; measures to minimize temporary impacts to California tiger salamander habitat outside the permanent impact area; capture, handling, and relocation methods; a map and description of the relocation area(s) for captured California tiger salamander, including relative location, quality of habitat, non-native species or the potential for California tiger salamander-barred tiger salamander hybrids to be present, identified upland burrows determined to be suitable for California tiger salamander placement, distance to aquatic habitat, and potential barriers for movement; written permission from the landowner to use their land as a relocation site; and identification of a wildlife rehabilitation center or veterinary facility that routinely evaluates or treats amphibians. Project proponents shall submit the Relocation Plan to the Land Use Authority Permittee or Implementing Entity, who shall send it CDFW for written approval at least 15 days prior to the beginning of any Covered Activities, including preconstruction surveys. If California tiger salamander is found within a construction site or*

200 feet beyond the construction site (200-foot boundary), project personnel shall notify the approved biologist(s) immediately. If California tiger salamander is encountered within a construction site, is directly threatened by Covered Activities, and is unable to move to a safe area on its own, the approved biologist(s) shall relocate California tiger salamander to a safe area in accordance with the Relocation Plan. Otherwise, California tiger salamander may only be captured and handled by the Approved Biologist(s). The Permittees or Authorized Party shall notify CDFW within 24 hours of each time California tiger salamander is relocated. Notification to CDFW shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident.

- IV-2(g). SSHCP CTS-9 (California Tiger Salamander Pre-Construction Surveys): The approved biologist(s) shall complete a visual survey in each of the construction sites located within suitable upland habitat and within a 200-foot boundary, including access roads. The approved biologist(s) shall pay particular attention to suitable California tiger salamander habitat features and search beneath woody debris. If California tiger salamander is found within the construction site, access roads, or the 200-foot boundary, the approved biologist(s) shall delay installation of the exclusion barrier until the approved biologist(s) relocate(s) the California tiger salamander out of the Project Area and 200-foot boundary in accordance with AMM CTS-8. The approved biologist(s) shall visually inspect all potential burrow within suitable upland habitat in the construction site, access roads, and 200-foot boundary, prior to installing exclusionary fencing.

Western Spadefoot

- IV-3(a). SSHCP WS-1 (Western Spadefoot Work Window): Ground-disturbing Covered Activities within western spadefoot modeled habitat (Figure 3-17) will occur outside the breeding and dispersal season (after May 15 and before October 15), to the maximum extent practicable.
- IV-3(b). SSHCP WS-2 (Western Spadefoot Exclusion Fencing): If Covered Activities must be implemented in modeled habitat (Figure 3-17) after October 15 and before May 15, exclusion fencing will be installed around the project footprint before October 15, and the project site must be monitored by an approved biologist following rain events. Temporary high-visibility construction fencing will be installed along the edge of work areas, and silt fencing will be installed immediately behind the temporary high-visibility construction fencing to exclude western spadefoot from entering the construction area. Fencing will remain in place until all construction activities within the construction area are completed. No project activities will occur outside the delineated project footprint. If a western spadefoot is encountered, refer to WS-6, below.
- IV-3(c). SSHCP WS-3 (Western Spadefoot Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-17) in the breeding and dispersal season (after October 15 and before May 15), an approved biologist experienced with western spadefoot identification and behavior will monitor the project site, including the integrity of any exclusion fencing.

The approved biologist will be on site daily while construction-related activities are taking place, and will inspect the project site daily for western spadefoot prior to construction activities. The approved biologist will also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western spadefoot enters an active construction zone (i.e., outside the buffer zone). If a western spadefoot is encountered, refer to WS-6, below.

- IV-3(d). SSHCP WS-4 (Avoid Western Spadefoot Entrapment): If a Covered Activity occurs in western spadefoot modeled habitat (Figure 3-17), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western spadefoot modeled habitat will be inspected for western spadefoot by the approved biologist prior to being moved. If a western spadefoot is encountered, refer to WS-6, below.
- IV-3(e). SSHCP WS-5 (Erosion Control Materials in Western Spadefoot Habitat): If erosion control (BMP-2) is implemented within western spadefoot modeled habitat (Figure 3-17), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that western spadefoots are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.
- IV-3(f). SSHCP WS-6 (Western Spadefoot Encounter Protocol): If Covered Activities must be implemented in modeled habitat (Figure 3-17) during the breeding and dispersal season (after October 15 and before May 15), and a western spadefoot is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the western spadefoot within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife immediately. Any worker who inadvertently injures or kills a western spadefoot or who finds dead, injured, or entrapped western spadefoot(s) must immediately report the incident to the approved biologist.

Giant Gartersnake

- IV-4(a). SSHCP GGS-1 (Giant Gartersnake Surveys): If the SSHCP giant gartersnake modeled habitat maps (Figure 3-18 [of the SSHCP]) show that

modeled habitat for giant gartersnake is present within a Covered Activity's project footprint or within 300 feet of a project footprint, then an approved biologist shall conduct a field investigation to delineate giant gartersnake aquatic habitat within the project footprint and adjacent areas within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-18 of the SSHCP, giant gartersnake aquatic habitat includes, but is not limited to, low-gradient streams and creeks, open water, freshwater marsh, agricultural ditches, and rice fields. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Proponent shall map all existing or potential sites and provide these maps to the Local Land Use Permittees and the Implementing Entity. Locations of delineated giant gartersnake habitat must also be noted on plans that are submitted to a Local Land Use Permittee. The Third-Party Proponent shall use this information to finalize project design. Covered Activities may occur throughout the year as long as giant gartersnake habitat is identified and fully avoided. Otherwise, Covered Activities must comply with GGS-2 through GGS-8 [Mitigation Measure IV-3(b) through IV-3(h)], below.

IV-4(b). SSHCP GGS-2 (Giant Gartersnake Work Window): Covered Activities that do not fully avoid giant gartersnake modeled habitat (Figure 3-18 [of the SSHCP]) shall be conducted during the snake's active season. Construction and ground-disturbing activities shall be initiated after May 1 and shall end prior to September 15. If it appears that construction activities may go beyond September 15, the Third-Party Proponent shall contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1. The Local Land Use Permittee and the Implementing Entity shall discuss with the Wildlife Agencies additional measures necessary to minimize take. The additional measures would vary depending on where the work is occurring. For example, if the work outside the giant gartersnake active season is a continuation of work within a dewatered channel or within a disturbed area where no more than two days have passed without ground-disturbing activities, burrows are not expected to be occupied by giant gartersnake, therefore, additional measures may not be necessary. However, if ground disturbing work will occur outside the giant gartersnake active season in an area that was not previously disturbed in the active season, or there has been no ground disturbance for more than two days, an approved biologist may be necessary on-site during earth moving activities, to monitor for giant gartersnake presence.

IV-4(c). SSHCP GGS-3 (Giant Gartersnake Monitoring): If a Covered Activity is occurring in giant gartersnake modeled habitat (Figure 3-18 [of the SSHCP]), an approved biologist experienced with giant gartersnake identification and behavior shall monitor the project site, including the integrity of any exclusion fencing. The approved biologist shall be on site daily while construction-related activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and shall inspect the project site daily for giant gartersnake prior to construction activities. If a giant gartersnake is encountered, refer to Mitigation Measure IV-3(g). The approved biologist shall also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a giant

gartersnake enters an active construction zone (i.e., outside the buffer zone).

- IV-4(d). SSHCP GGS-4 (Giant Gartersnake Habitat Dewatering and Exclusion): If construction activities shall occur in giant gartersnake aquatic habitat, aquatic habitat will be dewatered and then remain dry and absent of aquatic prey (e.g., fish and tadpoles) for 15 days prior to initiation of construction activities. If complete dewatering is not possible, the Implementing Entity shall be contacted to determine what additional measures may be necessary to minimize effects to giant gartersnake. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing shall be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing shall be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Giant gartersnake habitat outside construction fencing will be avoided by all construction personnel. The fencing and the work area shall be inspected by the approved biologist to ensure that the fencing is intact and that no snakes have entered the work area before the start of each work day. The fencing shall be maintained by the contractor until completion of the project. If giant gartersnake is encountered, refer to Mitigation Measure IV-3(g), below.
- IV-4(e). SSHCP GGS-5 (Avoid Giant Gartersnake Entrapment): If a Covered Activity occurs in giant gartersnake modeled habitat (Figure 3-18 [of the SSHCP]), all excavated steep-walled holes and trenches more than 6 inches deep shall be covered with plywood (or similar material) or provided with one or more escape ramps at an angle of no more than 30 degrees constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches shall be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within giant gartersnake modeled habitat shall be inspected for giant gartersnake by the approved biologist prior to being moved. If a giant gartersnake is encountered, refer to Mitigation Measure IV-3(g).
- IV-4(f). SSHCP GGS-6 (Erosion Control Materials in Giant Gartersnake Habitat): If erosion control (BMP- 2) is implemented within giant gartersnake modeled habitat (Figure 3-18 [of the SSHCP]), non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used to ensure snakes are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.
- IV-4(g). SSHCP GGS-7 (Giant Gartersnake Encounter Protocol): If a giant gartersnake is encountered during construction activities, the approved biologist shall notify the Wildlife Agencies immediately. Construction

activities shall be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist shall notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report shall be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the giant gartersnake within 1 business day to the Wildlife Agencies. The biologist shall report any take of listed species to the U.S. Fish and Wildlife Service and CDFW immediately. Any worker who inadvertently injures or kills a giant gartersnake or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist. Any giant gartersnake observed during Covered Activities shall be allowed to move away from danger on its own or be moved by the approved biologist with CDFW and USFWS approval to handle the snake and in accordance with the CDFW-approved Giant Gartersnake Relocation Plan detailed in AMM GGS-9.

IV-4(h). SSHCP GGS-8 (Giant Gartersnake Post-Construction Restoration): After completion of ground-disturbing Covered Activities, the applicant shall remove any temporary fill and construction debris and shall restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with an appropriate native seed mix. Appropriate methods and plant species used to re-vegetate such areas shall be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation. Refer to the U.S. Fish and Wildlife Service's (USFWS) Guidelines for the Restoration and/or Replacement of Giant Gartersnake Habitat (USFWS 1997), or the most current USFWS guidelines at the time of the activity. A photo documentation report showing pre- and post-project conditions shall be submitted to the Implementing Entity 1 month after implementation of the restoration.

IV-4(g). SSHCP GGS-9 (Giant Gartersnake Relocation Plan): Project proponents shall prepare a Giant Gartersnake Relocation Plan (Relocation Plan) for Covered Activities occurring in giant gartersnake modeled habitat. Project proponents shall submit the Relocation Plan to the Land Use Authority Permittee or Implementing Entity, who shall send it CDFW for written approval at least 30 days prior to the beginning of any Covered Activities. The Relocation Plan shall include, at a minimum, the proposed giant gartersnake capture and handling technique; a quantification of the amount, relative location, and quality of suitable habitat (aquatic and upland) within proposed relocation site(s) including invasive and non-native species present, available upland burrows for aestivation and high-water refugia, suitable prey items, and potential barriers for movement; written permission from the landowner to use their land as a relocation site; and identification of a wildlife rehabilitation center or veterinary facility that routinely evaluates or treats snakes and is permitted to handle giant gartersnake.

IV-4(h). SSHCP GGS-10 (Giant Gartersnake Post-Construction Restoration): If Covered Activities will occur within 200 feet of modeled giant gartersnake aquatic habitat, the approved biologist(s) shall conduct one pre-construction survey within 24 hours prior to beginning ground disturbing activities. The approved biologist(s) shall investigate all small mammal

burrows within suitable upland habitat. The project area shall be resurveyed whenever there is a lapse in construction activity of two weeks or more.

Western Pond Turtle

- IV-5(a). SSHCP WPT-1 (Western Pond Turtle Surveys): If the SSHCP western pond turtle modeled habitat maps (Figure 3-19 [of the SSHCP]) show that modeled habitat for western pond turtle is present within a Covered Activity's project footprint or within 300 feet of a project footprint, then an approved biologist shall conduct a field investigation to delineate western pond turtle aquatic and upland habitat within the project footprint and within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-19 of the SSHCP, western pond turtle aquatic habitat includes, but is not limited to, low-gradient streams and creeks, open water, freshwater marsh, and rice fields. The approved biologist will search and monitor upland habitat for active nests, hatchlings, juveniles, and adults. Active upland nests may contain eggs for 96 to 104 days (from May through August), and may contain hatchlings that remain in the nest for many months, typically until the following March or April. Adults and juveniles also move to upland habitat when their aquatic habitat dries in late summer, and adult and juvenile western pond turtles commonly overwinter in uplands (from November to March). Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third Party Proponent shall map all existing or potential sites and provide those maps to the Land Use Authority Permittees and the Implementing Entity. Locations of delineated western pond turtle habitat must also be noted on plans that are submitted to a Land Use Authority Permittee. The applicant shall use this information to finalize project design. Covered Activities may occur throughout the year as long as western pond turtle habitat is identified and fully avoided. Otherwise, Covered Activities must comply with Mitigation Measure IV-4(b) through IV-4(i).
- IV-5(b). SSHCP WPT-2 (Western Pond Turtle Work Window): Maintenance and improvements to existing structures may occur throughout the year as long as western pond turtle habitat is identified and avoided, and movement of equipment is confined to existing roads. Otherwise, construction and ground-disturbing Covered Activities must be conducted outside of western pond turtle's active season. Covered activities shall be initiated after May 1 and shall commence prior to September 15. If it appears that construction activities may go beyond September 15, the appropriate Plan Permittee shall contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1, to determine if additional measures are necessary to minimize take.
- IV-5(c). SSHCP WPT-3 (Western Pond Turtle Monitoring): If a Covered Activity is occurring in western pond turtle modeled habitat (Figure 3-19 [of the SSHCP]), an approved biologist experienced with western pond turtle identification and behavior shall monitor the project site, including the integrity of any exclusion fencing. The approved biologist shall be on site daily while covered activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and shall inspect the project site daily for western pond turtle prior to these activities. The approved biologist shall

also train construction or maintenance personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western pond turtle enters an active construction maintenance zone (i.e., outside the buffer zone).

- IV-5(d). SSHCP WPT-4 (Western Pond Turtle Habitat Dewatering and Exclusion): If covered activities shall occur in western pond turtle aquatic habitat, aquatic habitat for the turtle shall be dewatered and then remain dry and absent of aquatic prey (e.g., crustaceans and other aquatic invertebrates) for 15 days prior to the initiation of covered activities. If complete dewatering is not possible, the Implementing Entity shall be contacted to determine what additional measures may be necessary to minimize effects to western pond turtle. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing shall be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing shall be erected 36 inches above ground and buried at least 6 inches below the ground to prevent turtles from attempting to burrow or move under the fence into the work area. In addition, high-visibility fencing shall be erected to identify work area and to protect adjacent habitat from encroachment of personnel and equipment. Western pond turtle habitat outside exclusionary fencing shall be avoided by all construction or maintenance personnel. The fencing and work area shall be inspected by the approved biologist to ensure that the fencing is intact and that no turtles have entered the work area before the start of each work day. Fencing shall be maintained by the contractor or maintenance entity until completion of the project. If, after exclusion fencing and dewatering, western pond turtles are found within the project footprint or within 300 feet of the project footprint, the project applicant shall discuss the next best steps with the Implementing Entity and Wildlife Agencies.
- IV-5(e). SSHCP WPT-5 (Avoid Western Pond Turtle Entrapment): If a Covered Activity occurs within western pond turtle modeled habitat (Figure 3-19), all excavated steep-walled holes and trenches more than 6 inches deep shall be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches shall be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western pond turtle modeled habitat shall be inspected for western pond turtle by the approved biologist prior to being moved.
- IV-5(f). SSHCP WPT-6 (Erosion Control Materials in Western Pond Turtle Habitat): If erosion control (BMP-2) is implemented within western pond turtle modeled habitat (Figure 3-19 [of the SSHCP]), non-entangling erosion control material shall be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material shall be used to ensure that turtles are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.

- IV-5(g). SSHCP WPT-7 (Western Pond Turtle Modeled Habitat Speed Limit): Covered Activity construction and maintenance vehicles shall observe a 20-mile-per-hour speed limit within western pond turtle modeled upland habitat (Figure 3-19 [of the SSHCP]).
- IV-5(h). SSHCP WPT-8 (Western Pond Turtle Encounter Protocol): If a western pond turtle is encountered during covered activities, the approved biologist shall notify the Wildlife Agencies immediately. Covered activities shall be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist shall notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the turtle, within 1 business day to the Wildlife Agencies. The biologist shall report any take of listed species to the U.S. Fish and Wildlife Service immediately. Any worker who inadvertently injures or kills a western pond turtle or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.
- IV-5(i). SSHCP WPT-9 (Western Pond Turtle Post-Construction Restoration): After completion of Covered Activities, the applicant shall remove any temporary fill and construction debris and shall restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions. Appropriate methods and plant species used to re-vegetate such areas shall be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation and placing appropriate artificial or natural basking areas in waterways and wetlands. A photo documentation report showing pre- and post-project conditions shall be submitted to the Implementing Entity 1 month after implementation of the restoration.

Western Burrowing Owl

- IV-6(a). SSHCP WBO-1 (Western Burrowing Owl Surveys): Surveys within modeled habitat are required for both the breeding and non-breeding season. If the project site falls within modeled habitat [as is the case for the proposed project], an approved biologist shall survey the project site and map all burrows, noting any burrows that may be occupied. Occupied burrows are often (but not always) indicated by tracks, feathers, egg shell fragments, pellets, prey remains, and/or excrement. Surveying and mapping shall be conducted by the approved biologist while walking transects throughout the entire project site plus all accessible areas within a 250-foot radius from the project site. The centerline of these transects shall be no more than 50 feet apart and shall vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects shall be closer together, and in open areas with little vegetation, they can be 50 feet apart. This methodology is consistent with current survey protocols for this species (California Burrowing Owl Consortium 1993). Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. If suitable habitat is identified during the initial survey, and if the project

does not fully avoid the habitat, pre-construction surveys shall be required. Burrowing owl habitat is fully avoided if project-related activities do not impinge on a 250-foot buffer established by the approved biologist around suitable burrows.

IV-6(b). SSHCP WBO-2 (Western Burrowing Owl Pre-Construction Surveys): Prior to any Covered Activity ground disturbance, an approved biologist shall conduct pre-construction surveys in all areas that were identified as suitable habitat during the initial surveys. The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activities. To maximize the likelihood of detecting owls, the pre-construction survey shall last a minimum of 3 hours. The survey shall begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total), or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two pre-construction surveys shall be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed shall be counted and their location shall be mapped. Surveys shall conclude no more than 2 calendar days prior to construction. Therefore, the Third-Party Project Proponent shall begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last-minute changes in schedule or contracting that may occur if burrowing owls are found, the Third-Party Project Proponent shall also conduct a preliminary survey up to 15 days before construction. This preliminary survey shall count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction (SSHCP 2018). If burrowing owls are not found during the preconstruction surveys, Mitigation Measures IV-4(c) through IV-4 (f) and IV-4 (h) below are not necessary.

IV-6(c). SSHCP WBO-3 (Western Burrowing Owl Avoidance): If western burrowing owl or evidence of western burrowing owl is observed on the project site or within 250 feet of the project site during pre-construction surveys, then the following shall occur:

During Breeding Season: If the approved biologist finds evidence of western burrowing owls within a project site during the breeding season (February 1 through August 31), all project-related activities shall avoid nest sites during the remainder of the breeding season or while the nest remains occupied by adults or young (nest occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other project-related activities may occur outside of the 250-foot buffer zone. Construction and other project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the Third-Party Project Proponent develops an avoidance, minimization, and monitoring plan that is approved by the Implementing Entity and Wildlife Agencies prior to project construction based on the following criteria:

- *The Implementing Entity and Wildlife Agencies approve of the avoidance and minimization plan provided by the project applicant.*
- *An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).*
- *The same approved biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.*

If there is any change in owl nesting and foraging behavior as a result of construction activities, the approved biologist shall have authority to shut down activities within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until any owls present are no longer affected by nearby construction activities, and with written concurrence from the Wildlife Agencies.

If monitoring by the approved biologist indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the non-disturbance buffer zone may be removed if approved by the Wildlife Agencies. The approved biologist shall excavate the burrow in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl to prevent reoccupation after receiving approval from the Wildlife Agencies.

The Implementing Entity and Wildlife Agencies shall respond to a request from the Third-Party Project Proponent to review the proposed construction monitoring plan within 21 days.

During Non-Breeding Season: During the non-breeding season (September 1 through January 31), the approved biologist shall establish a minimum 250-foot non-disturbance buffer around occupied burrows. Construction activities outside of this 250-foot buffer shall be allowed. Construction activities within the non-disturbance buffer shall be allowed if the following criteria are met to prevent owls from abandoning overwintering sites:

- *An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).*
- *The same approved biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.*
- *If there is any change in owl foraging behavior as a result of construction activities, the approved biologist shall have authority to shut down activities within the 250-foot buffer.*
- *If the owls are gone for at least 1 week, the Third-Party Project Proponent may request approval from the Implementing Entity and Wildlife Agencies that an approved biologist excavate usable burrows and install one-way exclusionary devices to prevent owls*

from re-occupying the site. After all usable burrows are excavated, the buffer zone shall be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

- IV-6(d). SSHCP WBO-4 (Burrowing Owl Construction Monitoring): During construction of Covered Activities, 250-foot construction buffer zones shall be established and maintained around any occupied burrow. An approved biologist shall monitor the site to ensure that buffers are enforced and owls are not disturbed. The approved biologist shall also train construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.*
- IV-6(e). SSHCP WBO-5 (Burrowing Owl Passive Relocation): Passive relocation is not allowed without the express written approval of the Wildlife Agencies. Passive owl relocation may be allowed on a case-by-case basis on project sites during the non-breeding season (September 1 through January 31) with the written approval of the Wildlife Agencies if the other measures described in this condition preclude work from continuing. Passive relocation must be done in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl. Passive relocation will only be proposed if the burrow needing to be removed or with the potential to collapse from construction activities is the result of a Covered Activity. If passive relocation is approved by the Wildlife Agencies, an approved biologist can passively exclude birds from their burrows during the non-breeding season by installing one-way doors in burrow entrances. These doors shall be in place for 48 hours to ensure that owls have left the burrow, and then the biologist shall excavate the burrow to prevent reoccupation. Burrows shall be excavated using hand tools only. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having materials collapse into the burrow and trap owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies over the 50-year Permit Term.*
- IV-6(f). SSHCP WBO-6 (Burrowing Owl Timing and Maintenance Activities): All activities adjacent to existing or planned Preserves, Preserve Setbacks, or Stream Setback areas shall be seasonally timed, when safety permits, to avoid or minimize adverse effects on occupied burrows.*
- IV-6(g). SSHCP WBO-7 (Rodent Control): Rodent control shall be allowed only in developed portions of a Covered Activity project site within western burrowing owl modeled habitat. Where rodent control is allowed, the method of rodent control shall comply with the methods of rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service's (2004) final listing rule for tiger salamander.*
- IV-6(h). SSHCP Objective BO2: For each western burrowing owl or western burrowing owl pair passively excluded, preserve 200 acres of modeled habitat for western burrowing owl, and establish a California ground squirrel*

(*Spermophilus* (*Otospermophilus*) *beecheyi*) colony, and augment with artificial burrows as appropriate (determined by TAC). Artificial burrows shall be established at appropriate locations throughout the Preserve System pursuant to CDFW (CDFG 2012 guidelines) or as otherwise determined by the TAC.

Swainson's Hawk

- IV-7(a). SSHCP SWHA-1 (Swainson's Hawk Surveys): If modeled habitat for Swainson's hawk (Figure 3-25 [of the SSCP]) is present within a Covered Activity's project footprint or within 0.25 mile of a project footprint as is the case for the proposed project, then an approved biologist shall conduct a survey to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. Nest sites are often associated with Riparian land cover, but also include lone trees in fields, trees along roadways, and trees around structures. Nest trees may include, but are not limited to, Fremont's cottonwood (*Populus fremontii*), oaks (*Quercus* spp.), willows (*Salix* spp.), walnuts (*Juglans* spp.), eucalyptus (*Eucalyptus* spp.), pines (*Pinus* spp.), and Deodar cedar (*Cedrus deodara*). The Third-Party Project Proponent shall map all existing and potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 [of the SSHCP] for the process to conduct and submit survey information.
- IV-7(b). SSHCP SWHA-2 (Swainson's Hawk Pre-Construction Surveys): If existing or potential nest sites were found during surveys (SWHA-1), and construction activities shall occur during the breeding season (March 1 through September 15), pre-construction surveys shall be required to determine if active nests are present within a project footprint. An approved biologist shall conduct pre-construction surveys within 30 days and again within 3 days of ground-disturbing activities to determine presence of nesting Swainson's hawk. Pre-construction surveys will be conducted during the breeding season (March 1 through September 15). If a nest is present, then SWHA-3 and SWHA-4 [Mitigation Measures IV-3(c) and IV-3(d)] shall be implemented. The approved biologist shall inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.
- IV-7(c). SSHCP SWHA-3 (Swainson's Hawk Nest Buffer): If active nests are found within the project footprint or within 0.25 mile of any project-related Covered Activity, the Third-Party Project Proponent shall establish a 0.25-mile disturbance buffer around the active nest until the young have fledged, with concurrence from the Wildlife Agencies.
- IV-7(d). SSHCP SWHA-4 (Swainson's Hawk Nest Buffer Monitoring): If nesting Swainson's hawks are present within the project footprint or within 0.25-mile of any project-related Covered Activity, then an approved biologist experienced with Swainson's hawk behavior shall be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist

shall be on site daily while construction-related activities are taking place within the buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting Swainson's hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist shall have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies shall meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist shall also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a Swainson's hawk flies into an active construction zone (i.e., outside the buffer zone).

- IV-7(e). SSHCP SWHA-5 (Swainson's Hawk Nest Tree Avoidance): Project proponents shall avoid removal of Swainson's hawk nest trees active within the last 5 years, to the maximum extent practicable. Removal of occupied nest trees shall be timed outside of the Swainson's hawk nesting season, which would limit removal to October 1 through February 1, and shall not remove any occupied nest trees until the last young have fledged, as verified by the approved biologist. The Implementing Entity shall provide the number of Swainsons' hawk nest trees removed each year, along with nest locations, in each Annual Report submitted to CDFW.

Greater Sandhill Crane

- IV-8(a). SSHCP GSC-1 (Greater Sandhill Crane Surveys): If modeled habitat for greater sandhill crane (Figure 3-22) is present within a Covered Activity's project footprint or within 0.5 mile of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential roosting sites are present within the project footprint and adjacent areas within 0.5 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Roosting sites within the Plan Area are often associated with flooded fields, seasonal wetlands, and freshwater marsh. The Third-Party Project Proponent will map all existing or potential roosting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Roosting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.

- IV-8(b). SSHCP GSC-2 (Greater Sandhill Crane Pre-Construction Surveys): Pre-construction surveys will be required to determine if active roosting sites are present within a project footprint or within 0.5 mile of a project footprint if existing or potential roosting sites were found during initial surveys and construction activities will occur when wintering flocks are present within the Plan Area (September 1 through March 15). An approved biologist will conduct pre-construction surveys within 15 days of ground-disturbing activities, and within 0.5 mile of a project footprint, to determine presence of roosting greater sandhill cranes. Pre-construction surveys will be conducted September 1 through March 15, when wintering flocks are present within the Plan Area. If birds are present, then GSC-3, GSC-4, and GSC-5 will be implemented. The approved biologist will inform the Land

Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

- IV-8(c). SSHCP GSC-3 (Greater Sandhill Crane Roosting Buffer): If active roosting sites are found within the project footprint or within 0.5 mile of any project-related Covered Activity, the Third-party Project Proponent will establish a 0.5-mile temporary roosting disturbance buffer around each roosting site until the cranes have left.*
- IV-8(d). SSHCP GSC-4 (Greater Sandhill Crane Visual Barrier): Greater sandhill cranes have low tolerance for human disturbance, and such disturbance has caused cranes to abandon foraging and roosting sites. Repeat disturbance affects their ability to feed and store energy needed for survival. If project-related activities occur within 0.5 mile of a known roosting site as identified by surveys conducted during implementation of GSC-1 or GSC-2, a visual barrier will be constructed.*
- IV-8(e). SSHCP GSC-5 (Greater Sandhill Crane Roosting Buffer Monitoring): If roosting sites are found within the project footprint or within 0.50 mile of any project-related Covered Activity, an approved biologist experienced with greater sandhill crane behavior will be retained by the Third-Party Project Proponent to monitor the roosting site throughout the roosting season and to determine when the birds have left. The approved biologist will be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary disturbance buffer can only occur with the written permission of the Implementing Entity and Wildlife Agencies. If greater sandhill cranes are abandoning their roosting and/or forage sites, the approved biologist will have the authority to shut down construction activities. If roost abandonment occurs, the approved biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid harm and harassment of individuals. The approved biologist will also train construction personnel on the avoidance procedures, buffer zones, and protocols in the event that greater sandhill cranes move into an active construction zone (i.e., outside the buffer zone).*

Tricolored Blackbird

- IV-9(a). SSHCP TCB-1 (Tricolored Blackbird Surveys): If modeled habitat for tricolored blackbird is present within a Covered Activity's project footprint or within 500 feet of a project footprint (as is the case for the proposed project), or if Covered Activity impacts include the Mixed Riparian Scrub land cover type, regardless of whether it is included in the modeled habitat map, then an approved biologist shall conduct a field investigation to determine if existing or potential nesting or foraging sites are present within the project footprint and adjacent areas within 500 feet of the project footprint. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. Within the Plan Area, potential tricolor blackbird nest sites are often associated with freshwater marsh and seasonal wetlands, or in thickets of willow, blackberry, wild rose, thistle, and other thorny vegetation. Tricolored blackbirds are also known to nest in crops*

associated with dairy farms. Foraging habitat is associated with annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (such as large tracts of alfalfa and pastures with continuous haying schedules and recently tilled fields), cattle feedlots, and dairies. The Third-Party Project Proponent shall map all existing or potential nesting or foraging sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee.

- IV-9(b). SSHCP TCB-2 (Tricolored Blackbird Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present within a project footprint or within 500 feet of a project footprint if existing or potential nest sites were found during design surveys and construction activities shall occur during the breeding season (March 1 through September 15). An approved biologist shall conduct pre-construction surveys within 30 days and within 3 days of ground-disturbing activities, and within the proposed project footprint and 500 feet of the proposed project footprint to determine the presence of nesting tricolored blackbird. The surveys shall be separated by at least three weeks. Pre-construction surveys shall be conducted during the breeding season (March 1 through September 15). Surveys conducted in February (to meet pre-construction survey requirements for work starting in March) must be conducted within 14 days and 3 days in advance of ground-disturbing activities. If a nest is present, then TCB-3 and TCB-4 [Mitigation Measures IV-6(c) and IV-6(d)] shall be implemented. The approved biologist shall inform the Land Use Authority Permittee and the Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies (SSHCP 2018). If nesting tricolored blackbirds are not found during the preconstruction surveys, the remainder of the mitigation measures for tricolored blackbirds below are not necessary.
- IV-9(c). SSHCP TCB-3 (Tricolored Blackbird Nest Buffer): If active nests are found within the project footprint or within 500 feet of any project-related Covered Activity, the Third-Party Project Proponent shall establish a 500-foot temporary buffer around the active nest until the young have fledged.
- IV-9(d). SSHCP TCB-4 (Tricolored Blackbird Nest Buffer Monitoring): If nesting tricolored blackbirds are present within the project footprint or within 500 feet of any project-related Covered Activity, then an approved biologist experienced with tricolored blackbird behavior shall be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist shall be on site daily while construction-related activities are taking place near the disturbance buffer. Work within the nest disturbance buffer shall not be permitted. If the approved biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction shall cease until the buffer size is increased to a distance necessary to result in no harm or harassment to the nesting tricolored blackbirds. If the biologist determines that the colonies are at risk, a meeting with the Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies shall be held to determine the best course of action to avoid nest abandonment or take of

individuals. The approved biologist shall also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a tricolored blackbird flies into an active construction zone (i.e., outside the buffer zone).

- IV-9(e). SSHCP TCB-5 (Timing of Pesticide Use and Harvest Timing on Agricultural Preserve): On SSHCP Agricultural Preserves, pesticides (including herbicides) shall not be applied from January 1 through July 15.*
- IV-9(f). SSHCP Objective TB5: Provide mitigation for loss of any tricolored blackbird nesting colony site that is occupied at the time of Covered Activity implementation or was recorded as an occupied nesting colony at any time since 2008. Sources for occupied nesting colonies are the CNDDDB, Tricolored Blackbird Portal, eBird, or other data sources approved by the Wildlife Agencies. Minimum mitigation is to preserve one extant unpreserved occurrence of a nesting colony prior to take of one nesting colony of tricolored blackbirds. Ensure that at least five extant tricolored blackbird colonies that were occupied in recent years are maintained and managed within the SSHCP Preserve System.*
- IV-9(g). SSHCP Objective TB8: For any tricolored blackbird nesting colony that is removed by a Covered Activity, re-establish and/or establish three new colonies within SSHCP Preserves. Re-established and/or established colonies can be in aquatic (freshwater marsh, seasonal wetland) or upland (annual grassland) habitat types, and must be within 0.5-mile of appropriate agricultural forage crops (especially alfalfa) or annual grasslands that provide adequate foraging opportunities.*

Nesting and Migratory Birds

- IV-10. If initial site disturbance activities, including ground disturbance or tree, shrub, or vegetation removal, are to occur during the breeding season (typically February 1 to August 31), a qualified biologist shall conduct pre-construction surveys for nesting migratory birds within the proposed disturbance area and within 250 feet (for raptors) of the proposed disturbance area, where accessible. The survey shall occur within seven days prior to the onset of ground disturbance or vegetation removal. If nesting raptors or other migratory birds are detected, an appropriate construction-free buffer of up to 250 feet shall be established around all active nests. Actual size of the buffer, which shall be determined by the project biologist, may vary depending on factors such as location, species, topography, line of sight to the construction area, and type of activity that would occur in the vicinity of the nest. The buffer area(s) shall be enclosed with temporary fencing, and equipment and workers should not enter the enclosed buffer areas. The buffer shall be monitored periodically by the project biologist to ensure compliance. Buffers shall remain in place for the duration of creek maintenance activities, the breeding season, or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents, whichever occurs first.*

Raptors

- IV-11(a). SSHCP RAPTOR-1 (Raptor Surveys): If modeled habitat for a covered raptor species (Figures 3-20, 3-23, 3-24, or 3-28 [of the SSHCP]) is present within a Covered Activity's project footprint or within 0.25-mile of a project footprint (as is the case for the proposed project), then an approved biologist shall conduct a field investigation to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent shall map all existing or potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee.
- IV-11(b). SSHCP RAPTOR-2 (Raptor Pre-Construction Surveys): Pre-construction surveys shall be required to determine if active nests are present with a project footprint or within 0.25-mile of a project footprint if existing or potential nest sites are found during initial surveys and construction activities shall occur during the raptor breeding season. An approved biologist shall conduct pre-construction surveys within 30 days and three days of ground-disturbing activities within the proposed project footprint and within 0.25-mile of the proposed project footprint to determine presence of nesting covered raptor species. Preconstruction surveys will be conducted during the raptor breeding season. If a nest is present, then RAPTOR-3 and RAPTOR-4 [Mitigation Measures IV-8(d) and IV-8(e)] shall be implemented. The approved biologist shall inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies." (SSHCP 2018). If nesting raptors are not found during the preconstruction surveys, the remainder of the mitigation measures for raptors below are not necessary.
- IV-11(c). SSHCP RAPTOR-3 (Raptor Nest/Roost Buffer): If active nests are found within the project footprint or within 0.25-mile of any project-related Covered Activity, the Third-Party Project Proponent shall establish a 0.25-mile temporary nest disturbance buffer around the active nest until the young have fledged.
- IV-11(d). SSHCP RAPTOR-4 (Raptor Nest/Roost Buffer Monitoring): If project-related Covered Activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then an approved biologist experienced with raptor behavior shall be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist shall be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting raptors begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist/monitor shall have the authority to shut down construction activities. If agitated behavior is exhibited, the

biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies shall meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist shall also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a covered raptor species flies into an active construction zone (i.e., outside the buffer zone).

Western Red Bat and Other Special-Status Bats

- IV-12(a). SSHCP BAT-1 (Maternity Roost Surveys): If modeled habitat for western red bat is present within 300 feet of a Covered Activity's project footprint (as is the case for the proposed project), and a Covered Activity is proposed between May 1 and August 31 (when pre-flight/nursing young may be present), then an approved biologist shall conduct a field investigation of the project footprint and adjacent areas within 300 feet of the project footprint to determine if a potential maternity roost is present, and to identify and map potential maternity roost sites. Adjacent parcels under different land ownership shall be surveyed only if access is granted or if the parcels are visible from authorized areas. If potential maternity roost sites are found, the Third-Party Project Proponent shall note their locations on project designs and shall design the project to avoid all areas within a 300-foot buffer around the potential maternity roost sites. As discussed in SSHCP BAT-3, maternity roost habitat is fully avoided if project-related activities do not impinge on a 300-foot buffer established by the approved biologist around an existing or potential maternity roost site.
- IV-12(b). SSHCP BAT-2 (Maternity Roost Pre-Construction Surveys): If the Third-Party Project Proponent elects not to avoid potential maternity roost sites within the project footprint plus a 300-foot buffer during May through August, additional western red bat surveys are required. Prior to any ground disturbance related to Covered Activities or staging of equipment in the project footprint, an approved biologist shall conduct a pre-construction survey within 3 days of ground-disturbing activities (within the project footprint and 300 feet of the project footprint) to determine the presence of maternity roost sites. Pre-construction surveys shall be conducted during the roosting season when pre-flight/nursing young may be present (May 1 through August 31). If a maternity roost is present, then AMM BAT-3 shall be implemented. The approved biologist will inform the Land Use Authority Permittee and SSHCP Implementing Entity (the South Sacramento Conservation Agency) of all roost sites and species locations, and they in turn will notify the Wildlife Agencies (USFWS and CDFW), and provide all survey information to the Wildlife Agencies.
- IV-12(c). SSHCP BAT-3 (Maternity Roost Buffer): If active maternity roost sites are found within the project footprint or within 300 feet of the project footprint between May 1 and August 31, the Third-Party Project Proponent shall establish a 300-foot temporary disturbance buffer around the active maternity roost site until bats have vacated the roost and the Wildlife Agencies concur that the roost is vacant. Very few western red bats are expected to be present in the Action Area in the winter months (November 1 through March 31). However, if active winter hibernaculum sites are found within the project footprint or within 300 feet of the project footprint

between November 1 and March 31, the Third-Party Project Proponent shall establish the same 300-foot temporary disturbance buffer around the active winter hibernaculum site until bats have vacated the hibernaculum and the Wildlife Agencies concur that the hibernaculum is vacant.

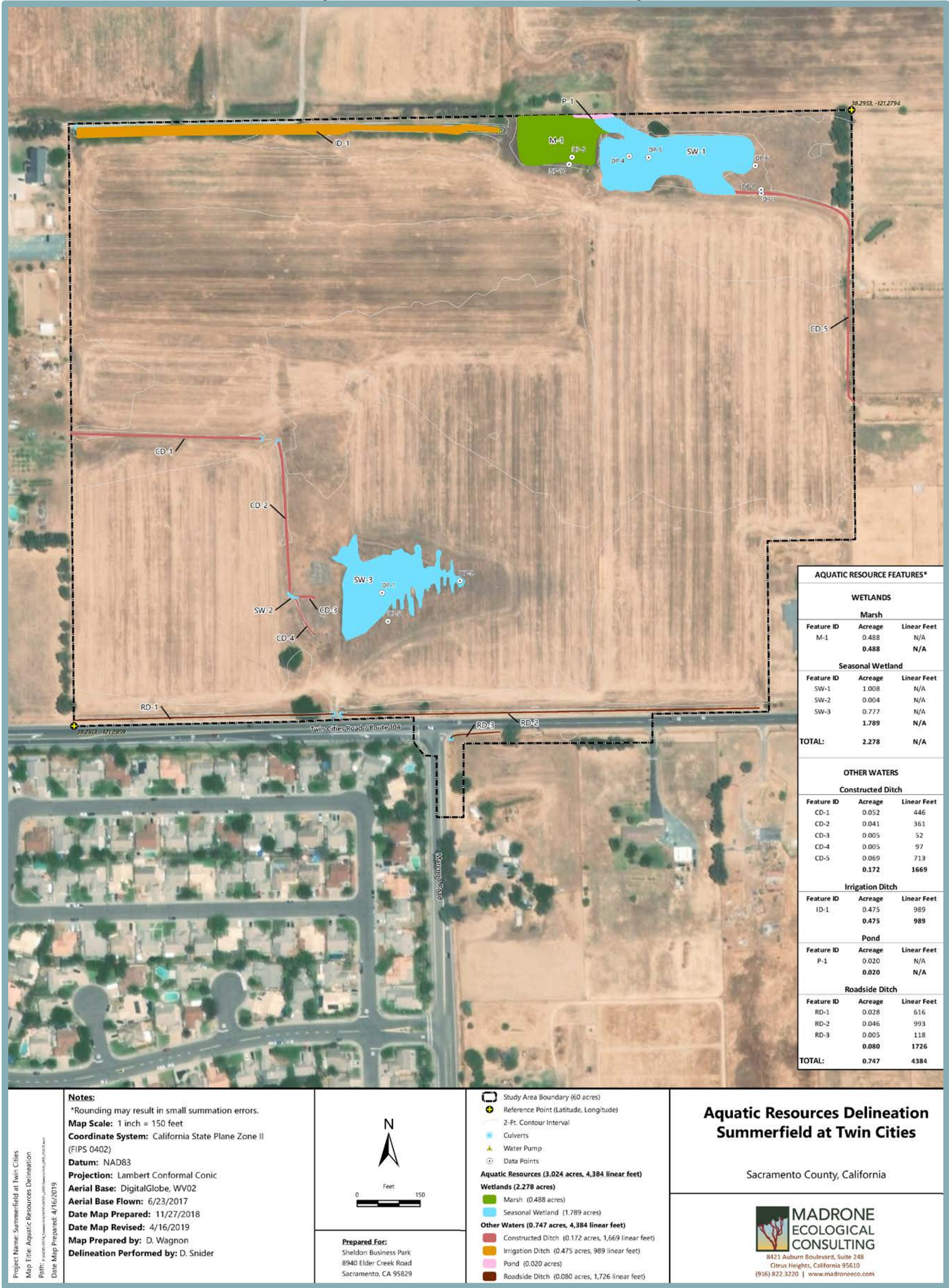
- IV-12(d). *SSHCP BAT-4 (Bat Eviction Methods for Non-Maternity and Non-Hibernaculum Roosts): An approved biologist shall determine if non-maternity and non-hibernaculum day and night roosts are present on the project site. If direct impacts to non-maternity and non-hibernaculum day and night roosts cannot be avoided, the Third-Party Project Proponent shall prepare a bat eviction plan, and inform the Land Use Authority Permittee and the SSHCP Implementing Entity (the South Sacramento Conservation Agency). They in turn shall inform the Wildlife Agencies, and provide the bat eviction plan for review. If necessary, the approved biologist may be allowed to remove the bats using safe-eviction methods acceptable to the Wildlife Agencies.*

American Badger

- IV-13(a). *Pre-construction surveys conducted for other species shall also be used to determine the presence or absence of badgers in the development footprint. If an active badger den is not found during the preconstruction surveys, the remainder of the mitigation measures for badgers below are not necessary.*
- IV-13(b). *If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet (or distance specified by the resource agencies, i.e., CDFW) shall be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present on-site during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The monitor would be necessary on-site until it is determined that young are of an independent age and construction activities would not harm individual badgers.*
- IV-13(c). *Once it has been determined that badgers have vacated the site, the burrows can be collapsed or excavated, and ground disturbance can proceed.*
- b,c. According to an Aquatic Resources Delineation prepared for the project site, a total of 3.02 acres of aquatic resources exist within the central and northern portions of the site (see Figure 8).⁸ The aquatic resources consist of 1.79 acres of seasonal wetlands, 0.49-acre of marsh, 0.73-acre of ditches, and 0.02-acre of pond. It should be noted that the Aquatic Resources Delineation was verified and confirmed by the U.S. Army Corps of Engineers (USACE).

⁸ Madrone Ecological Consulting, LLC. *Aquatic Resources Delineation, Summerfield at Twin Cities*. April 16, 2019.

Figure 8
Aquatic Resources Delineation Map



Seasonal wetlands of the site may be considered jurisdictional waters of the U.S. and State by the USACE and Regional Water Quality Control Board (RWQCB), respectively, although they also may be disclaimed by USACE as isolated waters due to the lack of hydrological connectivity to other waters of the U.S. The RWQCB would still take jurisdiction over the wetlands. In addition, any impacts to the seasonal wetlands on the site would be subject to Seasonal Wetland land cover fees and conditions under the SSHCP. A permit under the SSHCP Aquatic Resources Program would also be required for any impacts to the seasonal wetlands. Seasonal wetland habitat that occurs in the south-central portion of the site would be filled as a result of the proposed project, while wetland and marsh habitat occurring in the northernmost portion of the site would be preserved. The project applicant would be required to apply for the Clean Water Act (CWA) Section 404 and 401 authorization and a Fish and Game Section 1600 permit from the USACE, RWQCB, and CDFW, respectively, for impacts to waters under their jurisdiction, as well as satisfy all agency mitigation requirements.

The irrigation ditch along the northern portion of the site could be considered a water of the U.S. and State under the jurisdiction of the USACE, RWQCB, and CDFW, because the ditch has a defined bed and bank, evidence of an Ordinary High Water mark on opposing banks, appears to be hydrologically connected to Skunk Creek, and could have been a naturally occurring tributary water of that creek at one point in time. Additionally, the irrigation ditch could be classified as Stream/Creek land cover under the SSHCP. As such, the applicant may be subject to payment of SSHCP mitigation fees, conditions for the Stream/Creek land cover, and a permit under the SSHCP Aquatic Resources Program. The proposed detention basin would be constructed in current location of the irrigation ditch.

Although the seasonal wetland and marsh in the northern portion of the project site would be retained as open space, the seasonal wetland in the south-central portion of the site and the irrigation ditch could be impacted as a result of the proposed project. Therefore, due to impacts on the south-central wetland, the proposed project could have a substantial adverse effect on riparian habitat, sensitive natural communities, or federally protected wetlands, and a ***potentially significant*** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- IV-14. *Before the approval of grading and improvement plans and before any groundbreaking within the project site, the project applicant shall ensure that authorization pursuant to CWA Section 404 from the USACE and CWA Section 401 from the Central Valley Regional Water Quality Control Board (RWQCB) is obtained (i.e., through permitting under the SSHCP ARP). The construction contractor shall adhere to all conditions outlined in the SSHCP ARP. The project applicants shall ensure that the project replaces, restores, or enhances on a “no net loss” basis (in accordance with the USACE and the Central Valley RWQCB) the acreage of all wetlands and other waters of the United States/State that would be removed, lost, and/or degraded due to project implementation, either through the SSHCP In-Lieu Fee Program or by other methods agreeable to the USACE, the Central Valley RWQCB, and the City, as appropriate, depending on agency*

jurisdiction, and as determined during the Section 401 and Section 404 permitting processes.

- IV-15. Before the approval of grading and improvement plans and before any groundbreaking within the project site, the project applicant shall ensure that authorization pursuant to Section 1600-1616 of the California Fish and Game Code (CDFW 1602 Streambed Alteration Agreement) has been obtained (i.e., through direct application to CDFW for a Section 1602 SAA or through participation in the SSHCP). The construction contractor shall adhere to all conditions outlined in the Section 1602 SAA or SSHCP.*
- IV-16(a). SSHCP STREAM-3 (Minor Tributaries to UDA Streams): A 25-foot setback measured from the top of the bank on both sides of the stream channel shall be applied to all avoided first and second order tributaries to the streams listed in Table 5-1 of the attached Technical Biological Evaluation and Laguna Creek. Refer to Objective W6 in Chapter 7 (Table 7-1 [of the SSHCP]) regarding avoided first and second order tributaries. Trails are not permitted within headwater ephemeral Stream Setbacks.*
- IV-16(b). SSHCP STREAM-4 (Minimize Effects from Temporary Channel Re-Routing): When an Urban Development Covered Activity temporarily re-routes a stream, creek, or drainage, the re-routing will be completed in a manner that minimizes impacts to beneficial uses and habitat. The following measures shall be employed to minimize disturbances that shall adversely impact water quality:*
- No equipment shall be operated in areas of flowing or standing water.*
 - Construction materials and heavy equipment shall be stored outside of the active flow of any waters.*
 - When work within waters is necessary, the entire stream flow shall be diverted around the work area.*
 - In the event of rain, the disturbed in-water work area shall be temporarily stabilized before water body flow exceeds the capacity of the diversion structure. The disturbed water body shall be stabilized so that the disturbed areas shall not come in contact with the flow.*
 - Once construction is complete, all project-introduced material (e.g., pipes, gravel, cofferdam, sandbags) must be removed, leaving the water as it was before construction. Excess materials shall be disposed of at an appropriate disposal site.*
 - All work areas shall be effectively isolated from stream flows using suitable control measures before commencement of any in-water work. The diverted stream flow shall not be contaminated by construction activities. Structures for isolating the in-water work area and/or diverting the stream flow (e.g., cofferdam, geo-textile silt curtain) shall not be removed until all disturbed areas are cleaned and stabilized.*
 - Any flow diversion used during construction shall be designed in a manner to prevent pollution and minimize siltation, and shall provide*

flows to downstream reaches. Flows shall be maintained to support existing aquatic life, riparian wetlands, and habitat that shall be located upstream and downstream from any temporary diversion.

- All surface waters, including ponded waters, shall be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity that may result in a discharge to waters.
- If temporary surface water diversions and/or dewatering are anticipated, the Third-Party Project Proponent shall develop and maintain on site a surface water diversion and/or dewatering plan. The plan(s) must be developed prior to initiation of any water diversions and shall include the proposed method and duration of diversion activities. The plan(s) must be made available to Central Valley Water Board staff upon request.
- When work in a flowing stream is unavoidable and any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water shall be allowed at all times to pass downstream to maintain beneficial uses of waters below the dam. Construction, dewatering, and removal of temporary cofferdams shall not violate the turbidity, settle-able matter, pH, temperature, or dissolved oxygen requirements of any Water Quality Control Plan.
- Any temporary dam or other artificial obstruction shall only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that shall cause little or no siltation. Stream flow shall be temporarily diverted using gravity flow through temporary culverts or pipes, or pumped around the work site with the use of hoses.
- All temporary dewatering methods shall be designed to have the minimum necessary impacts to waters to isolate the immediate work area. All dewatering methods shall be installed such that natural flow is maintained upstream and downstream of the diversion area. Any temporary dams and diversions shall be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the diversion area. All dewatering methods shall be removed immediately upon completion of diversion activities.
- A method of containment must be used below any bridge, boardwalk, and/or temporary crossing to prevent debris from falling into the waters through the entire duration of a project.

IV-16(c). SSHCP STREAM-5 (Design for Stream Channel Re-Routing, Widening, or Deepening): When an Urban Development Covered Activity alters a stream, creek, or drainage by re-routing, widening, or deepening a channel, the project design shall include the following:

- The main channel of a re-routed channel shall be free to migrate laterally over its active and terrace floodplain.
- Channel geometry (plan, profile, and cross-section) of the site shall be appropriate for the watershed location and physical/hydrologic condition.

- *Local, native materials shall be used as fill material to the extent practicable.*
 - *Bioengineering techniques shall be used for construction and maintenance of bank stabilization. Bioengineered bank stabilization structures shall use vegetation in combination with bank reshaping; biodegradable geotextile materials; and, in some cases, a minimal amount of rock or wood to the extent practicable to dissipate erosive energy. The project applicant shall consult a professional engineer when considering using bioengineering techniques.*
 - *All re-routed, widened, or deepened streams are required to establish Stream Setbacks with minimum widths required under STREAM-1, STREAM-2, or STREAM-3 [Mitigation Measure IV-11(a)]. All re-routed, widened, or deepened streams must re-establish/ establish and maintain native Woody Riparian land cover and/or native Grassland Riparian land cover in the entire Stream Setback.*
- d. The project site is bound by Twin Cities Road to the south and existing residences to the east and west, all of which act as impediments to wildlife movement. Therefore, the portion of the project site proposed for development does not support a substantial wildlife movement corridor. While local wildlife may use the irrigation ditch and marsh on the northern portion of the site to move through the project site, that portion of the site and the aforementioned features therein would not be developed as part of the proposed project. In addition, Mitigation Measures IV-14 through IV-16 would minimize any impacts to the aquatic features. Thus, any wildlife using the features for movement through the site would be able to continue to do so. As such, the project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites, and a ***less-than-significant*** impact would occur.
- e. Currently, scattered trees are located within the southern portion of the site and along the borders of the site. The trees within the site could require removal as part of the proposed project. The majority of the trees located within the proposed development area are located near Twin Cities Road. According to the Technical Biological Report, at least one oak tree likely to be considered a Heritage Tree by the City of Galt under the Municipal Code is located on the project site and would require removal as part of the proposed project. Should the proposed project require removal of any protected trees, the proposed project would be required to comply with Section 18.52.060, The Cutting and Removal of Heritage Oak and Public Trees, of the City's Municipal Code. In addition, the project would be required to comply with General Plan Policy COS-3.2: Mature Tree and Woodland Preservation, which indicates that the City of Galt will encourage retention of mature trees and woodlands to the maximum extent possible. Without compliance with such regulations, a ***potentially significant*** impact would occur related to conflicting with local policies or ordinances protecting biological resources.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

IV-17. Prior to the removal of any trees, a tree removal permit shall be obtained from the City of Galt, and the project applicant shall comply with all of the conditions of the permit. For trees to be retained, a tree preservation plan shall be prepared for the proposed project identifying all protection and mitigation measures to be taken. The measures shall remain in place for the duration of the construction activities at the project site. The tree preservation plan shall be submitted to and approved by the City of Galt Community Development Department.

- f. The project site is located within the boundaries of the SSHCP, which establishes an effective framework to protect natural resources in south Sacramento County, while improving and streamlining the environmental permitting process for impacts on endangered species and provides guidance for the mitigation of impacts to covered species. The project site is located within the Preserve Planning Unit 8 (PPU 8) of the SSHCP. Applicable Avoidance and Minimization Measures for SSHCP covered species known to occur within the project region have been included in Mitigation Measures IV-1 through IV-16 of this IS/MND. Additionally, the proposed project would be subject to payment of all applicable development fees according to the sites land cover types.

Therefore, the proposed project would not conflict with the applicable provisions of the SSHCP and a ***less-than-significant*** impact would occur related to conflicts with an adopted HCP, NCCP, or other approved local, regional, or State HCP.

V. CULTURAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. Historical resources are features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics. According the City of Galt General Plan, the City of Galt is a culturally rich area with multiple historical and archaeological resources, including the Liberty Cemetery and Rae House Museum.⁹

While the City of Galt contains historical resources, the project site is currently vacant and does not contain any structures. Furthermore, a records search of the California Historic Resources Information System (CHRIS) was performed by the North Central Information Center (NCIC) for cultural resource site records and survey reports within the project area.¹⁰ The NCIC concluded that the project site does not contain any recorded historic buildings or structures on any lists of historic resources. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and a **less-than-significant** impact would occur.

- b,c. Based on the results of the records search of the CHRIS, the NCIC concluded that the project site does not contain any recorded archaeological or prehistoric-period resources. Archaeologists have located prehistoric-period habitation sites along streams or on ridges or knolls within Sacramento County. The project site is located in Sacramento Valley, approximately one-third of a mile from Skunk Creek. However, given the extent of known cultural resources and the environmental setting for the site, a low potential exists for prehistoric-period cultural resources to be discovered on or in the immediate vicinity of the project site.

Additionally, the project site has been subject to previous disturbance associated with agricultural activities. While the potential for resources to be discovered on the project site is low, previously unrecorded archaeological resources, including human remains, could be discovered during ground-disturbing activities related to project construction. If previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb

⁹ City of Galt. *Galt 2030 General Plan, Existing Conditions Report* [Table 9.1]. November 2005.

¹⁰ North Central Information Center. *Records Search Results for Summerfield at Twin Cities Annexation Project*. August 20, 2019.

human remains, including those interred outside of dedicated cemeteries. Therefore, impacts could be considered **potentially significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- V-1. *Prior to grading permit issuance, the developer shall submit plans to the Community Development Department for review and approval which indicate (via notation on the improvement plans) that if historic and/or cultural resources are encountered during site grading or other site work, all such work shall be halted immediately within 100 feet and the developer shall immediately notify the Community Development Department of the discovery. In such case, the developer shall be required, at their own expense, to retain the services of a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist for the purpose of recording, protecting, or curating the discovery as appropriate. The archaeologist shall be required to submit to the Community Development Department for review and approval a report of the findings and method of curation or protection of the resources. Further grading or site work within the area of discovery shall not be allowed until the preceding work has occurred.*
- V-2. *If human remains, or remains that are potentially human, are found during construction, a professional archeologist shall ensure reasonable protection measures are taken to protect the discovery from disturbance. The archaeologist shall notify the Sacramento County Coroner (per §7050.5 of the State Health and Safety Code). The provisions of §7050.5 of the California Health and Safety Code, §5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, then the Coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the project (§5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the applicant does not agree with the recommendations of the MLD, the NAHC can mediate (§5097.94 of the Public Resources Code). If an agreement is not reached, the qualified archaeologist or most likely descendent must rebury the remains where they will not be further disturbed (§5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center, using an open space or conservation zoning designation or easement, or recording a reinternment document with the county in which the property is located (AB 2641). Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.*

VI. ENERGY.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2019 California Green Building Standards Code and the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project's potential effects related to energy demand during construction and operations, are provided below.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which became effective with the rest of the CBSC on January 1, 2020. The purpose of the CAL Green Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The CAL Green standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards resulting in a seven percent reduction in energy consumption from the 2016 standards for residential structures. Energy reductions relative to previous Building Energy Efficiency Standards would be achieved through various regulations including requirements for the use of high efficacy lighting, improved water heating system efficiency, and high-performance attics and walls.

One of the improvements included within the 2019 Building Energy Efficiency Standards is the requirement that certain residential developments, including some single-family and low-rise residential developments, include on-site solar energy systems capable of producing 100 percent of the electricity demanded by the residences. Certain residential developments, including developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement; however, such developments are subject to all other applicable portions of the 2019 Building Energy Efficiency Standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use approximately 53 percent less energy than those under the 2016 standards.

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid.

Even during the most intense period of construction, due to the different types of construction activities (e.g., demolition, site preparation, grading, building construction), only portions of the project site would be disturbed at a time, with operation of construction equipment occurring at different locations on the project site, rather than a single location. In addition, all construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency and reduce GHG emissions. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

The CARB has recently prepared the *2017 Climate Change Scoping Plan Update* (2017 Scoping Plan),¹¹ which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The CARB Diesel Vehicle Regulation described above, with which the proposed project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

¹¹ California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, construction activities associated with the proposed project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

Operational Energy Use

Following implementation of the proposed project, SMUD and PG&E would provide electricity and natural gas to the project site. Energy use associated with operation of the proposed project would be typical of residential uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, refrigeration, appliances, and more. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with vehicle trips generated by the proposed single-family homes.

The proposed residential project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the project site by SMUD would comply with the State's Renewable Portfolio Standard (RPS), which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Thus, a portion of the energy consumed during operation of the proposed project would originate from renewable sources.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this IS/MND, the City of Galt and surrounding areas provides residents with numerous public transportation options. Transit options include Dial-A-Ride, Highway 99 Express, Delta Route, and other modes of public transit. Transit would provide access to several grocery stores, restaurants, banks, and schools within close proximity to the project site. The site's access to public transit would reduce vehicle miles traveled (VMT) and, consequently, fuel consumption associated with the proposed project.

Conclusion

Based on the above, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

ai-ii. Per the City of Galt General Plan, the City's planning area is generally flat in topography and not located within an Alquist-Priolo Earthquake Fault Zone, or in the immediate vicinity of an active fault.¹² The nearest mapped fault to the project site is the Midland Fault. The nearest active fault is the Clayton-Marsh Creek-Greenville Fault, which is located over 40 miles southwest of the project site. According to the Galt 2030 General Plan EIR, ground shaking hazards are considered to be low.¹³ The City of Galt is located in Seismic Risk Zone 3, and although within Zone 3 the potential for earthquakes is low, the possibility for major damage could still occur.

While damage on the project site could occur in the event of a major seismic event, Policy SS-1.7 requires all new buildings be built in accordance with the seismic requirements of the CBSC.¹⁴ The CBSC provides minimum standards to ensure that the proposed structures would be designed using sound engineering practices and appropriate engineering standards for the seismic area in which the project site is located. Projects designed in accordance with the CBSC should be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some

¹² California Department of Conservation. *Fault Activity Map of California*. Available at: <http://maps.conservation.ca.gov/cgs/fam/>. Accessed December 13, 2019.

¹³ City of Galt. *City of Galt 2030 General Plan EIR*. [pg. 8-24]. April 2009.

¹⁴ City of Galt. *City of Galt General Plan Policy Document*. [pg. SS-2]. April 2009.

structural, as well as non-structural, damage. Although conformance with the CBSC does not guarantee that substantial structural damage would not occur in the event of a maximum magnitude earthquake, conformance with the CBSC can reasonably be assumed to ensure that the proposed structure would be survivable, allowing occupants to safely evacuate in the event of a major earthquake.

Because the project site is not located within an Alquist-Priolo Fault Zone and the proposed structures would be designed according to the CBSC, the proposed project would not expose people and structures to potential substantial adverse effects involving rupture of a known earthquake fault or strong seismic ground-shaking and a ***less-than-significant*** impact would occur.

aiii,aiv,

- c. The proposed project's potential effects related to liquefaction, landslides, lateral spreading, and subsidence/settlement are discussed in detail below.

Liquefaction

Liquefaction is a phenomenon in which granular material is transformed from a solid state to a liquefied state as a consequence of increased pore-water pressure and reduced effective stress. Increased pore-water pressure is induced by the tendency of granular materials to densify when subjected to cyclic shear stresses associated with earthquakes. Per the California Geologic Survey, the project site is not located within a designated seismic hazard zone for liquefaction.¹⁵ Furthermore, the General Plan EIR analyzed soil conditions throughout the City and determined that the overall risk of liquefaction in the planning area is low to moderate.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The topography of the project site is flat, and the site is not located on or near any slopes. Furthermore, per the California Geologic Survey, the site is not located within a designated seismic hazard zone for landslides.¹⁶ The nearest landslide zone is located over 30 miles from the annexation area. Additionally, the General Plan EIR analyzed risk of landslides within the planning area and determined that sufficient policies exist to reduce any potential hazards associated with landslides. For example, Policy SS-2.1 requires a soil report for new projects to be submitted to and reviewed by the City in order to determine appropriate permitting requirements. As such, in compliance with Policy SS-2.1, the proposed project would be required to prepare a soil report, which would include sufficient recommendations to ensure future structures and residents would not be exposed to risks associated with landslides.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As discussed above, the project site does not contain any slopes, nor is the site located near any open faces that would be considered susceptible

¹⁵ California Geologic Survey. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed December 19, 2019.

¹⁶ *Ibid.*

to lateral spreading. Therefore, the potential for lateral spreading to pose a risk to the proposed development is relatively low.

Subsidence/Settlement

Subsidence is the settlement of soils of very low density generally from either oxidation of organic material, or desiccation and shrinkage, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The General Plan EIR determined that the City is considered a potential subsidence area due to the underlying groundwater basin and the rates of groundwater withdrawal that have occurred in the area over the past few years. Given that the proposed project would comply with General Plan Policy SS-1.7, requiring new buildings be built in accordance with the CBSC, the potential for subsidence to pose a risk to the proposed development is relatively low.

Conclusion

Based on the above, the proposed project would not be subject to substantial risks related to liquefaction, landslides, lateral spreading, and subsidence/settlement. Compliance with standard construction regulations included in the CBSC would ensure that the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction, subsidence, or settlement, and would not 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 subsidence, liquefaction, or collapse. Thus, a ***less-than-significant*** impact would occur.

- b. Issues related to erosion and degradation of water quality during construction are discussed in Section X, Hydrology and Water Quality, of this IS/MND, under question 'a'. As noted therein, implementation of Mitigation Measures X-1 and X-2 would be required to ensure that a SWPPP and proper BMPs are implemented, which would ensure that the proposed project would not result in substantial soil erosion or the loss of topsoil. Thus, a ***less-than-significant*** impact would occur.
- d. Expansive soils are those possessing clay particles that react to moisture changes by shrinking or swelling. If structures are underlain by expansive soils, foundation systems must be capable of tolerating or resisting any potentially damaging soil movements, and building foundation areas must be properly drained. Because a site-specific geotechnical study has not been prepared for the project site, the potential exists for the site to contain expansive soils. Therefore, a ***potentially significant*** impact could occur related to being located on expansive soil, as defined in Table 18-1B of the Uniform Building Code, thereby creating substantial direct or indirect risks to life or property.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a ***less-than-significant*** level.

- VII-1. *Prior to issuance of a grading permit, the applicant/developer shall incorporate the recommendations of a design-level geotechnical report into project Improvement Plans for review and approval by the City Engineer. Should expansive or otherwise unstable soils be found within the project site, the design-level geotechnical report shall include measures necessary to ensure that such on-site conditions are fully mitigated. Methods of mitigating potential on-site soil expansive soils may include, but shall not be limited to, the following measures:*

- *Remove and replace potentially expansive soils; and/or*
 - *Strengthen foundations (e.g., post-tensioned slab, reinforced mat or grid foundation, or other similar system) to resist excessive differential settlement associated with seismically-induced soil expansion.*
- e. The proposed project would connect to existing City sewer infrastructure. Thus, the construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. Therefore, **no impact** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.
- f. Development allowed under the General Plan could result in the discovery and disturbance of previously unknown or undiscovered paleontological resources. The City's General Plan EIR concluded that with implementation of Policies HRE-4.1 through HRE-4.4, which require all new development projects to comply with procedures upon discovery of unique paleontological resources, impacts related to disturbance of paleontological resources would be less than significant.

In addition, the City's General Plan does not note the existence of any unique geologic features within the City. Consequently, implementation of the proposed project would not be anticipated to have the potential to result in direct or indirect destruction of unique geologic features.

Although the proposed project would not have the potential to result in the destruction of unique geologic features, previously unknown paleontological resources could exist within the annexation area. Thus, ground-disturbing activity, such as grading, trenching, or excavation associated with implementation of the proposed project, could have the potential to disturb or destroy such resources. Therefore, the proposed project could result in the direct or indirect destruction of a unique paleontological resource, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

- VII-2. *Should construction or grading activities result in the discovery of unique paleontological resources, all work within 100 feet of the discovery shall cease. The Community Development Director shall be notified, and the resources shall be examined by a qualified archaeologist or paleontologist, at the developer's expense, for the purpose of recording, protecting, or curating the discovery as appropriate. The archaeologist, paleontologist, or historian shall submit to the Community Development Department for review and approval a report of the findings and method of curation or protection of the resources. Work may only resume in the area of discovery when the preceding work has occurred.*

VIII. GREENHOUSE GAS EMISSIONS.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
a,b. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on Earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.				

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to the project would be primarily associated with increases of carbon dioxide (CO₂) and, to a lesser extent, other GHG pollutants, such as methane (CH₄) and nitrous oxide (N₂O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO₂ equivalents (MTCO₂e/yr).

For disclosure purposes, the GHG emissions associated with the proposed project have been estimated using CalEEMod, based on the modeling assumptions presented in Section III, Air Quality, of this IS/MND. According to the CalEEMod results, the proposed project would result in maximum unmitigated annual construction GHG emissions of 550.15 MTCO₂e/yr and annual operational GHG emissions of 2,426.85 MTCO₂e/yr.

Multiple agencies maintain guidance for the analysis of GHG emissions in the project area. SMAQMD has adopted thresholds of significance for GHG emissions during construction and operations of projects. Although SMAQMD maintains GHG emissions thresholds, SMAQMD's CEQA Guidelines note that where local jurisdictions have adopted thresholds or guidance for analyzing GHG emissions, the local thresholds should be used in project analysis. The City of Galt has recently adopted a Climate Action Plan (CAP) which provides a jurisdiction-wide approach to the analysis of GHG emissions. The Galt CAP includes a sustainability checklist to be used in analyzing the consistency of new development projects within the City of Galt with the City's CAP. Accordingly, the sustainability checklist has been completed for the proposed project, and is included as Appendix E of this IS/MND. The analysis presented within the sustainability checklist is summarized below.

The sustainability checklist includes certain requirements for new developments within the City to ensure compliance with the City's CAP. For instance, the sustainability checklist requires that the project include bicycle, pedestrian, and transit infrastructure, pursuant to

CAP Transportation Measures 1 and 2. In addition, in accordance with the AQMP, 50 percent of all roadways and intersections within the project be designed with traffic calming measures. Additionally, the project construction fleet may be required to include a percentage of construction equipment meeting the U.S. EPA's Tier 4 standards. Furthermore, the Galt CAP sustainability checklist requires outdoor electrical outlets or infrastructure to support the use of all electric landscaping equipment. Because the aforementioned features are not known to be included as part of the proposed project at this time, without the implementation of mitigation, a significant impact could occur related to conflict with the Galt CAP sustainability checklist.

Per Section 2, Sustainable Design Options, of the sustainability checklist, the proposed project is required to meet at least two of the provided sustainable design options. The proposed project complies with the requirement by reducing the amount of natural gas consumed on the project site, and including sustainable design practices. As noted in the AQMP, the proposed project would limit natural gas use on-site to only allow natural gas use for cooking appliances. The proposed project would not include the use of natural gas to power water or space heating. Compared to the on-site combustion of natural gas, the use of electric appliances and electric HVAC systems within residential developments represents a less emissions-intensive source of energy. In addition, pursuant to the CBSC and City's Municipal Code, the proposed project would include several sustainable design features, including the following:

- Outdoor landscaping must reduce outdoor water use through compliance with the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) and landscape water efficiency standards set forth in Chapter 18.52 of the Municipal Code;
- 65 percent of construction and demolition waste must be diverted from landfills;
- Installation of high efficacy lighting and water heating systems;
- Installation of electric vehicle charging infrastructure;
- Inclusion of high-performance attics and walls; and
- Implementation of on-site solar energy systems capable of producing 100 percent of the on-site electricity demand.

With the inclusion of the above sustainable design practices and the reduction in natural gas use, the proposed project would comply with the requirements in Section 2 of the Galt CAP sustainability checklist.

Consequently, the proposed project could generate GHG emissions that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHG. Therefore, impacts would be considered ***potentially significant***.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

VIII-1. *Implement Mitigation Measure III-1.*

VIII-2. *Prior to the issuance of building permits, the project applicant/developer shall demonstrate the incorporation of outdoor electrical outlets or other*

infrastructure into building permit plans for review and approval by the Community Development Director.

VIII-3. In the event that project construction occurs after the year 2025:

Prior to the start of construction activities, the project applicant shall submit a construction equipment inventory list to the City Engineer demonstrating compliance with U.S. EPA Tier 4 engine requirements as outlined in the City's Sustainability Checklist and CAP. The use of alternatively fueled construction equipment, such as hybrid electric or natural gas-powered equipment, would be acceptable, given that such technologies are implemented to a level sufficient to achieve similar emission reductions as would occur with the use of Tier 4 engines.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. Residential uses do not typically involve the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Future residents may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing the use of such products and the amount used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a **less-than-significant** impact would occur.
- b. Construction activities associated with the proposed project would involve the use of heavy equipment, which would contain fuels and oils, and the use of other products such as concrete, paints, and adhesives. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Thus, construction of the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.

The project site has historically been used for dry farming, grazing, and small scale “truck” farming. As such, pesticides and herbicides may have been used on or within close proximity of the site, and the potential exists for on-site soils to be contaminated with pesticides. However, upon development of the project, the site would primarily be covered by pavement and other impervious surfaces, thereby limiting future upset of on-site soils. Nonetheless, issues related to contaminated soils could pose a risk to construction workers during ground-disturbing activities. In addition, while not currently occupied by a residence, evidence has shown that a structure was likely present on the project site. Thus, the possibility exists for a well or septic field associated with the past residence to be uncovered during construction. Proper abandonment and removal of the facilities, if present, would be required prior to construction. Therefore, without proper soil testing and/or abandonment of any existing well or septic tank, the project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. Accordingly, a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- IX-1. *Prior to initiation of construction activities, the project applicant shall complete an analysis of on-site soils to determine whether substantial concentrations of organochloride pesticides or other soil contaminants are present above the applicable direct exposure Environmental Screening Levels (ESLs) set by the Regional Water Quality Control Board, the residential screening levels set by the Department of Toxic Substances Control’s Human Health Risk Assessment Note 3, and/or the U.S. Environmental Protection Agency’s Regional Screening Levels for Region 9. If contaminants are not detected above applicable ESLs/RSLs, then further mitigation is not required. If contaminants are detected above the applicable ESLs/RSLs, then the soils shall be remediated by off-hauling to a licensed landfill facility. Such remediation activities shall be performed by a licensed hazardous waste contractor (Class A) and contractor personnel that have completed 40-hour OSHA hazardous training. The results of soil sampling and analysis, as well as verification of proper remediation and disposal, shall be submitted to the Community Development Department for review and approval.*
- IX-2. *Prior to issuance of grading permits, the area proposed for development shall be examined for existing septic systems. If septic systems are not found, no further mitigation is required. In the event of a discovery, the system shall be abandoned in consultation with the Sacramento County Environmental Management Department. Proof of abandonment shall be provided to the City Community Development Department and City Engineer.*
- IX-3. *Prior to initiation of any ground disturbance activities, a survey shall be performed to inspect the development area for abandoned wells. If wells are not found, no further mitigation is required. If any wells are found, the applicant shall hire a licensed well contractor to obtain a well abandonment permit from Sacramento County Environmental Management Department*

and properly abandon the on-site wells to the satisfaction of the Sacramento County Environmental Health Department. Proof of abandonment shall be provided to the City Community Development Department and City Engineer.

- c. The project site is located 0.26-mile from Liberty Ranch High School and 0.34-mile from Estrellita High School. In addition, as discussed above under the Questions 'a' & 'b', the proposed residential uses would not involve the routine transport, use, or dispose of hazardous materials, or present a reasonably foreseeable release of hazardous materials. Therefore, the project would have a **less-than-significant** impact with respect to emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- d. According to the Department of Toxic Substances Control, the project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.¹⁷ Thus, the proposed project would not create a significant hazard to the public or the environment, and **no impact** would occur.
- e. The nearest public airport is the Lodi Airport, which is located approximately 15 miles south of the site. As such, the project site is not located within two miles of any public airports, and does not fall within an airport land use plan area. Therefore, **no impact** would occur related to the project being located within an airport land use plan or within two miles of a public airport or public use airport, thereby resulting in a safety hazard or excessive noise for people residing or working in the project area.
- f. During operation, the proposed project would provide adequate access for emergency vehicles and would not interfere with potential evacuation or response routes used by emergency response teams. During construction of the proposed project, all construction equipment would be staged on-site so as to prevent obstruction of local and regional travel routes in the City that could be used as evacuation routes during emergency events. In addition, the proposed project would not substantially alter the existing circulation system in the surrounding area. Therefore, the development of the project site with residential uses would not impair implementation of or physically interfere with an existing emergency response plan or emergency evacuation plan, and a **less-than-significant** impact would occur.
- g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this IS/MND. As noted therein, the project site is not located within or near a Very High Fire Hazard Severity Zone.¹⁸ However, grass fires could occur on uncultivated lands, particularly where native vegetation occurs. Given that the project site is located near other residential development, agricultural property, and cultivated land, wildland fire vulnerability is considered low. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, and a **less-than-significant** impact would occur.

¹⁷ Department of Toxic Substances Control. *Hazardous Waste and Substances Site List (Cortese)*. Available at: <https://www.envirostor.dtsc.ca.gov/public/>. Accessed January 2020.

¹⁸ California Department of Forestry and Fire Protection. *Sacramento County, Very High Fire Hazard Severity Zones in LRA*. July 20, 2008.

X. HYDROLOGY AND WATER QUALITY.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. During the early stages of construction activities, topsoil would be exposed due to grading and excavation of the site. After grading and prior to overlaying the ground with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or pollutants into stormwater runoff which could adversely affect the water quality in the project area.

The City of Galt has a Phase I National Pollutant Discharge Elimination System (NPDES) permit and is part of the Sacramento Stormwater Quality Partnership (SSQP). The City of Galt is regulated by Order No. R5-2002-0206 NPDES No. CAS082597, "Waste Discharge Requirements for County of Sacramento and Cities of Citrus Heights, Elk Grove, Folsom, Galt and Sacramento Storm Water Discharges From Municipal Separate Storm Sewer Systems Sacramento County" issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). However, the City of Galt Municipal Separate Storm Sewer System (MS4) is noncontiguous with other MS4s and is surrounded by rural and agricultural areas that are not subject to NPDES regulations.

The City of Galt participates in the County-wide Sacramento Stormwater Quality Improvement Program (SQIP), which was established in 1990 to reduce the pollution carried by stormwater into local creeks and rivers. The SQIP is based on the NPDES municipal stormwater discharge permit. The comprehensive SQIP includes pollution

reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations.

Grading and excavation during construction, as well as implementation of new structures associated with the proposed project, would create the potential to degrade water quality from increased sedimentation and increased discharge (increased flow and volume of runoff) associated with stormwater runoff. Disturbance of site soils would increase the potential for erosion from stormwater. The State Water Resources Control Board (SWRCB) adopted a statewide general NPDES permit for stormwater discharges associated with construction activity. Dischargers whose projects disturb one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. Construction activity subject to the General Permit includes clearing, grading and disturbances to the ground such as stockpiling, or excavation. The proposed project would include disturbance of approximately 58.1 acres, and, thus, is subject to the relevant requirements within the aforementioned General Permit.

According to the Preliminary Drainage Memo prepared for the proposed project, stormwater detention basins would act as water quality treatment facilities during operation.¹⁹ The stormwater treatment system would be designed to be a volume-based treatment, based on the extent of development. A large enough area would be set aside for the detention basin to accommodate the water quality storage, as well as flood control and hydromodification. Additionally, as discussed under questions 'ci' through 'ciii', pre-development flows would not exceed post-development flows and the proposed detention basin would be capable of treating the on-site stormwater.

The proposed project would be required to implement any applicable goals, policies and BMP's set forth by the above programs. Construction related BMPs would likely include, but are not limited to, installation of storm drain inlet protection, stabilization of construction exists, and proper maintenance of material stock piles. The project's compliance with the requirements of the SWRCB, the SQIP, and the City of Galt's Stormwater Management Program would ensure that construction activities and operation of the project would not result in degradation of downstream water quality. However, the proposed project's construction activities could result in an increase in erosion, and consequently affect water quality. Compliance with the foregoing requirements is typically demonstrated through implementation of a SWPPP. However, a SWPPP has not yet been prepared for the project. Without preparation of a SWPPP, proper implementation of BMPs cannot be ensured at this time. Therefore, a **potentially significant** impact related to water quality and waste discharge requirements would result.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

- X-1. *Prior to the issuance of grading permits, the developer shall obtain and comply with the NPDES general construction permit including the submittal of a Notice of Intent (NOI) and associated fee to the SWRCB and the preparation of a SWPPP that includes both construction stage and*

¹⁹ Wood Rodgers, Inc. Subject: Summerfield at Twin Cities Road. September 25, 2019.

permanent storm water pollution prevention practices to be submitted to the City Engineer for review.

X-2. *If a site-specific geotechnical report identifies a near-surface groundwater table within the project site, the project applicant shall obtain the appropriate NPDES dewatering general permit prior to commencement of dewatering activities. Should such a permit be required, the project applicant shall prepare a Dewatering Plan that includes measures sufficient to ensure that dewatering activity does not result in a violation of water quality standards. Such measures may include sediment detention basins or clarifiers sufficient to properly treat any dewatering runoff prior to discharge. The plan shall be reviewed and approved by the City Engineer.*

- b,e. Water supplies for the project site are supplied by the City of Galt. Per the City's 2015 Urban Water Management Plan (UWMP),²⁰ the City of Galt's groundwater is derived from the Cosumnes Subbasin, which is part of the San Joaquin Valley Groundwater Basin. Despite growth within the City of Galt, on-going groundwater use, and the uncertainty of overdraft conditions, monitoring groundwater levels within the City has shown little change in depth to groundwater since 1961. The UWMP concludes that groundwater resources within the City are anticipated to be sufficient at least through the year 2040. Increases in demand for groundwater that occur with buildout of the City, including buildout of the project site, can be met through continued pumping from existing wells and the construction of new wells as needed.²¹ The proposed project is not anticipated to require construction of a new well, and continued pumping from existing City of Galt wells is not anticipated to inhibit the use of groundwater by the City.

Stormwater detention basins within the project site would allow for stormwater to infiltrate on-site soils and provide limited groundwater recharge. Given that the project site is a relatively small area compared to the size of the groundwater basin, the amount of stormwater infiltrating on-site soils and resulting in groundwater recharge would not be substantial. Considering the above, implementation of the project would limit groundwater infiltration within the project site; however, some recharge of groundwater on-site would continue to occur.

Based on the above, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, the proposed project would result in a **less-than-significant** impact with respect to substantially decreasing groundwater supplies or interfering substantially with groundwater recharge such that the project would impede sustainable groundwater management of the basin.

- ci-iii. The project site primarily consists of disturbed land, previously used for agricultural purposes. Implementation of the proposed project would involve grading of the site, and development of 211 residential units. Such development would increase the amount of impervious surfaces within the project site. Considering the amount of impervious would be increased, the altering of drainage patterns could increase the rate or amount of runoff on- and off-site.

²⁰ City of Galt. 2015 Urban Water Management Plan Update. June 2016.

²¹ City of Galt. 2015 Urban Water Management Plan Update. June 2016.

The on-site drainage system would be designed to meet the requirements of Section 9 of the Sacramento County Improvement Standards as well as the draft Sacramento Region Stormwater Quality Design Manual. Sacramento County drainage requirements include the following:

- One-ft of freeboard to manholes and 0.5-ft freeboard to inlets during the design storm event;
- Pad elevations must be 1.2-ft above Base Flood Elevation;
- Ponding cannot exceed 12 inches above the lip of the gutter;
- Drainage must be conveyed in closed conduits for developments smaller than 160 acres; and
- No adverse impacts to upstream or downstream channels.

Sacramento County stormwater quality requirements include the following:

- 48-hour drawdown time;
- Depth of water quality volume in treatment basin not to exceed one foot; and
- Hydromodification requirements must be met.

According to a Preliminary Drainage Memo prepared for the proposed project by Wood Rodgers, Inc., the on-site drainage system would be designed to meet the requirements of Section 9 of the Sacramento County Improvement Standards, as well as the draft Sacramento Region Stormwater Quality Design Manual.²² Flood control and hydromodification for the project would be provided by a detention basin in the northwest corner of the project site. The detention basin would mitigate storm water flows below the current peak flows in the 24-hour, 10-year, and 100-year storm events, and would be designed to provide one foot of freeboard from the top of the basin to the peak 100-year water surface elevation. Additionally, hydromodification requirements specify limiting post-development runoff to pre-development runoff for 85 percent of storm events between two-year and 10-year storm events. A preliminary hydrological analysis of the existing and proposed 10-year, 100-year, and 200-year peak flow conditions is provided in Table 5 below. As shown in Table 5, post-development peaks flows would be below pre-development flows.

Table 5 Preliminary Hydrologic Results						
Compliance Point	Existing Conditions			Proposed Conditions		
	10-Year (cfs)	100-Year (cfs)	200-Year (cfs)	10-Year (cfs)	100-Year (cfs)	200-Year (cfs)
C3	120	201	224	120	201	224
C2A	34	58	65	138	226	251
C2	145	241	269	10	12	14
C1	162	269	300	146	239	266
Total	461	769	858	414	678	755
<i>Source: Wood Rodgers, Inc., Summerfield at Twin Cities, September 25, 2019</i>						

Additionally, to achieve the low impact development goals set forth by the City, runoff reduction and open space preservation measures are planned for the proposed project.

²² Wood Rogers, Inc. Subject: Summerfield at Twin Cities Road. September 25, 2019.

An existing wetland area with landscape buffers would be maintained, and a new park would be developed to preserve open space. Runoff reduction measures, including disconnected roof drains, are being considered for the proposed project. Low impact development (LID) credits are also under consideration and the methods to achieve low impact design may evolve with the project.

Consequently, the proposed project would not substantially increase stormwater runoff relative to existing conditions. Due to the stormwater detention basins, the proposed project would result in a **less-than-significant** impact related to soil erosion, surface runoff, and stormwater drainage.

- civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the project site, the project site is located within an Area of Minimal Flood Hazard (Zone X).²³ The site is not classified as a Special Flood Hazard Area or otherwise located within a 100-year or 500-year floodplain. Therefore, development of the proposed project would not impede or redirect flood flows and **no impact** would result.
- d. As discussed under question 'civ' above, the project site is not located within a flood hazard zone. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The project site is not located in proximity to a coastline and would not be potentially affected by flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to a large closed body of water. Based on the above, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and **no impact** would occur.

²³ Federal Emergency Management Agency. *Flood Insurance Rate Map 06067C0467J*. Effective October 20, 2016.

XI. LAND USE AND PLANNING.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community or isolate an existing land use. The proposed project would include development of 211 single-family residences within the project site. Existing land uses in the project vicinity include residential development to the south, east, west, and agricultural land to the north. The proposed project would be consistent with the surrounding residential uses and would not isolate an existing land use. As such, the proposed project would not physically divide an established community and a ***less-than-significant*** impact would occur.
- b. The project site is currently designated C and RR per the City's General Plan. The proposed General Plan Amendment would change the designations to LDR, OS, and PQP. Although the proposed project would require a General Plan Amendment, the project would be required to comply with all applicable development standards established by Title 18 of the City's Municipal Code. The development standards include maximum lot coverage, building heights, and building setback requirements.

In addition, as discussed throughout this IS/MND, the proposed project would not conflict with any City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. For example, the proposed project would comply with the City of Galt General Plan Noise Element. Additionally, as discussed in Section IV, Biological Resources, the proposed project would comply with the SSHCP requirements and Section 18.52.060, The Cutting and Removal of Heritage Oak and Public Trees, of the City's Municipal Code.

Furthermore, the proposed project would not conflict with any LAFCo standards or policies regarding annexations. In order for LAFCo to make determinations required under Section 56668 of the Cortese-Knox-Hertzberg Local Government Reorganization Act (CKH) (Government Code Section 56000 et seq.), LAFCo has requested in their January 31, 2020 email correspondence that further analysis and discussion regarding the extent to which the proposed project would contribute to environmental justice and the consistency with SACOG's Blueprint Project shall be provided.

Environmental Justice

Although environmental justice is not a CEQA issue, a brief summary of the topic related to the proposed project is provided and will also be provided in the City's staff report for the proposed project. The CKH states in Government Code Section 56668(o) that "environmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the location of public facilities and the provision of public services. With approval of the proposed project and annexation into the City of Galt, public services would be provided to the project site by the City of Galt, with the exception of fire services,

which are provided by the Cosumnes Community Services District Fire Department (CCSDFD). Therefore, the proposed project would not result in environmental injustice with respect to the provision of public services. In addition, as discussed in the Public Services, Recreation, and Utilities and Services sections of this IS/MND, with the implementation of mitigation measures, all impacts would be less-than-significant.

SACOG's Blueprint Project

According to SACOG's Blueprint Project, quality design factors are an important factor in creating a sense of community and a sense of place. The SACOG Board of Directors adopted the "Preferred Blueprint Scenario" in December 2004, which is a vision for growth in the Sacramento region. The Preferred Blueprint Scenario comprises the following seven growth principles:

- Transportation Choices;
- Mixed-Use Development;
- Compact Development;
- Housing Choice and Diversity;
- Use of Existing Assets;
- Quality Design; and
- Natural Resources Conservation.

The proposed project would directly implement several of the growth principles included in the Preferred Blueprint Scenario. The proposed project's pedestrian friendly design would encourage people to walk or ride bicycles. In addition, the project would maximize efficiency, minimize energy consumption, and reduce GHG emissions. As discussed in Section VIII, Greenhouse Gas Emissions, of this IS/MND, implementation of Mitigation Measure VIII-1 would require the project to incorporate traffic calming measures to ensure consistency with the Galt CAP and reduce GHG emissions. Furthermore, compliance with the standards for the R1C zoning district would ensure the proposed project would be of quality design with consideration of the relationship to the street, setbacks, placement of parks, sidewalks, landscaping, the aesthetics of building design, and the design of the public right-of-way (the sidewalks, connected streets and paths, bike lanes, the width of streets). It should also be noted that the proposed project would maintain open space and the wetland area within the site.

Sacramento LAFCo Standards

The discussion in Table 6 evaluates the proposed annexation of the project site in light of relevant Sacramento LAFCo policies and standards regarding annexation and reorganization found in Chapter V of the Sacramento LAFCo Policy, Standards and Procedures Manual.

As demonstrated in Table 6, the proposed annexation is generally consistent with the standards set forth by Sacramento LAFCo. Ultimately, the reorganization is a discretionary action by Sacramento LAFCo. Therefore, the proposed project would have a less-than-significant impact.

**Table 6
Sacramento LAFCo Policy Discussion**

Policy	Project Consistency
Annexations to Cities	
<p>1. LAFCo will utilize Spheres of Influence through application of the following standards:</p> <ul style="list-style-type: none"> a. The LAFCo will approve an application for annexation only if the proposal conforms to and lies wholly within the approved Spheres of Influence boundary for the affected agency; b. The LAFCo generally will not allow Spheres of Influence to be amended concurrently with annexation proposals; c. The LAFCo will favorably consider proposals that are a part of an orderly, phased annexation program by an agency for territory within its Sphere of Influence; d. An annexation must be consistent with a city's Master Services Plan Element of its Sphere of Influence Plan; and e. The LAFCo encourages the annexation to each city of all islands of unincorporated territory and all substantially surrounded unincorporated areas located within the city's Sphere of Influence. 	<ul style="list-style-type: none"> a. The project site is located completely within the City of Galt's SOI and is within the City of Galt General Planning Area. b. The proposed project does not include an SOI amendment. c. The project site is anticipated for development and the impacts of such have been analyzed in the City's General Plan EIR; therefore, development of the project site is part of the City's long range vision for community expansion and development. d. An updated Municipal Services Review would be submitted to the Sacramento LAFCo at such time the annexation process has been initiated. e. The proposed project is located adjacent to the current Galt city limits and is located completely within the City of Galt's SOI. Therefore, the proposed project would not create any islands as a result of annexation into the City.
<p>2. The LAFCo will not approve proposals in which boundaries are not contiguous with the existing boundaries of the City to which the territory will be annexed, unless the area meets all of the following requirements:</p> <ul style="list-style-type: none"> a. Does not exceed 300 acres; b. Is owned by the City; c. Is used for municipal purposes; and d. Is located within the same county as the city. 	<p>The project site is immediately north of the existing Galt city limits along Twin Cities Road.</p>
<p>3. The LAFCo will favorably consider proposals to annex streets where adjacent municipal lands will generate additional traffic and where there are isolated sections of county road that will result from an annexation proposal.</p>	<p>The annexation would result in the area north of Twin Cities Road becoming a part of the City of Galt. Therefore, a portion of Twin Cities Road would then be maintained by the City of Galt; however, the portion of Twin Cities Road to the west of the site is already maintained by the City.</p>

**Table 6
Sacramento LAFCo Policy Discussion**

Policy	Project Consistency
Cities shall annex a roadway portion when 50 percent of the property on either or both sides of the street is within the City.	
4. The LAFCo will favorably consider annexations with boundary lines located so that all streets and rights-of-way will be placed within the same city as the properties which either abut thereon or for the benefit of which such streets and rights-of-way are intended.	The proposed project is bordered by rural residences to the east and west, Twin Cities Road to the south, and agricultural land to the north. Therefore, a portion of Twin Cities road would be maintained by the City of Galt; however, the portion of Twin Cities Road to the west of the site is already maintained by the City.
5. An annexation may not result in islands of incorporated or unincorporated territory or otherwise cause or further the distortion of existing boundaries unless it is determined that the annexation as proposed is necessary for orderly growth, and cannot be annexed to another city or incorporated as a new city. Annexations of territory must be contiguous to the annexing city. Territory is not contiguous if its only connection is a strip of land more than 300 feet long and less than 200 feet wide.	The project site is immediately north of the existing Galt city limits along Twin Cities Road, and the proposed project would not result in islands of incorporated or unincorporated territory.
6. The LAFCo opposes extension of services by a City without annexation, unless such is by contract with another governmental entity or a private utility.	The extension of services resultant from the proposed project would be part of the annexation process.
Reorganization	
1. LAFCo will strive to ensure that each separate territory included in the proposal, as well as affected neighboring residents, tenants, and landowners, receive services of an acceptable quality from the most efficient and effective service provider after the reorganization is complete.	With the project site's annexation to the City of Galt, the City of Galt would provide services to the proposed project with the exception of fire services, which are provided by the CCSDFD. Because the City of Galt currently provides utilities services in the vicinity of the project site, the City would be able to efficiently and effectively extend services to the project site upon annexation.
2. The service quality, efficiency and effectiveness available prior to reorganization shall constitute a benchmark for determining significant adverse effects upon an interested party. The LAFCo will approve a proposal for reorganization which results in this type of significant adverse effects only if effective measures are included in the proposal.	The City of Galt currently provides sufficient services to all properties within the existing city limits and would continue to provide equivalent, if not greater, service to the existing City and proposed project upon annexation into the City of Galt.

Conclusion

Based on the above, the project would not cause a significant environmental impact due to conflicts with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, a ***less-than-significant*** impact would occur.

XII. MINERAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗

Discussion

- a,b. Buildout of the City's General Plan has been previously analyzed in the City's General Plan EIR. The General Plan EIR determined that impacts to mineral resources would be less-than-significant. Although the proposed project would include a General Plan Amendment, buildout of the site has been previously anticipated by the City and would not result in any changes to the analysis provided within the General Plan EIR related to mineral resources. Additionally, according to the Sacramento County General Plan, the mineral resource zone closest to the City of Galt is located near New Hope Road, which is over five miles southwest of the project site.²⁴ Therefore, the project site does not contain mineral resources, and the proposed project would not result in the loss of availability of any known mineral resources or locally-important mineral resource recovery sites. Therefore, ***no impact*** to mineral resources would occur.

²⁴ County of Sacramento. *County of Sacramento General Plan, Conservation Element* [pg. 15]. Amended September 26, 2017.

XIII. NOISE.

Would the project result in:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	×	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	×

Discussion

The following discussion is based primarily on an Environmental Noise Assessment prepared for the proposed project by Saxelby Acoustics (see Appendix F).²⁵ It should be noted that the Environmental Noise Assessment was based on a previous iteration of the project, which included 212 units rather than 211 units. Thus, the analysis presented below would be considered conservative.

- a. The following sections present information regarding sensitive noise receptors in proximity to the project site, the existing noise environment, and the potential for the proposed project to result in impacts during project construction and operation. The following terms are referenced in the sections below:
- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.
 - Average, or equivalent, sound level (L_{eq}): The L_{eq} corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour).
 - Day-Night Average Level (Ldn): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. In the vicinity of the project site, sensitive land uses include existing single-family residential uses located to the north, south, east, and west.

²⁵ Saxelby Acoustics. *Environmental Noise Assessment, Summerfield Residential, City of Galt, California*. December 19, 2019.

Existing Noise Environment

The existing noise environment in the project vicinity is primarily defined by vehicle traffic on the local roadway network, specifically traffic along Twin Cities Road directly south of the project site. To quantify the ambient noise environment at the project site, Saxelby Acoustics conducted continuous (24-hour) noise level measurements at two locations on the project site (see Figure 9). Table 7 below provides a summary of the noise measurement results.

Table 7 Summary of Existing Background Noise Measurement Data								
Site	Date	L _{dn}	Average Measured Hourly Noise Levels (dB)					
			Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
			L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{max}
LT-1	06/19/19 – 06/20/19	55	51	48	65	48	44	59
LT-2	06/19/19 – 06/20/19	71	67	61	89	64	86	48
Source: Saxelby Acoustics. 2019.								

Standards of Significance

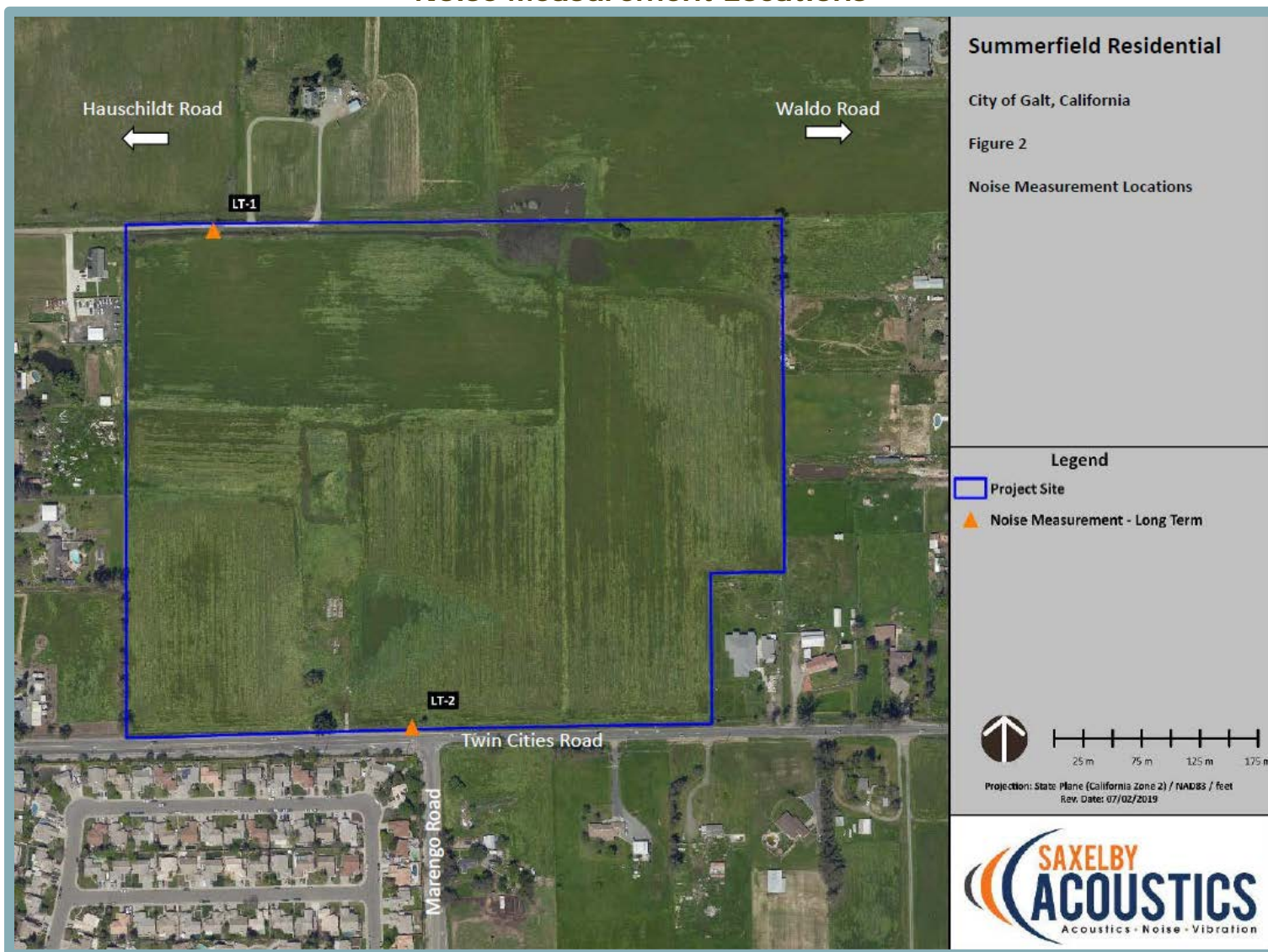
The City of Galt General Plan Noise Element establishes a noise level standard of 60 dB as normally acceptable at residential land uses. Noise levels up to 70 dB are considered conditionally acceptable for residential uses. The City of Galt considers the following significance criteria for noise impacts:

- If the noise level resulting from project operations would exceed the “normally acceptable” range for a given land use where the existing noise level exceeds the normally acceptable range, a 3 dB L_{dn} or greater increase due to a project is considered significant; and
- If the noise level resulting from project operations would exceed the “normally acceptable” range for a given land use where the existing noise level is within the normally acceptable range, a 5 dB L_{dn} or greater increase due to a project is considered significant; and
- If the noise level resulting from project operations would be within the “normally acceptable” range for a given land use, a 10 dB L_{dn} or greater increase due to a project is considered significant.

In addition to General Plan standards noted above, Section 8.40.040 of the City’s Municipal Code outlines criteria for “non-transportation” or “locally regulated” noise sources. The noise level performance standards for non-transportation noise in the City of Galt are shown in Table 8 below.

Table 8 Noise Level Performance Standards for Residential Areas Affected by Non-Transportation Noise		
Noise Level Descriptor	Exterior Noise Level Standards, dBA	
	Daytime (7 AM-10 PM)	Nighttime (10 PM-7 AM)
Hourly L _{eq} , dB	50	45
Maximum Level, dB	70	65
Source: City of Galt Municipal Code.		

Figure 9
Noise Measurement Locations



Source: Saxelby Acoustics, 2019.

Impact Analysis

The following sections provide an analysis of potential noise impacts associated with construction and operation of the proposed project.

Construction Noise

During construction of the proposed project, heavy-duty equipment would be used for demolition, grading, excavation, paving, and building construction, which would result in temporary noise level increases. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point. Standard construction equipment, such as backhoes, dozers, and dump trucks would be used on-site.

Table 9 shows the predicted construction noise levels for development of the proposed project. Based on the table, activities involved in typical construction would generate maximum noise levels up to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime hours.

Table 9	
Construction Equipment Noise	
Type of Equipment	Maximum Level, dB at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85
Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.	

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. Noise increase from truck traffic related to the movement of material would be of short duration, and would likely occur primarily during daytime hours.

The City of Galt establishes permissible hours of construction in Section 8.40.060(E) and (F) of the Municipal Code. The ordinance restricts noise-producing construction activities to weekday hours between 6:00 AM and 8:00 PM Monday through Friday, and from 7:00 AM to 8:00 PM on Saturdays and Sundays. During the permissible hours, construction activities are conditionally exempt from the Noise Ordinance Standards established by Section 8.40.040(A) of the City's Municipal Code.

Although construction activities are temporary in nature and would likely occur during normal daytime working hours, construction-related noise could result in sleep

interference at existing noise-sensitive land uses in the vicinity of the project if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting in the 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 could be considered significant.

Project Operational Noise

Operations of the proposed project would generate noise primarily associated with increased traffic on nearby roadways. Transportation related noise at sensitive receptors are discussed in further detail below.

Traffic Noise at Existing Sensitive Receptors

As further discussed in Section XVII, Transportation, of this IS/MND, the proposed project would result in an increase in vehicle trips on local roadways. Increased vehicle trips would result in increased noise levels from vehicle traffic along local roadways. The Galt 2030 General Plan EIR considers an increase of at least three dB to be a significant increase in traffic-related noise.

To examine the effect of project-generated traffic increases, traffic noise levels associated with the proposed project were calculated for roadway segments in the project area using the Federal Highway Administration (FHWA) model with project trip generation volumes provided by the project traffic engineer (GHD). Traffic noise levels were calculated for Existing and Cumulative conditions with and without the proposed project. Traffic noise levels were predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations, sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance.

Table 10 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the project area. As shown in Table 10, the proposed project would result in a maximum traffic noise level increase of 1.4 dB at a sensitive receptor, which is below the applicable 3.0 dB threshold of significance. Therefore, the proposed project would result in a less-than-significant impact related to an increase in traffic noise levels at the nearest sensitive receptors.

Traffic Noise at New Sensitive Receptors – Exterior Areas

Recent rulings by the California Supreme Court have clarified that environmental analyses prepared under CEQA are intended to analyze a project's impact on the environment, rather than the potential impact of the environment on the project. In the case of the proposed project, potential impacts related to future traffic noise on new sensitive receptors within the project site, such as the proposed residences, would be an example of impacts of the environment on the project. Consequently, impacts of noise on future on-site receptors would not typically be considered a required topic of analysis under CEQA. Nevertheless, the City has elected to prepare an analysis of potential noise-related impacts on future residences within the project site to ensure that the proposed project complies with all City regulations intended to protect the health and welfare of the citizens of Galt.

**Table 10
Predicted Traffic Noise Level and Traffic Noise Level Increases**

Roadway	Segment	Predicted Exterior Noise Level					
		Existing No Project	Existing Plus Project	Change	2040 No Project	2040 Plus Project	Change
Twin Cities Road	West of Fermoy Way	65.1	65.4	0.3	67.1	67.3	0.2
	Fermoy Way to McKenzie Road	62.8	63.2	0.3	64.5	64.7	0.2
	Carillion Boulevard to Park Terrace Drive	64.7	65.1	0.4	67.1	67.3	0.2
	Park Terrace Drive to Marengo Road	62.1	62.7	0.6	65.2	65.6	0.3
	Marengo Road to Cherokee Lane	63.4	64.2	0.8	67.3	67.6	0.3
	Twin Cities Road to Lake Park Avenue	68.0	68.1	0.1	72.2	72.3	0.0
Marengo Road	Lake Park Avenue to Walnut Avenue	54.8	56.1	1.4	60.7	61.1	0.4
	South of Walnut Avenue	54.0	55.2	1.2	60.7	61.0	0.3
	Park Terrace Drive to Marengo Road	55.8	56.4	0.6	64.0	64.1	0.1

Source: Saxelby Acoustics2019.

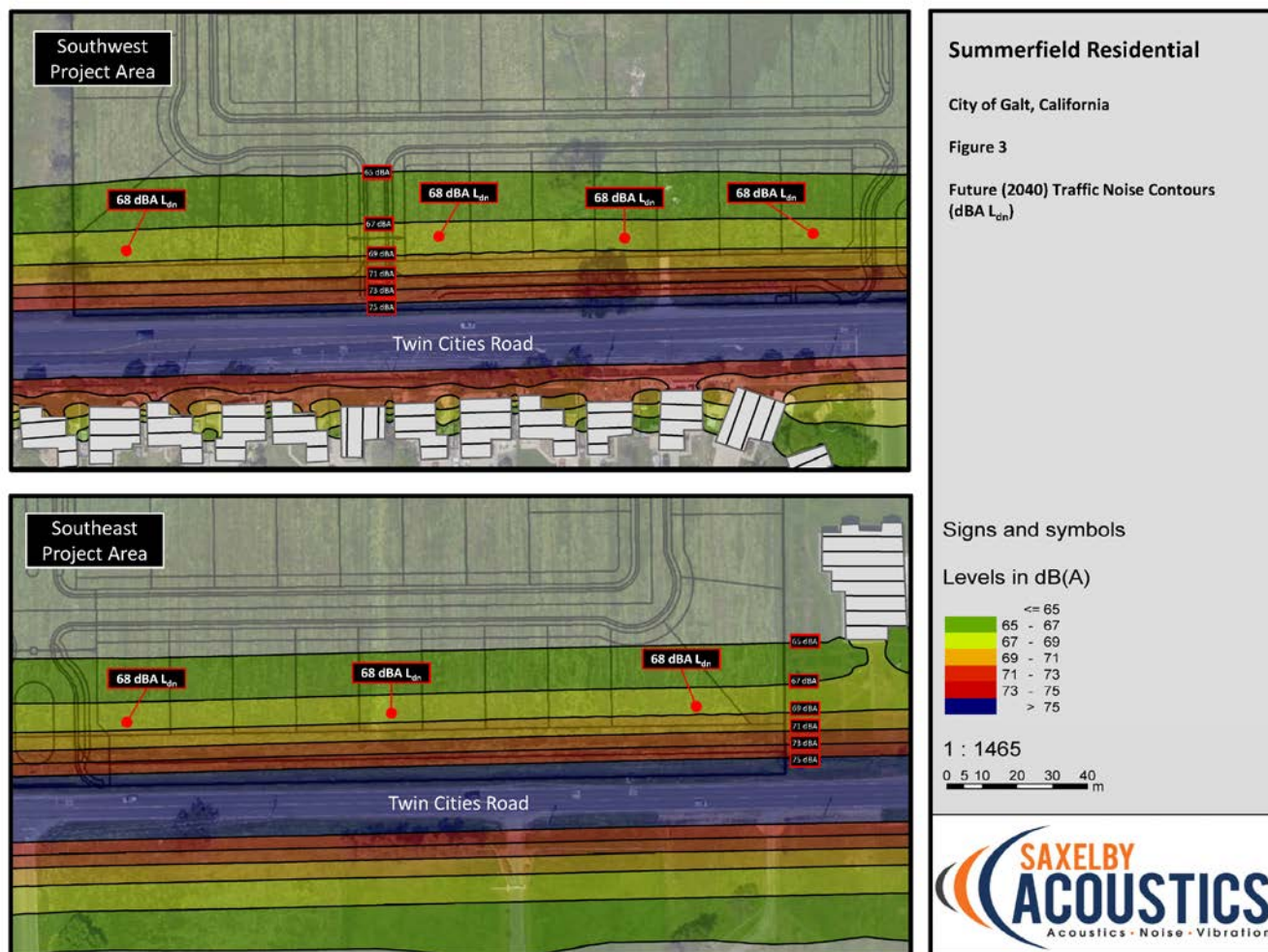
The proposed project consists of the development of 211 single-family residences on a 58-acre site. Under the 2030 Galt General Plan, residential uses are considered normally acceptable in ambient noise environments up to 60 dBA L_{dn} , and conditionally acceptable in noise environments up to 70 dBA L_{dn} .

As shown in Figure 10, the project site is predicted to be exposed to exterior noise levels up to approximately 69 dB L_{dn} , which would exceed the 60 dB normally acceptable limit for a residential land use, but would be within the City's conditionally acceptable range of up to 70 dB L_{dn} . Therefore, exterior noise control measures would be required to ensure that future residents are not exposed to exterior noise levels exceeding City standards.

Traffic Noise at New Sensitive Receptors – Interior Areas

The City of Galt maintains an interior noise level criterion of 45 dBA L_{dn} for residential uses. The intent of this standard is to provide a suitable environment for indoor communication and sleep. As discussed above, the proposed project would be exposed to unmitigated exterior noise levels of up to 69 dB L_{dn} at the ground floor building facades, closest to Twin Cities Road. Second floor locations would be expected to be exposed to exterior noise levels of up to 70 dB L_{dn} .

Figure 10
Future Exterior Noise Levels



Source: Saxelby Acoustics, 2019.

Modern building construction typically yields an exterior-to-interior noise level reduction of 25 dBA. Therefore, where exterior noise levels are 70 dB L_{dn} , or less, typical construction techniques would result in an indoor noise level of 45 dB L_{dn} or less. Therefore, the proposed project would not result in interior noise levels that exceed the City of Galt's 45 dB L_{dn} standard, and a less-than-significant impact would occur.

Conclusion

Based on the above, operation of the proposed project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the City's General Plan and the Municipal Code. However, construction noise could result in a significant impact, should activities occur outside of normal daytime hours. Additionally, noise levels at the proposed residences could exceed the City's exterior noise standards. Therefore, considering the potential for construction noise and exterior environments to experience noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of Mitigation Measure XIII-1 would reduce the maximum exterior noise levels at the ground floor building facades closest to Twin Cities Road of 69 dB to 65 dB or less, as shown in Figure 11. Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

XIII-1. *Construction activities shall comply with the City of Galt Noise Ordinance and shall be limited to the hours set forth below:*

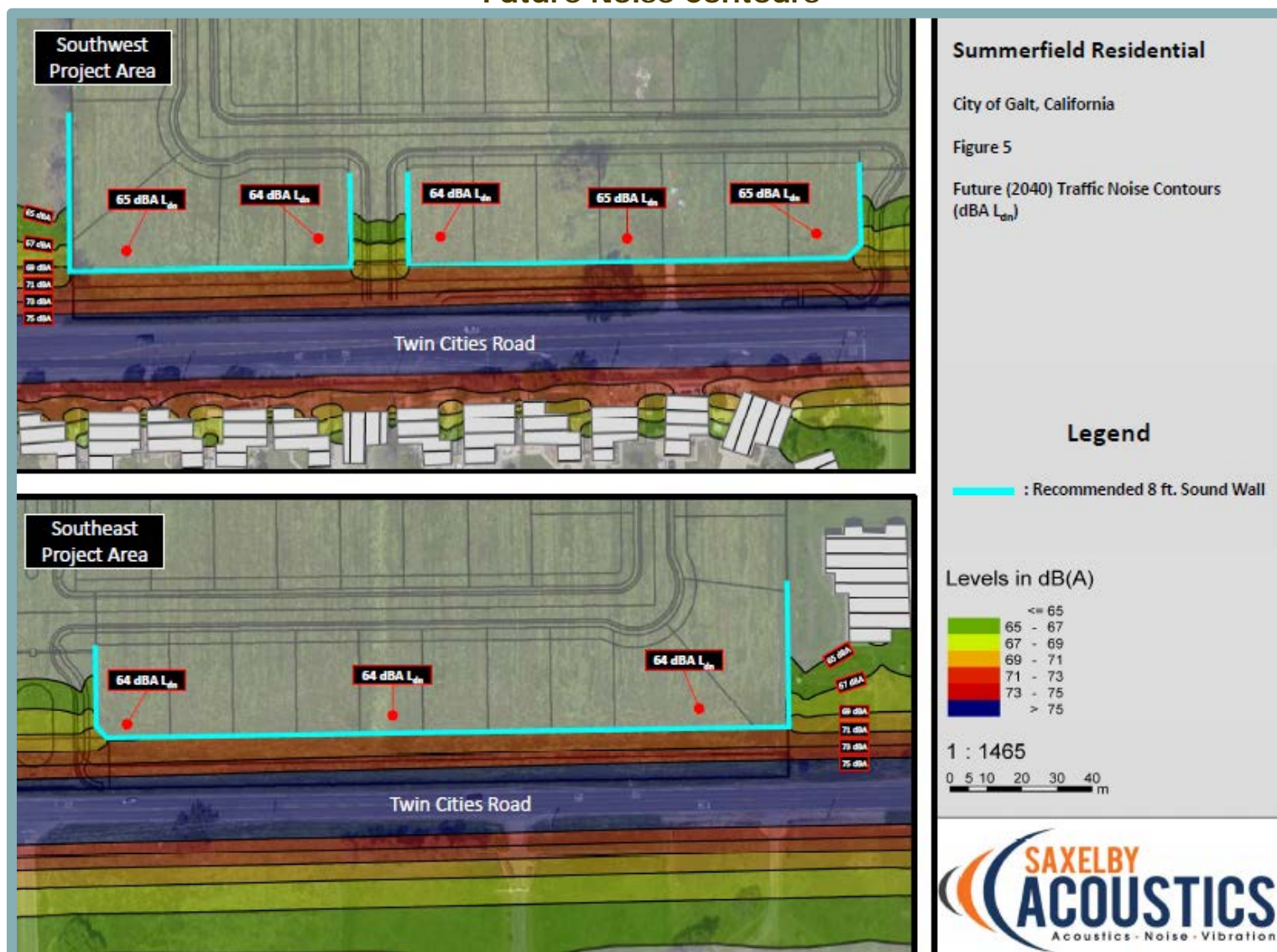
<i>Monday-Friday</i>	<i>6:00 AM to 8:00 PM</i>
<i>Saturday and Sunday</i>	<i>7:00 AM to 8:00 PM</i>

These criteria shall be included in the grading plan submitted by the applicant/developer for review and approval of the Public Works Department prior to issuance of grading permits. Exceptions to allow expanded construction activities shall be reviewed on a case- by-case basis as determined by the Chief Building Official and/or City Engineer.

XIII-2. *Construction activities shall adhere to the requirements of the City of Galt with respect to hours of operation, muffling of internal combustion engines, and other factors that affect construction noise generation and its effects on noise-sensitive land uses. Prior to issuance of grading permits, these criteria shall be included in the grading plan submitted by the applicant/developer for the review and approval of the Public Works Department.*

XII-3. *During construction, the applicant/developer shall designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances and will be responsible for determining the cause of the complaint, and implement feasible measures to be taken to alleviate the problem.*

Figure 11 Future Noise Contours



Source: Saxelby Acoustics, 2019.

The disturbance coordinator shall report all complaints and corrective measures taken to the Community Development Director.

XIII-4. Prior to approval of project improvement plans, the improvement plans for the proposed project shall show that the first-row lots shall be shielded from Twin Cities Road through the use of eight-foot tall masonry sound walls, as recommended in the Environmental Noise Assessment prepared for the proposed project, per the approval of the City Engineer. Other types of barrier may be employed but shall be reviewed by an acoustical engineer prior to being constructed.

- b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration depends on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 11, which was developed by the California Department of Transportation (Caltrans), shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading and utilities placement occur. Although noise and vibration associated with the construction phases of the project would add to the noise and vibration environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours. The proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial groundborne vibration.

Table 11			
Effects of Vibration on People and Buildings			
PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 to 0.30	0.006 to 0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10 to 15	0.4 to 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage
<i>Source: Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.</i>			

Table 12 shows the typical vibration levels produced by construction equipment at various distances. The most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors.

Table 12		
Vibration Levels for Various Construction Equipment		
Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)
Large Bulldozer	0.089	0.031
Loaded Trucks	0.076	0.027
Small Bulldozer	0.003	0.001
Auger/drill Rigs	0.089	0.031
Jackhammer	0.035	0.012
Vibratory Hammer	0.070	0.025
Vibratory Compactor/roller	0.210 (less than 0.20 at 26 feet)	0.074
<i>Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.</i>		

With the exception of vibratory compactors, the Table 12 data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distance of 26 feet. The proposed project construction would occur at distances greater than 26

feet from the nearest single-family residential uses. Specifically, the nearest sensitive receptors that could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located approximately 45 feet, or further, from typical construction activities on the project site. Thus, the proposed project would not expose people to or generate excessive groundborne vibration or groundborne noise levels and a ***less-than-significant*** impact would occur.

- c. The nearest public airport is the Lodi Airport which is located approximately 15 miles south of the site. As such, the project site is not located within two miles of any public airports, and does not fall within an airport land use plan area. Based on the above, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with airports. Thus, ***no impact*** would occur.

XIV. POPULATION AND HOUSING.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗

Discussion

- a. A General Plan Amendment is proposed as part of the project to modify the existing General Plan land use designations for the site of C and RR to LDR, OS, and PQP. The proposed project would include the construction of 211 residential units on a 58-acre site. Using the City of Galt average persons per household value for single-family uses of 3.27, the proposed projects would result in approximately 690 new residents.²⁶ Per the City's General Plan, approximately 31 acres are designated RR. Based on the maximum allowable density of 0.5 dwelling units per acre(du/acre) for the RR land use designation, up to 16 residences could currently be built on the project site. Thus, the proposed project would result in an increase in population from what is currently anticipated for the site by the City of 640 people ($690 - [31 \text{ acres} \times 0.5 \text{ du/acre} \times 3.27] = 640 \text{ people}$). The Department of Finance estimates the 2019 population of Galt, based on the 2010 Census, to be approximately 26,489.²⁷ It should be noted that population growth itself does not constitute an environmental impact; rather, increased demands on the physical environment resulting from increases in population are considered environmental impacts. Although the proposed project would result in an increase in population within the City in excess of what is currently anticipated for the site, the physical environmental effects associated with development of the proposed project are evaluated throughout this IS/MND.

As discussed previously, LAFCo has requested in their January 31, 2020 email correspondence that further analysis and discussion regarding the extent to which the proposed project would contribute to environmental justice. The City of Galt currently does not have an ordinance addressing environmental justice. Furthermore, the analysis of environmental justice is not required by CEQA. The CKH states in Government Code Section 56668(o) that "environmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the location of public facilities and the provision of public services. With approval of the proposed annexation into the City of Galt, all future public services would be provided by the City of Galt, with exception of fire services, which would be provided by CCSDFD. Therefore, the proposed project would not result in environmental injustice issues with respect to the provision of public services.

In addition, as discussed in Section XVIII, Utilities and Services Systems, of this IS/MND, adequate utility infrastructure and services exist to meet the additional demands that

²⁶ City of Galt. *Community Profile: City of Galt Demographic Overview*. Available at: <http://www.ci.galt.ca.us/city-departments/economic-development/community-profile>. Accessed December 2019.

²⁷ California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2019, with 2010 Benchmark*. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Accessed December 2019.

would be created by the proposed project. Similarly, as discussed in Section XIV, Public Services, of this IS/MND, public service providers such as local police and fire departments would be capable of accommodating the increased demands of the proposed project.

Based on the above, the proposed project would not induce substantial population growth in an area, either directly or indirectly, and a ***less-than-significant*** impact would occur.

- b. The project site is currently vacant and undeveloped. The proposed project would not result in the destruction of any permanent or temporary residences. Furthermore, the addition of 211 residential units would add to the housing stock of the City of Galt. As such, the proposed project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere. Therefore, ***no impact*** would occur.

XV. PUBLIC SERVICES.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
e. Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. The proposed project would include development of 211 single-family residences. The CCSDFD would provide fire protection services to the proposed project. The CCSDFD operates eight fire stations to serve the cities of Galt and Elk Grove, as well as areas of unincorporated Sacramento County covering a total of approximately 157 square miles. The CCSDFD currently staffs 177 personnel which includes 175 full-time and two part-time employees. Two fire stations are located in the City of Galt: Fire Station 45 at 229 Fifth Street and Fire Station 46 at 1050 Walnut Avenue. Fire Station 45 is located approximately 2.88 miles from the project site to the southwest, and Fire Station 46 is located approximately 0.88-mile to the south.

The increase in the overall demand on fire protection services associated with buildout of the City of Galt has been previously anticipated by the City of Galt General Plan and General Plan EIR. In addition, the SOI Amendment EIR found that the altered SOI area would increase the need for fire protection services and result in a significant and unavoidable impact. However, as identified in the City's Municipal Services Review, the Cosumnes Community Services District has a Strategic Plan to help guide mid- and long-term planning efforts for facility siting and operation. Therefore, the Strategic Plan would ensure that the CCSDFD has adequate facilities and operations capacity to support the proposed project. In addition, the City of Galt collects a special tax (Public Safety Community Facilities District) for police, fire, and emergency medical services from new growth areas in the City. The revenue from the tax is collected for ongoing delivery of services, and not for capital facilities such as equipment. Capital Impact Fees would also be required to be paid for the proposed project.

Additionally, the proposed project would adhere to Chapter 15.28, the Fire Code, of the Municipal Code, which requires the proposed project install a fire sprinkler system and adhere to all fire protection codes established by the CCSDFD. Compliance with the Fire Code would reduce the risk of fire at the project site, and, thus, reduce potential for the project to increase demand. In addition, the applicant would be required to pay all applicable fees, including development impact fees and public safety fees, payment of which would mitigate the costs of equipment and facilities maintenance, personnel training, salaries, etc. Thus, payment of fees would ensure that adequate fire services would be available to serve the proposed project, and the proposed project would not require the construction of new or physically altered fire protection facilities, the

construction of which could cause an environmental impact. Accordingly, the proposed project would result in a **less-than-significant** impact.

- b. Police service would be provided by the Galt Police Department, located at 455 Industrial Drive. The Galt 2030 General Plan EIR determined that the increased cost to maintain equipment and facilities and to train and equip personnel would be offset through the increased revenue, and fees, generated by increased development. Similarly, the SOI Amendment EIR determined that potential impacts due to an increase in demand for police protection would be mitigated to a less-than-significant level with compliance with a number of General Plan policies, including General Plan Policy PFS 6.5, Police Facility Funding. Policy PFS 6.5 requires new development to develop or fund police facilities, equipment, and personnel. The project applicant would be required to pay all applicable fees, including development impact fees and public safety fees, and, thus, would comply with General Plan Policy PFS 6.5. Given that the project site has been anticipated for urban development per the City's General Plan, the increase in police protection services associated with buildout of the project site has been analyzed. Furthermore, the City of Galt General Plan includes the Public Facilities and Services Element to establish goals and policies for the City. The General Plan ensures that emergency response equipment and personnel training are adequate to follow the procedures contained within the Emergency Operations Plan. Therefore, the proposed project would not result in the need for new or physically altered police protection facilities, the construction of which could cause an environmental impact, and a **less-than-significant** impact would occur.
- c. The project site falls within the boundaries of the Galt Joint Union Elementary School District (GJUESD) which operates the middle and elementary schools, and the Galt Joint Union High School District, which operates the high schools. According to the Galt 2030 General Plan Existing Conditions, Galt High School and GJUESD were exceeding capacity; however, funding for school facilities is provided through State and local revenue sources.

The proposed project includes the development of a 211-unit single-family residential subdivision. The proposed residences would be anticipated to generate new students. As shown in Table 13, the proposed project would generate approximately 183 total students.

Table 13			
Proposed Project Student Generation			
Grade	Number of Units	Students/Unit Rate¹	Number of Students
K-5	211	0.48	102
6-8	211	0.17	36
9-12	211	0.21	45
Total	211	0.86	183
¹ Source: School Facility Needs Analysis, September 2011.			

Funding for new school construction is provided through State and local revenue sources. Senate Bill (SB) 50 (Chapter 407, Statutes of 1998) governs the amount of fees that can be levied against new development. Payment of fees authorized by the statute is deemed "full and complete mitigation." These fees would be used in combination with State and other funds to construct new schools. The project applicant would be required to pay development impact fees in order to fund new facilities. The payment of development

impact fees would help to ensure adequate school capacity is provided and a ***less-than-significant*** impact would occur.

- d. Using an average persons per household value of 3.27 per residential unit, the proposed project would generate a population of 690 persons. The 2030 Galt General Plan requires five acres of parkland per 1,000 residents; therefore, the project would be required to supply 3.47 acres of parkland. Given that the proposed project would only designate 1.9 acres of park area, the proposed project would be subject to compliance with Section 18.64.080B of Galt's Municipal Code, which requires the applicant to pay a fee in-lieu of land dedication for the remaining acreage. It should also be noted that the proposed project would include 7.9 acres open space along the northern boundary of the site.

Although the proposed project would result in an increase in population within the City, the project would not result in a substantial loss of parkland. Designation of parkland within the project site and payment of in-lieu fees would be considered sufficient to ensure that adequate public parkland is provided for future residents, and a ***less-than-significant*** impact would occur.

- e. The Galt 2030 General Plan anticipates increased demand for public facilities with growth in the City of Galt. The project site is currently designated for C and RR uses. The proposed project would include a General Plan Amendment to change the land use designations of the project site to LDR, OS, PQP. Redesignation of the site would result in an increase in population within the City of Galt of 642 residents from what has been anticipated by the City for the project site, which would increase the demand for public facilities. Considering the provision of an on-site park and the existence of public and governmental facilities within the City, the addition of residents to the City of Galt would not be anticipated to result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service for any other public services.

In addition, LAFCo has requested in their January 31, 2020 comment letter that further analysis and discussion regarding the extent to which the proposed project would contribute to environmental justice shall be provided. The CKH states in Government Code Section 56668(o) that "environmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the location of public facilities and the provision of public services. With approval of the proposed project and annexation into the City of Galt, public services would be provided to the project site by the City of Galt, with the exception of fire services, which would be provided by CCSDFD. Therefore, the proposed project would not result in environmental injustice with respect to the provision of public services. Accordingly, a ***less-than-significant*** impact would occur.

XVI. RECREATION.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. As discussed in Section XIV, Population & Housing, the proposed project would include 211 single-family residences and an associated 690 persons. Thus, an increase in demand on recreational facilities would occur. Section 18.64.080B of Galt's Municipal Code requires developments that include subdivision of land to either dedicate parkland or pay in-lieu fees. Because the proposed project would only include the dedication of 2.2 acres of parkland, the project would be subject to the payment of in-lieu fees for the remaining park acreage. The payment of such fees would ensure that adequate parkland be provided within the City and existing recreational facilities would not experience impacts due to increased population growth. Therefore, the proposed project would result in a ***less-than-significant*** impact with respect to increasing the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur or be accelerated.
- b. The proposed project would not require the construction or expansion of recreational facilities. While the proposed project would include construction of a new park, the physical effects associated with construction of such has been evaluated throughout this IS/MND. Therefore, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation 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?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	✗	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. GHD, Inc. prepared a TIS to analyze the potential impacts related to the circulation system and alternative modes of transportation associated with implementation of the proposed project (see Appendix G).²⁸ It should be noted that the TIS was based on a previous iteration of the project, which included 212 units rather than 211 units. Thus, the analysis presented below would be considered conservative. The results of the TIS are discussed in the following sections.

Project Study Intersections and Scenarios

The TIS included evaluation of the following study intersections:

1. SR 99 Southbound On- and Off-Ramp/West Stockton Boulevard;
2. SR 99 Southbound On-Ramp/West Stockton Boulevard;
3. SR 99 Northbound Off-Ramp/East Stockton Boulevard;
4. SR 99 Northbound On-Ramp/East Stockton Boulevard;
5. Twin Cities Road (SR 104)/West Stockton Boulevard;
6. Twin Cities Road (SR 104)/East Stockton Boulevard;
7. Twin Cities Road (SR 104)/Fermoy Way;
8. Twin Cities Road (SR 104)/Fox Trotter Way/McKenzie Road;
9. Twin Cities Road (SR 104)/Carillion Boulevard;
10. Twin Cities Road (SR 104)/Park Terrace Drive;
11. Twin Cities Road (SR 104)/Marengo Road;
12. Twin Cities Road (SR 104)/Cherokee Lane;
13. Marengo Road/Lake Park Avenue;
14. Marengo Road/Walnut Avenue; and
15. Lake Park Avenue/Park Terrace Drive.

As indicated among the above intersections, four intersection are at ramp termini with SR 99. These intersections were included to meet the requirement of the Caltrans Traffic Impact Study Guidelines. In addition, based on comments from Caltrans, SR 99 ramp merge and diverge operations were evaluated in terms of density and LOS for the analysis scenarios at the following locations:

1. SR 99 Southbound Off-Ramp at West Stockton Boulevard;
2. SR 99 Southbound On-Ramp at West Stockton Boulevard (North of Twin Cities Road);

²⁸ GHD, Inc. *Summerfield Traffic Impact Study*. February 19, 2020.

3. SR 99 Southbound On-Ramp at West Stockton Boulevard (South of Twin Cities Road);
4. SR 99 Northbound Off-Ramp at East Stockton Boulevard; and
5. SR 99 Northbound On-ramp/East Stockton Boulevard.

The study intersections were evaluated for the following five scenarios:

- Existing Conditions – The existing traffic operations at the study locations using Year 2019 peak hour traffic counts and intersection configurations.
- Existing Plus Project Conditions – Existing traffic volumes plus trips from the proposed project.
- Cumulative No Project Conditions – This scenario includes year 2040 cumulative volumes based on planned and approved projects and the most recent release of the Citywide Travel Demand Model.
- Cumulative Plus Project Conditions – This scenario includes year 2040 cumulative volumes based on the most recent release of the Citywide Travel Demand Model plus the trips from the proposed project.
- Cumulative Plus Project with Road Diet Conditions – This scenario includes all of the assumptions used in the Cumulative Plus Project Condition, but assumes the implementation of all recommendations proposed in the *Carillion Boulevard Complete Street Corridor Study*. The improvements included in the Corridor Study are hereby referred to as the “Road Diet.” Specifically, the following roadway geometry features vary from Cumulative No Project and Cumulative Plus Project conditions. It should be noted that roundabouts at other locations along Carillion Boulevard not analyzed in this study are also assumed to be in place:
 - Carillion Boulevard is narrowed to two (2) lanes between Twin Cities Road and Boessow Road, with roundabouts located in place of the Cumulative No Project (four-lane scenario) intersection controls at Carillion Boulevard and Twin Cities Road.

Analysis of traffic operations was conducted using the Sixth Edition of the Highway Capacity Manual (HCM) LOS methodology. LOS is a qualitative measure that described the operational conditions of vehicle traffic and the perceptions of motorists and passengers. Operational LOS is given letter designations from A to F, with A representing the best operating conditions (free flow of traffic) and F representing the worst operating conditions (severely congested flow with high delays). Traffic counts at the study intersections were conducted in October of 2017, February of 2018, August of 2019, September of 2019, and October of 2019.

Significance Criteria

The Galt 2030 General Plan Circulation Element specifies minimum Level of Service (LOS) standards for all streets and intersections within the City of Galt’s jurisdiction in Policy C-1.3, Level of Services. Policy C-1.3 requires that roadway systems shall be developed and managed to maintain LOS “E” on all streets and intersections within a quarter-mile of State Routes, along A Street and C Street between SR 99 to the railroad tracks, and along Lincoln Way between Pringle Avenue to Meladee Lane. A LOS “D” or better shall be developed on all other streets and intersections.

The County's LOS policy is generally consistent with the policy set forth by the City of Galt. Policy C 1-9 of Sacramento County's General Plan Circulation Element states the following regarding LOS:

Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement the project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.

For the study intersections, the proposed project would result in a significant impact if the addition of project traffic would cause an intersection operating at an acceptable LOS to degrade to an unacceptable LOS, or increase the average delay by more than five seconds at an intersection that operates unacceptably without the project.

In addition to the City of Galt and Sacramento County standards discussed above, GHD also relied on Caltrans' Guide for the Preparation of Traffic Impact Studies, which contains policies pertaining to LOS standards within Caltrans jurisdiction. Caltrans policies states that their target is to maintain LOS at the transition between LOS "C" and LOS "D" on State highway facilities; however, Caltrans further acknowledges that this may not be feasible at all locations and further recommends that lead agencies consult with Caltrans to determine appropriate target LOS. For analysis purposes within this IS/MND, the proposed project would result in a significant impact to freeway ramps if the addition of project traffic would:

- Result in a facility operating at an acceptable LOS to deteriorate to an unacceptable LOS, as defined by Caltrans (LOS D);
- Increase the density by more than five percent at a ramp segment that is already operating or will operate at LOS E under No Project conditions; or
- Increase the overall volume/capacity (v/c) by 0.05 at a ramp segment that will operate at LOS F under Plus Project conditions.

Furthermore, the proposed project is considered to result in a potentially significant transit, bicycle, and/or pedestrian impact if any of the following occur:

- The project conflicts with existing, planned, or possible future transit, bicycle, and/or pedestrian facilities and services;
- The path of travel between the project site and transit stops does not meet current ADA accessibility standards.

Trip Generation and Distribution

Trip generation for the proposed project was estimated using published trip generation rates from the Institute of Transportation Engineers (ITE) publication *Trip Generation*, 10th Edition. As shown in Table 14, implementation of the proposed project, including 212 single-family residential units, would result in an estimated 2,076 average daily vehicle trips (ADT), with 155 trips occurring during the AM peak hour and 209 trips occurring during the PM peak hour.

Table 14								
Project Vehicle Trip Generation Summary								
Land Use	Trip Rate	ADT	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single-Family Detached	9.79	2,076	39	116	155	132	77	209
<i>Source: GHD, Inc., 2020.</i>								

Trip distribution for the project-generated residential trips were estimated using the select zone analysis tool within the City's Travel Demand Model, under Existing conditions and Cumulative conditions. Figure 12 presents the trip distribution for the project generated trips under Existing Plus Project conditions during the AM and PM peak hours. In the AM peak hour, an estimated 24 percent of project-generated trips would go to and from the three nearby schools. In the PM peak hour, an estimated nine percent of project-generated trips would go to and from the three nearby schools. During both AM and PM peak hours, 25 percent of project-generated trips would go to and come from the north on SR 99. Approximately 25 percent of the project-generated trips would go to and come from the south, travelling along SR 99. The remaining percentages would travel to central/downtown Galt, Twin Cities Road commercial, or nearby uses. Under Cumulative conditions, the Walnut Avenue Interchange is assumed to be constructed, providing access across SR 99. Approximately 10 percent of project-generated trips are projected to use the Walnut Avenue Interchange to access SR 99 to the south.

Impact Analysis

The following sections present the results of GHD's impact analysis for the proposed project.

Existing Plus Project Conditions Intersection LOS Analysis

Table 15 below summarizes the peak hour LOS at the study intersections under Existing Plus Project conditions. As shown in Table 15, Intersections 8, 10, 12, and 13 would operate at an unacceptable LOS under both Existing and Existing Plus Project conditions. All other intersections would operate at an acceptable LOS under Existing Plus Project conditions during the AM and PM peak hours. Because the proposed project traffic is projected to add more than five seconds of delay to Intersections 8, 10, and 13, implementation of the proposed project could exceed the City's thresholds for intersection operations, and, thus, could create a conflict with an adopted plan related to the City's circulation system.

Existing Plus Project Conditions Ramp Segment LOS Analysis

As shown in Table 16, Ramp Segment 1, SR 99 Southbound Off-ramp/West Stockton Boulevard, operates at an unacceptable LOS in the PM peak hour under both Existing and Existing Plus Project conditions. All other ramp segments would operate at an acceptable LOS under Existing Plus Project conditions during the AM and PM peak hours.

Although Ramp Segment 1 would operate at an unacceptable LOS E under Existing Plus Project conditions, the increase in density due to project traffic would be less than five percent, which would be below the applicable threshold for freeway ramp operations. Thus, impacts related to freeway ramps under Existing Plus Project conditions would be considered less-than-significant.

Figure 12
Project Trip Distribution

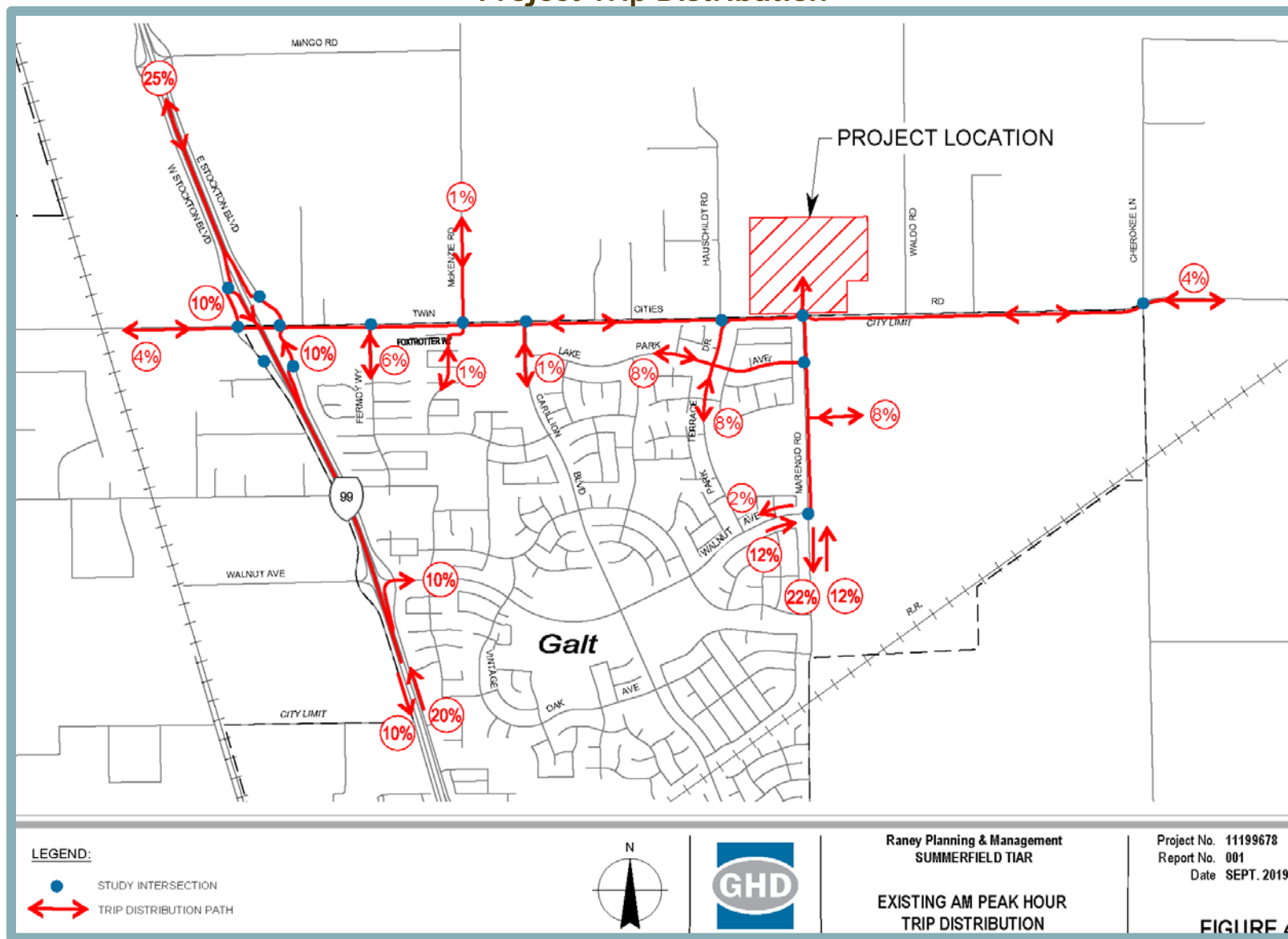


Table 15
Existing Plus Project Conditions: Intersection LOS

ID	Study Intersection	Control	Peak Hour	Existing		Existing Plus Project		Change in Delay
				Delay	LOS	Delay	LOS	
1	SR 99 SB On- and Off-Ramps/West Stockton Boulevard	TWSC	AM	9.1	A	9.2	A	0.11
			PM	9.1	A	9.1	A	0.01
2	SR 99 SB On-Ramp & West Stockton Boulevard	None	AM	--	--	--	--	--
			PM	--	--	--	--	--
3	SR 99 NB Off-Ramp/east Stockton Boulevard	AWSC	AM	11.8	B	12.0	B	0.2
			PM	16.2	C	17.2	C	1.0
4	SR 99 NB On-Ramp/East Stockton Boulevard	TWSC	AM	15.3	C	15.9	C	0.66
			PM	12.6	B	12.9	B	0.3
5	Twin Cities Road/West Stockton Boulevard	RNDBT	AM	7.7	A	7.8	A	0.1
			PM	11.5	B	12.4	B	0.9
6	Twin Cities Road/East Stockton Boulevard	RNDBT	AM	7.1	A	7.2	A	0.1
			PM	6.2	A	6.2	A	0.0
7	Twin Cities Road/Fermoy Way	Signal	AM	10.5	B	10.6	B	0.11
			PM	11.3	B	11.8	B	0.55
8	Twin Cities Road/Foxtrotter Way/McKenzie Road	TWSC	AM	45.4	E	52.9	F	7.5
			PM	36.3	E	43.3	E	7.0
9	Twin Cities Road/Carillion Boulevard/Private Driveway	Signal	AM	17.1	B	17.6	C	0.55
			PM	10.8	B	11.0	B	0.22
10	Twin Cities Road/Park Terrace Drive/Hauschildt Road	TWSC	AM	192.3	F	292.2	F	99.9
			PM	18.3	C	21.8	C	3.5
11	Twin Cities Road/Marengo Road	AWSC	AM	47.4	E	51.4	F	4.0
			PM	10.9	B	13.4	B	2.5
12	Twin Cities Road/Cherokee Lane	TWSC	AM	17.4	C	17.6	C	0.2
			PM	12.7	B	12.9	B	0.2
13	Marengo Road/Lake Park Avenue	TWSC	AM	OVR	F	OVR	F	--
			PM	9.5	A	9.8	A	0.3
14	Marengo Road/Walnut Avenue	AWSC	AM	14.0	B	14.7	B	0.7
			PM	8.1	A	8.3	B	0.2
15	Lake Park Avenue/Park Terrace Drive	TWSC	AM	18.0	C	19.7	C	1.7
			PM	10.6	B	10.7	B	0.1

¹ OVR = Delay over 300 seconds.

Source: GHD, Inc., 2020.

Table 16
Existing Plus Project Conditions: Ramp Segment LOS

ID	Study Intersection	Segment Type	No. of Lanes	Target LOS	Peak Hour	Existing			Existing Plus Project			
						Density	LOS	Ramp Volume	Density	LOS	Ramp Volume	Change in Density
1	SR 99 SB Off-Ramp at West Stockton Boulevard SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road	Diverge Merge	1	D	AM	23.0	C	336	23.1	C	346	0.1
					PM	36.9	E	732	37.3	E	765	0.4
2	SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road SR 99 NB Off-Ramp at East Stockton Boulevard	Merge Diverge	1	D	AM	20.7	C	194	20.8	C	206	0.11
					PM	28.9	D	144	29.0	D	152	0.11
3	SR 99 NB On-Ramp at East Stockton Boulevard SR 99 SB Off-Ramp at West Stockton Boulevard	Merge Diverge	1	D	AM	23.4	C	182	23.5	C	182	0.11
					PM	31.7	D	205	31.7	D	205	0.00
4	SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road	Merge Merge	1	D	AM	33.0	D	292	33.1	D	296	0.1
					PM	34.2	D	323	34.3	D	336	0.1
5	SR 99 NB Off-Ramp at East Stockton Boulevard	Diverge	1	D	AM	34.4	D	585	34.6	D	614	0.2
					PM	33.8	D	409	34.0	D	428	0.22

¹ Density for each ramp is measured in pc/mi/ln.

² The target LOS for each ramp and segment is LOS D.

Source: GHD, Inc., 2020.

Cumulative Plus Project Conditions Intersection LOS Analysis

As shown in Table 17, Intersections 8, 10, 12, and 13 operate at unacceptable LOS under both Cumulative No Project and Cumulative Plus Project conditions. All other study intersections would operate at an acceptable LOS under Cumulative Plus Project conditions during the AM and PM peak hours. As shown in the table, because the project would add a delay of more than five seconds, a significant impact could occur associated with Intersections 8, 10, and 13. As such, the project applicant would be subject to fair share payment requirements for the impacted intersections. Table 18 below presents fair share calculations for Intersections 8, 10, and 13 under Cumulative Plus Project Conditions and the applicable percentage of fees that the applicant would be required to pay. Even with the payment of fair share fees, the proposed project could create a conflict with an adopted plan related to the City's circulation system under Cumulative Plus Project conditions and a potential impact could occur.

Table 17 Cumulative Plus Project Conditions: Intersection LOS								
ID	Study Intersection	Control	Peak Hour	Cumulative		Cumulative Plus Project		
				Delay ¹	LOS	Delay ¹	LOS	Change in Delay
1	SR 99 SB On- and Off-Ramps/West Stockton Boulevard	TWSC	AM	14.4	B	14.7	B	0.33
			PM	11.4	B	11.5	B	0.11
2	SR 99 SB On-Ramp & West Stockton Boulevard	None	AM	--	--	--	--	--
			PM	--	--	--	--	--
3	SR 99 NB Off-Ramp/east Stockton Boulevard	AWSC	AM	14.2	B	14.4	B	0.2
			PM	18.5	C	19.6	C	1.1
4	SR 99 NB On-Ramp/East Stockton Boulevard	TWSC	AM	20.3	C	21.6	C	1.3
			PM	18.5	C	19.1	C	0.6
5	Twin Cities Road/West Stockton Boulevard	RNDBT	AM	8.4	A	8.5	A	0.1
			PM	12.7	B	14.1	B	1.4
6	Twin Cities Road/East Stockton Boulevard	RNDBT	AM	18.6	B	20.3	C	1.7
			PM	6.9	A	7.0	A	0.1
7	Twin Cities Road/Fermoy Way	Signal	AM	10.4	B	10.5	B	0.11
			PM	11.6	B	11.8	B	0.22
8	Twin Cities Road/Foxtrotter Way/McKenzie Road	TWSC	AM	72.8	F	85.9	F	13.1
			PM	94.5	F	125.8	F	31.3
9	Twin Cities Road/Carillion Boulevard/Private Driveway	Signal	AM	10.9	B	10.9	B	0.00
			PM	11.2	B	15.8	B	4.6
10	Twin Cities Road/Park Terrace Drive/Hauschildt Road	TWSC	AM	OVR	F	OVR	F	--
			PM	73.1	F	104.8	F	31.7
11	Twin Cities Road/Marengo Road	AWSC	AM	11.1	B	37.3	D	26.2
			PM	6.7	A	27.1	C	20.4
12	Twin Cities Road/Cherokee Lane	TWSC	AM	146.3	F	150.3	F	4.0
			PM	189.3	F	189.3	F	0.0
13	Marengo Road/Lake Park Avenue	TWSC	AM	OVR	F	OVR	F	--
			PM	11.8	B	12.3	B	0.5
14	Marengo Road/Walnut Avenue	AWSC	AM	51.6	D	54.4	D	2.8
			PM	19.8	B	20.0	B	0.2

15	Lake Park Avenue/Park Terrace Drive	TWSC	AM	23.8	C	27.1	D	3.3
			PM	12.0	B	12.1	B	0.1
1 OVR = Delay over 300 seconds.								
Source: GHD, Inc., 2020.								

Table 18 Fair Share Calculations – Cumulative Plus Project Conditions						
Location	Intersection 8		Intersection 10		Intersection 13	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Existing Volume	1468	1474	1082	843	911	No Impact
Cumulative Plus Project Volume	2157	2169	1794	1868	1510	No Impact
Total Growth	689	695	712	1025	599	No Impact
Project Generated Growth	72	119	79	128	70	No Impact
Fair Share Cost	10.45%	17.12%	11.10%	12.49%	11.69%	No Impact
¹ Volumes reflect the sum of all movements at the intersection, measured in veh/hr.						
Source: GHD, Inc., 2020.						

Cumulative Plus Project Conditions Ramp Segment LOS Analysis

As shown in Table 19, all of the study ramp segments operate at an unacceptable LOS under both Cumulative No project and Cumulative Plus Project. However, as demonstrated in the table, the increase in density and v/c ratio between Cumulative No Project and Cumulative Plus Project conditions would be less than the applicable thresholds of five percent and 0.05, respectively. Therefore, impacts related to freeway ramps under Cumulative Plus Project conditions would be considered less-than-significant.

Cumulative Plus Project Conditions with Road Diet Intersection LOS Analysis

As shown in Table 20, Intersections 8, 10, 12, 13, and 14 would operate at an unacceptable LOS under both the Cumulative No Project (with Road Diet) and Cumulative Plus Project with Road Diet conditions. As shown in the table, because the project would add a delay of more than five seconds, a significant impact could occur associated with Intersections 8, 10, and 13. As such, the project applicant would be subject to fair share payment requirements for the impacted intersections. Table 22 below presents fair share calculations for Intersections 8, 10, and 13 under Cumulative Plus Project Conditions with Road Diet and the applicable percentage of fees that the applicant would be required to pay. Even with the payment of fair share fees, the proposed project could create a conflict with an adopted plan related to the City's circulation system under Cumulative Plus Project Conditions with Road Diet and a potential impact could occur.

Table 19
Cumulative Plus Project Conditions: Ramp Segment LOS

ID	Study Intersection	Segment Type	No. of Lanes	Target LOS	Peak Hour	Cumulative			Cumulative Plus Project			
						Density	LOS	Ramp Volume	Density	LOS	Ramp Volume	Change in Density
1	SR 99 SB Off-Ramp at West Stockton Boulevard SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road	Diverge Merge	1	D	AM	28.8	D	550	28.9	D	560	0.1
					PM	v/c = 1.03	F	820	v/c=1.04	F	853	0.011
2	SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road SR 99 NB Off-Ramp at East Stockton Boulevard	Merge Diverge	1	D	AM	26.8	C	590	26.9	C	602	0.11
					PM	36.3	E	505	36.4	E	513	0.11
3	SR 99 NB On-Ramp at East Stockton Boulevard SR 99 SB Off-Ramp at West Stockton Boulevard	Merge Diverge	1	D	AM	30.5	D	220	30.6	D	220	0.11
					PM	v/c = 1.01	F	270	v/c=1.01	F	270	0.00
4	SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road	Merge Merge	1	D	AM	33.3	D	330	33.3	D	334	0.00
					PM	41.0	E	395	41.1	E	408	0.1
5	SR 99 NB Off-Ramp at East Stockton Boulevard	Diverge	1	D	AM	35.7	E	765	35.9	E	794	0.2
					PM	v/c = 1.03	F	670	v/c=1.03	F	689	0.00

¹ Density for each ramp is measured in pc/mi/ln.

² The target LOS for each ramp and segment is LOS D.

Source: GHD, Inc., 2020.

Table 20
Cumulative Plus Project Conditions with Road Diet:
Intersection LOS

ID	Study Intersection	Control	Peak Hour	Cumulative		Cumulative Plus Project with Road Diet		
				Delay ¹	LOS	Delay ¹	LOS	Change in Delay
1	SR 99 SB On and Off Ramps/West Stockton Boulevard	TWSC	AM	14.4	B	27.7	D	13.3
			PM	11.4	B	15.2	C	3.8
2	SR 99 SB on Ramp & West Stockton Boulevard	None	AM	--	--	--	--	--
			PM	--	--	--	--	--
3	SR 99 NB Off Ramp/east Stockton Boulevard	AWSC	AM	14.2	B	16.8	C	2.6
			PM	18.5	C	25.2	D	6.7
4	SR 99 NB On Ramp/East Stockton Boulevard	TWSC	AM	20.3	C	21.9	C	1.6
			PM	18.5	C	19.1	C	0.6
5	Twin Cities Road/West Stockton Boulevard	RNDBT	AM	8.4	A	8.3	A	0.1
			PM	12.7	B	13.8	B	1.1
6	Twin Cities Road/East Stockton Boulevard	RNDBT	AM	18.6	B	24.9	C	6.3
			PM	6.9	A	7.4	A	0.5
7	Twin Cities Road/Fermoy Way	Signal	AM	10.4	B	10.5	B	0.11
			PM	11.6	B	11.7	B	0.11
8	Twin Cities Road/Fox Trotter Way/McKenzie Road	TWSC	AM	72.8	F	104.8	F	32.0
			PM	94.5	F	83.6	F	10.9
9	Twin Cities Road/Carillion Boulevard/Private Driveway	Signal	AM	10.9	B	10.9	B	0.00
			PM	11.2	B	15.8	B	4.6
10	Twin Cities Road/Park Terrace Drive/Hauschildt Road	TWSC	AM	OVR	F	OVR	F	--
			PM	73.1	F	104.8	F	31.7
11	Twin Cities Road/Marengo Road	AWSC	AM	11.1	B	50.5	D	39.4
			PM	6.7	A	21.1	C	14.4
12	Twin Cities Road/Cherokee Lane	TWSC	AM	146.3	F	150.3	F	4.0
			PM	189.3	F	189.3	F	0.0
13	Marengo Road/Lake Park Avenue	TWSC	AM	OVR	F	OVR	F	--
			PM	11.8	B	12.8	B	1.0
14	Marengo Road/Walnut Avenue	AWSC	AM	51.6	D	65.0	E	13.4
			PM	19.8	B	21.0	C	2.0
15	Lake Park Avenue/Park Terrace Drive	TWSC	AM	23.8	C	22.9	C	0.9
			PM	12.0	B	12.1	B	0.1

¹ OVR = Delay over 300 seconds.

Source: GHD, Inc., 2020.

Table 21 Fair Share Calculations – Cumulative Plus Project Conditions with Road Diet						
Location	Intersection 8		Intersection 10		Intersection 13	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Existing Volume	1468	1474	1082	843	911	No Impact
Cumulative Plus Project Volume	2157	2169	2019	1868	1630	No Impact
Total Growth	689	695	937	1025	719	No Impact
Project Generated Growth	72	119	79	128	70	No Impact
Fair Share Cost	10.45%	17.12%	8.43%	12.49%	9.74%	No Impact
¹ Volumes reflect the sum of all movements at the intersection, measured in veh/hr.						
Source: GHD, Inc., 2020.						

Cumulative Plus Project Conditions with Road Diet Ramp Segment LOS Analysis

As shown in Table 22, Ramp Segments 1, 2, 3, 4, and 5 would operate at an unacceptable LOS under both Cumulative No Project (with Road Diet) and Cumulative Plus Project with Road Diet conditions.. However, as demonstrated in the table, the increase in density and v/c ration between the Cumulative No Project (with Road Diet) and Cumulative Plus Project with Road Diet conditions would be less than the applicable thresholds of five percent and 0.05, respectively. Therefore, a less-than-significant impact would occur related to freeway ramps under Cumulative Plus Project with Road Diet conditions.

Transit, Bicycle, and Pedestrian Facilities

The following is a discussion of the regional transit, bicycle, and pedestrian facilities under existing conditions and with development of the proposed project.

Transit Facilities

Transit services are available in Galt through South County Transit, which includes the following systems: Dial-A-Ride, Highway 99 Express, Delta Route, and Commuter Express. Dial-A-Ride provides service within the City limits of Galt, and the Highway 99 Express provides service connecting Galt with the Lodi Transit Center, Elk Grove, and South Sacramento. Delta Route provides service from Isleton and other Delta communities to Galt, and the Commuter Express provides direct service from Galt to midtown and downtown Sacramento.²⁹ In addition, the proposed project would include construction of a bus turnout along the site's southern boundary. Given that the project site is located in close proximity to public transportation and implementation of the proposed project would not conflict with any transit systems, a less-than-significant impact would occur.

²⁹ South County Transit. *Welcome to South County Transit – SCT Link*. Available at: <http://www.sctlink.com/>. Accessed February 2020.

Table 22
Cumulative Plus Project Conditions: Ramp Segment LOS

ID	Study Intersection	Segment Type	No. of Lanes	Target LOS	Peak Hour	Cumulative			Cumulative Plus Project			
						Density	LOS	Ramp Volume	Density	LOS	Ramp Volume	Change in Density
1	SR 99 SB Off-Ramp at West Stockton Boulevard SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road	Diverge Merge	1	D	AM	28.8	D	550	27.9	C	525	0.9
					PM	v/c = 1.03	F	820	v/c=1.01	F	813	--
2	SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road SR 99 NB Off-Ramp at East Stockton Boulevard	Merge Diverge	1	D	AM	26.8	C	590	28.0	C	807	1.2
					PM	36.3	E	505	37.4	E	718	1.3
3	SR 99 NB On-Ramp at East Stockton Boulevard SR 99 SB Off-Ramp at West Stockton Boulevard	Merge Diverge	1	D	AM	30.5	D	220	30.9	D	85	0.4
					PM	v/c = 1.01	F	270	v/c=1.02	F	135	--
4	SR 99 SB On-Ramp at West Stockton Boulevard n/o Twin Cities Road SR 99 Sb On-Ramp at West Stockton Boulevard s/o Twin Cities Road	Merge Merge	1	D	AM	33.3	D	330	36.1	E	379	2.8
					PM	41.0	E	395	v/c=1.05	F	453	--
5	SR 99 NB Off-Ramp at East Stockton Boulevard	Diverge	1	D	AM	35.7	E	765	38.0	E	789	2.3
					PM	v/c = 1.03	F	670	v/c=1.09	F	679	--

¹ Density for each ramp is measured in pc/mi/ln.

² The target LOS for each ramp and segment is LOS D.

Source: GHD, Inc., 2020.

Bicycle and Pedestrian Facilities

A Class II bike lane is currently provided along Twin Cities Road between East Stockton Boulevard and Marengo Road. A Class II bike lane is also intermittently provided along Marengo Road, while a Class III bike lane is provided along Carillion Boulevard. Per General Plan Policy C-6.7, new development would be required to install pedestrian pathways, bikeways, and multi-purpose paths in new development, as appropriate, following the standards in the Caltrans Highway Design Manual Chapter 1000. Public sidewalks would be constructed along the project site frontage, connecting to existing adjacent sidewalks. As noted previously, the proposed project would include development of a park. Safe and convenient access between the proposed residences and the park would be provided within the project site.

In addition, the proposed project would provide a crosswalk at Twin Cities Road and Marengo Road to allow safe connection to the existing walkways and bike lanes to the south. The proposed improvements would not interfere with the existing bikeway or pedestrian facilities or interfere with the existing Bicycle Master Plan or Pedestrian Master Plan.

Connection to existing bicycle and pedestrian facilities would comply with the General Plan policies to promote alternative transportation and, thus, the proposed project would not conflict with any related applicable policies.

Conclusion

Based on the above, the proposed project could conflict with the City's applicable LOS criteria for study intersections 8, 10, and 13 under Existing Plus Project Conditions, Cumulative Plus Project Conditions, and Cumulative Plus Project Conditions with Road Diet. However, the project would be consistent with the City's goals and policies related to public transit, bicycle, and pedestrian facilities. Furthermore, the project applicant would be subject to the payment of fair share fees associated with the required improvements. Nonetheless, the proposed project could conflict with an applicable plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a less-than-significant level.

Intersection 8 (Twin Cities Road and Foxtrotter Way/McKenzie Road) – Existing Plus Project and Cumulative Plus Project (with or without Road Diet)

XVII-1. *Prior to approval of project improvement plans, the improvement plans for the proposed project shall show one of the following improvements, subject to review and approval by the City Engineer:*

- a) *Intersection control shall be implemented, such as a traffic signal or a modern roundabout, subject to determination as part of the Caltrans Intersection Control Evaluation (ICE) process; or*
- b) *Implement a left-turn restriction southbound on McKenzie Road. This could be implemented as an interim measure until Twin Cities*

Road is widened to four lanes and a comprehensive access management plan is evaluated; or

- c) Convert the existing left turn on Twin Cities Road to a receiving/merge lane for southbound left-turning traffic onto Twin Cities Road. This would eliminate westbound left turns, resulting in some traffic being redistributed to nearby intersections, which may require further analysis. This mitigation could also be implemented as an interim measure until Twin Cities Road is widened to four lanes and a comprehensive access management plan is evaluated.

Intersection 10 (Twin Cities Road and Park Terrace Drive/Haushchildt Road) - Existing Plus Project and Cumulative Plus Project (with or without Road Diet)

XVII-2. Prior to issuance of first certificate of occupancy, the applicant shall be required to construct one of the required improvements as outlined below, subject to City approval. The intersection improvements required for the project to meet the established LOS standards shall include one of the following to be implemented:

- a) Intersection control shall be implemented, such as a traffic signal or a modern roundabout, subject to determination as part of the Caltrans ICE process; or
- b) Implement left-turn restriction on Park Terrace Drive (right turn only) in coordination with intersection improvements at Marengo Road that facilitate U-turns.

Intersection 13 (Marengo Road and Lake Park Avenue) - Existing Plus Project

XVII-3. Prior to issuance of first certificate of occupancy, the applicant shall be required to construct one of the required improvements as outlined below, subject to City approval. The intersection improvements required for the project to meet the established LOS standards shall include one of the following to be implemented:

- a) Intersection control shall be implemented, such as a traffic signal or modern roundabout, subject to determination as part of the Caltrans ICE process; or
- b) Provide two-stage turning for eastbound left turns from Lake Park Avenue by providing a center receiving lane on Marengo Road. This measure would be interim, as widening of Marengo Road is planned under Cumulative conditions.

Intersection 13 (Marengo Road and Lake Park Avenue) - Cumulative Plus Project (with or without Road Diet)

XVII-4. Prior to approval of project improvement plans, the improvement plans for the proposed project shall show that an intersection control shall be implemented, such as a traffic signal or modern roundabout, subject to determination as part of the Caltrans ICE process. The improvement plans shall be subject to review and approval by the City Engineer.

Fair Share Contributions – Cumulative Plus Project Conditions

XVII-5. *Prior to approval of project improvement plans, the project applicant shall contribute an equitable share for all intersections and ramp segments impacted by the project in accordance with the TIS, as ultimately determined by the City. Proof of payment shall be submitted to the City of Galt Community Development Department.*

- b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Per Section 15064.3, analysis of vehicle miles traveled (VMT) attributable to a project is the most appropriate measure of transportation impacts. While a qualitative discussion of VMT has been provided below, the provisions of Section 15064.3 apply only prospectively; determination of impacts based on VTM is not required Statewide until July 1, 2020.

Per Section 15064.3(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. While changes to driving conditions that increase LOS times are an important consideration for traffic operations and management, the method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving. A discussion of VMT related to the proposed project is discussed in further detail below.

The TIS used CalEEMod to analyze VMT associated with the proposed project. The projected daily VMT for the proposed project was calculated by taking the projected annual VMT divided by 365 days per year. The daily VMT was divided by the anticipated number of residents based on the current persons per household for the City of Galt. According to the TIS, the proposed project would result in approximately 21.93 VMT per capita under Existing Plus Project conditions, as shown in Table 23.

Table 23						
Operational Vehicle Miles Traveled						
Land Use	Quantity	Trip Generation		Vehicle Miles Traveled		
	Existing	Trips/Day/Unit	Daily	Annual	Daily	Per Capita
Single Family Housing	212 dwelling units	9.79	2,076	5,210,110	14,274	21.93
Source: GHD, Inc., 2019.						

The Sacramento Area of Council of Governments (SACOG) current Household Generated VMT per capita is 17.95 or the regional average. As such, under Existing Plus Project conditions, the VMT is 22 percent higher than the regional average. The higher VMT per capita is largely due to the project site's more isolated location within the Sacramento region and associated reduced access to multi-modal opportunities to nearby destinations. However, because an operative baseline or impact threshold is not available, a determination of impacts related to CEQA cannot be determined nor is a determination required. Therefore, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and a **less-than-significant** impact would occur.

- c. Vehicle access to the project site would be provided by a driveway on Twin Cities Road. The driveway would have an ingress and egress lane, separated by a median. The entrance would include an access gate for which residents would have a code or remote to enter the site. The TIS did not identify any sight distance issues or capacity problems associated with the proposed lane configurations. Additionally, the landscaping and sound wall along the frontage of Twin Cities Road would not create any visual obstructions.

The intersection of Twin Cities Road and Marengo Road operates beyond Caltrans's LOS threshold under existing conditions and would require improvement, during construction of the proposed project. Modifications to Caltrans intersections are required to go through the Caltrans ICE process. Pending an ICE process, the intersection may require conversion from the current all-way stop control to either a signalized intersection or a modern roundabout. The project would be conditioned to dedicate suitable right-of-way and/or build the intersection control determined by the ICE process.

Additionally, with implementation of the above intersection improvements, the project driveway would not provide sufficient space for the queuing of vehicles. The project site plan would need to be modified to provide adequate queuing of vehicles with either a traffic signal or roundabout, which would vary depending on the outcome of the Caltrans ICE process. Lastly, because the proposed project directly accesses SR 104, the gated entrance would be required to provide sufficient space for larger vehicles to turn around and exit without reversing on SR 104. However, because the implementation of the aforementioned improvements cannot be guaranteed, the proposed project could result in a potentially significant impact to the circulation system that could substantially increase hazards.

Based on the above, the implementation of the proposed project could alter the circulation systems that could substantially increase hazards due to a design feature or incompatible uses, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

XVII-6. Implement Mitigation Measures XVII-1 through XVII-5.

- d. Sufficient emergency access is determined by factors such as number of access points, roadway width, and proximity to fire stations. As discussed above, vehicle access to the project site would be provided by a driveway on Twin Cities Road. The driveway would have an ingress and egress lane, separated by a median. The entrance to the project site would be protected by a private access gate. Private streets would be constructed to internally circulate the project site and provide access to all lots. Additionally, a roadway named "Street K" would be for emergency vehicles only, and is located approximately 540 feet west of the main access, on Twin Cities Road.

Construction traffic associated with the proposed project would include heavy-duty vehicles which would share the area roadways with normal vehicle traffic, creating potential conflicts with other roadway users, as well as transport of construction material, and daily construction employee trips to and from the site. Although the number of added daily trips would be less than would be generated by the project at completion, the short-term increase in traffic that would occur during the construction phase of the proposed

project could temporarily disrupt daily traffic flows on area roadways, including emergency response vehicles in transit.

Based on the above, construction traffic associated with development of the project site could disrupt daily traffic flows. Therefore, the proposed project could result in inadequate emergency access, and a ***potentially significant*** impact would occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

XVII-7. *Prior to initiation of construction activities, the project applicant shall prepare a Construction Traffic Management Plan for review and approval by the City Engineer. The plan shall include the following:*

- *A project staging plan to maximize on-site storage of materials and equipment;*
- *A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak hours; lane closure proceedings; signs, cones and other warning devices for drivers; and designation of construction access routes;*
- *Permitted construction hours;*
- *Designated locations for construction staging areas;*
- *Identification of parking areas for construction employees, site visitors, and inspectors, including on-site locations; and*
- *Provisions for street sweeping to remove construction-related debris on public streets.*

XVIII. TRIBAL CULTURAL RESOURCES.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a,b. As discussed in Section V, Cultural Resources, of this IS/MND, the proposed project site does not contain any existing permanent structures. The site does not contain any other known resources 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), and does not contain known resources that could be considered historic pursuant to the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. A search of the NAHC Sacred Lands File did not yield any information regarding the presence of Tribal Cultural Resources within the project site or the immediate area.

In compliance with AB 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the chairpersons of the Wilton Rancheria and the Torres Martinez Desert Cahuilla Indian Tribe. The letters were distributed on June 5, 2019. Requests to consult were not received within the 30-day response period.

Based on the above, known Tribal Cultural Resources do not exist within the proposed project site. Nevertheless, the possibility exists that construction of the proposed project could result in a substantial adverse change in the significance of a Tribal Cultural Resource if previously unknown resources are uncovered during grading or other ground-disturbing activities. Thus, a **potentially significant** impact to Tribal Cultural Resources could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

- XVIII-1. Implement Mitigation Measures V-1 and V-2.

XIX. UTILITIES AND SERVICE SYSTEMS.

Would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	×	<input type="checkbox"/>

Discussion

- a-c. Electricity, natural gas, telecommunications, water, and sanitary sewer services would be provided by way of new connections to existing infrastructure in the immediate project area. Brief discussions of the water, sewer service, stormwater drainage, electrical, natural gas, and telecommunications facilities that would serve the proposed project are included below.

Water

As previously mentioned under Section X, Hydrology and Water Quality, water service for the proposed project would be provided by the City by way of new connections to existing water lines within Twin Cities Road. As shown in Figure 6, the project would include construction of new eight-inch water lines within each private street and connect to an existing 12-inch water line within Twin Cities Road.

Per the City's 2015 UWMP, the City of Galt relies upon groundwater from the Cosumnes Subbasin of the San Joaquin Valley Groundwater basin as the sole source of domestic potable water for current and future water demand.³⁰ The Cosumnes Subbasin is managed through the south Basin Groundwater Management plan which was adopted in 2011. Per the 2015 UWMP, the City has eight active wells to extract groundwater from the Cosumnes Subbasin. The wells have capacities ranging from 600 to 1,900 gallons per minute (gpm) with a total capacity of approximately 10,400 gpm. The depth to groundwater is approximately 80 feet to 100 feet with the wells drawing water at depths ranging from 652 feet to 1,539 feet. As discussed in the General Plan EIR, the City can supply all of the

³⁰ City of Galt. 2015 Urban Water Management Plan Update. June 2016.

water demands with groundwater from the Cosumnes Subbasin through the year 2040, which includes buildout of the General Plan.

According to the 2015 UWMP, the estimated baseline average per capita per day (gpcd) water demand between the years 2000 and 2009 was approximately 217 gallons per day per capita. The 2020 water demand target for the City of Galt is approximately 174 gpcd. Per the 2015 UWMP, the City can supply all of the water demands with groundwater from the Cosumnes Subbasin through the year 2040. Furthermore, the City is projected to have sufficient water supplies to meet projected water needs through 2040 during normal, dry, and multiple dry years. The UWMP notes that water usage could be reduced by over 30 percent should conservation measures be necessary. The projected supply available to the City of Galt assumes that new wells will be developed in the future if warranted by demand, and would be adequate to serve a projected year 2040 population of 40,061.³¹ Given that the proposed project includes the development of 211 single-family units, the City of Galt's estimated current local population of 26,489³² would increase by 690 residents, assuming the City of Galt's average household size of 3.27 persons per household, for a total current population of 27,179. Such an increase in population is well within the City of Galt's anticipated population growth, and, thus, within the City's available water supply.

Stormwater Systems

As discussed in Section X, Hydrology and Water Quality, stormwater draining off impervious surfaces such as roofs, parking areas, and drive aisles within the project site would be captured by curb inlets and routed, by way of new underground drain pipes, to a stormwater detention basin in the northern portion of the site. Treated runoff from the stormwater detention basin would be routed off-site through a series of 18-inch storm drain before being discharged into the City's stormwater system. The stormwater treatment system would be designed to accommodate flows during 10-year, 100-year, and 200-year storm events. As such, the stormwater detention basin would be adequately sized to accommodate the water quality storage, as well as flood control and hydromodification for the stormwater runoff associated with the site. Furthermore, Mitigation Measure X-1 would ensure that the project applicant comply with the NPDES general construction permit requirements. Consequently, implementation of the proposed project would include provision of adequate on-site infrastructure, and the existing off-site infrastructure would be sufficient to meet the demand from the project.

Wastewater Treatment

Sewer service would be provided to the project site by a new eight-inch sanitary sewer line beneath the private roads. The new eight-inch sanitary sewer line would convert to a 10-inch sewer line before connecting to an existing 10-inch sewer line within Twin Cities Road.

The City of Galt's current wastewater treatment collection system approximately 79 miles of sewer mains and trunk sewers. The wastewater is collected through the sewer mains and trunk sewers, then conveyed to the City of Galt's wastewater treatment plant (WWTP), which is located approximately 3.5 miles northwest of the project site. The WWTP has a

³¹ City of Galt. 2015 *Urban Water Management Plan*. June 2016.

³² California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2019 with 2010 Census Benchmark*. May 2019. Available at: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Accessed January 2, 2020.

capacity of 3.0 million gallons per day (mgd) and is currently operating at 2.0 mgd.³³ Thus, the WWTP has a remaining capacity of approximately 1.0 mgd.

A sewer plan memorandum (Summerfield Sewer Plan) was prepared for the proposed project by Wood Rodgers, Inc.³⁴ Wood Rodgers, Inc. calculated the project's design flow using flow generation and peaking factors from the City's Sewer Master Plan. According to the Summerfield Sewer Plan, the nearest existing sewer manhole is located at the intersection of Twin Cities Road and Park Terrace Drive. The eight-inch sewer line accommodates approximately 0.043 mgd from the subdivision to the northwest of the intersection of Lake Park Avenue and Park Terrace Drive. A new eight-inch sanitary sewer line would be located beneath the private streets, and would connect to a lift station on the west side of the site. From the lift station, wastewater would be directed to an existing manhole within Twin Cities Road through a four-inch sewer force main, which continues west then south to the Vintage Oaks Lift Station. According to the City's Sewer Master Plan, the existing service shed area entering the 12-inch sewer main is approximately 280 acres: 70 acres are Public/Quasi Public/Commercial at 800 gpd/acre; 29 acres are High Density Residential with 2,300 gpd/acre; 36.5 acres are Medium Density Residential; and 144 acres are low Density Residential using 1,385 gpd/acre. In total, the existing average day flow within the 12-inch sewer main line is approximately 0.39 mgd. According to the Summerfield Sewer Plan, the design flow calculates to 0.164 mgd for the 45.8-acre project site. In combination with the existing sewer flow in Park Terrace Drive and the proposed project, the flow generated would be approximately 0.20 mgd. The 0.20 mgd flow would not exceed the 0.23 mgd capacity of the eight-inch sewer line or the 0.81 mgd capacity of the 12-inch sewer line. As such, the proposed project would not exceed the capacity of current wastewater infrastructure in the project area.

Other Utilities

Electrical utilities would be provided by SMUD, while natural gas utilities would be provided by PG&E by way of connections to existing infrastructure located within the immediate project vicinity. Telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. The proposed project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity, natural gas, and telecommunications infrastructure would be less than significant.

Conclusion

Considering the above, sufficient utility infrastructure exists in the project vicinity to serve the proposed project. Furthermore, the proposed project would include extension of existing infrastructure to provide service to the project site and potential impacts from the extension of such infrastructure has been analyzed throughout this IS/MND. Finally, increased demand for water, sewer, and other utilities resulting from the proposed project could be accommodated by the City's existing utility capacity. Therefore, the project would result in a ***less-than-significant*** impact related to the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

³³ City of Galt. *Wastewater Treatment Plant*. Available at: <http://www.ci.galt.ca.us/city-departments/public-works/utilities-division/wastewater-services/wastewater-treatment-plant>. Accessed October 2019.

³⁴ Wood Rodgers, Inc. *Subject: Summerfield Sewer Plan*. September 20, 2019.

- d,e. Solid waste, recyclable materials, and compostable material collection within the City of Galt is operated by California Waste Recovery Systems (CWRS). CWRS is a private franchise that can haul solid waste to any approved landfill facility in the area. The Sacramento County Landfill located on Kiefer Boulevard has been recently expanded. The Sacramento County Landfill covers 1,084 acres of land; 660 acres are permitted for disposal. The sites permit allows the landfill to receive a maximum of 10,815 tons of waste per day. According to the California Department of Resources Recycling and Recovery (CalRecycle), the Sacramento County Landfill has a remaining capacity of 112,900,000 cubic yards out of a total permitted capacity of 117,400,000, or 96 percent remaining capacity.³⁵

Due to the remaining capacity, construction and operation of the proposed project would not result in increased solid waste in excess of the Sacramento County Landfill capacity. In addition, the project would be required to comply with all applicable provisions of Chapter 8.16, Garbage, of the City's Municipal Code.

Therefore, the proposed project would not 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 and would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Accordingly, a ***less-than-significant*** impact would occur.

³⁵ California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary Details: Sacramento County Landfill (Kiefer) (34-AA-0001)*. Available at: <https://www2.calrecycle.ca.gov/swfacilities/Directory/34-AA-0001/>. Accessed October 2019.

XX. WILDFIRE.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a-d. According to the CAL FIRE Fire and Resource Assessment Program, the project site is not located within or near a state responsibility area or lands classified as a Very High Fire Hazard Severity Zone (VHFHSZ).³⁶ The nearest VHFHSZ is approximately six miles east of the project site. Therefore, the proposed project would not be subject to substantial risks related to wildfires, and a ***less-than-significant*** impact would occur.

³⁶ California Department of Forestry and Fire Protection. *Sacramento County, Very High Fire Hazard Severity Zones in LRA*. January 30, 2008.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.

	Potentially Significant Impact	Less-Than- Significant with Mitigation Incorporated	Less-Than- Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	✗	<input type="checkbox"/>

Discussion

- a. As discussed in Section IV, Biological Resources, of this IS/MND, while a limited potential exists for special-status plant and wildlife, and nesting raptors and migratory birds protected by the MBTA, to occur on-site, Mitigation Measures IV-1 through IV-17 would ensure that any impacts related to special-status species be reduced to less-than-significant levels. The project site does not contain any historic or prehistoric resources. Nevertheless, Mitigation Measures V-1 and V-2 would ensure that in the event that previously unknown archaeological resources are discovered within the project site, such resources would be protected in compliance with the requirements of CEQA and other State standards.

Considering the above, the proposed project would not degrade the quality of the environment, substantially reduce or impact the habitat or fish or wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Therefore, a ***less-than-significant*** impact would occur.

- b. The proposed project, in conjunction with other development within the City of Galt, could incrementally contribute to cumulative impacts in the area. However, as demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would result in no impact or a less-than-significant level through implementation of mitigation measures set forth herein, compliance with applicable General Plan Policies and Municipal Code Standards included in this IS/MND, as well as other applicable local and State regulations.

Therefore, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, development of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts in the City of Galt,

and the project's incremental contribution to cumulative impacts would be ***less than significant***.

- c. As described in this IS/MND, the proposed project would comply with all applicable General Plan policies, Municipal Code standards, and other applicable local and State regulations. In addition, as discussed in Section III, Air Quality, Section VIII, Greenhouse Gas Emissions, Section IX, Hazards and Hazardous Materials, Section XIII, Noise, and Section XVII, Transportation, of this IS/ND, the proposed project would not cause substantial effects to human beings, including effects related to exposure to air pollutants, GHG, hazardous materials, noise, and traffic. Therefore, the proposed project would result in a ***less-than-significant*** impact.

Appendix A

CalEEMod Modeling Results

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Summerfield at Twin Cities

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	351.61	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Project Characteristics - CO2 intensity factor updated per anticipated SMUD RPS standards

Land Use - updated lot acreage per the applicant-provided questionnaire

Construction Phase - total days adjusted per the applicant-provided questionnaire

Grading - updated total acres graded based on applicant-provided questionnaire

Vehicle Trips - trip generation rates are based on the GHD Traffic Impact Analysis prepared for the project

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	55.00	740.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	55.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	PhaseEndDate	10/25/2024	5/31/2024
tblConstructionPhase	PhaseEndDate	5/24/2024	5/17/2024
tblConstructionPhase	PhaseEndDate	7/23/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	8/9/2024	7/16/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	3/26/2021
tblConstructionPhase	PhaseStartDate	8/10/2024	8/2/2021
tblConstructionPhase	PhaseStartDate	7/24/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	3/29/2021
tblConstructionPhase	PhaseStartDate	5/25/2024	5/24/2021
tblGrading	AcresOfGrading	100.00	54.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	351.61
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

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					
2021	0.6659	2.9620	2.4972	4.9900e-003	0.4066	0.1375	0.5441	0.1893	0.1281	0.3174	0.0000	441.1818	441.1818	0.0979	0.0000	443.6281
2022	1.1570	2.7029	2.8831	6.1800e-003	0.1543	0.1178	0.2722	0.0417	0.1115	0.1532	0.0000	548.0720	548.0720	0.0830	0.0000	550.1469
2023	1.1315	2.4553	2.8209	6.1100e-003	0.1543	0.1016	0.2559	0.0417	0.0961	0.1378	0.0000	542.2285	542.2285	0.0814	0.0000	544.2646
2024	0.4617	0.8954	1.0791	2.3500e-003	0.0602	0.0345	0.0947	0.0162	0.0327	0.0489	0.0000	208.7185	208.7185	0.0311	0.0000	209.4958
Maximum	1.1570	2.9620	2.8831	6.1800e-003	0.4066	0.1375	0.5441	0.1893	0.1281	0.3174	0.0000	548.0720	548.0720	0.0979	0.0000	550.1469

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

2.1 Overall Construction**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					
2021	0.6659	2.9620	2.4972	4.9900e-003	0.4066	0.1375	0.5441	0.1893	0.1281	0.3174	0.0000	441.1814	441.1814	0.0979	0.0000	443.6277
2022	1.1570	2.7029	2.8831	6.1800e-003	0.1543	0.1178	0.2722	0.0417	0.1115	0.1532	0.0000	548.0716	548.0716	0.0830	0.0000	550.1465
2023	1.1315	2.4553	2.8209	6.1100e-003	0.1543	0.1016	0.2559	0.0417	0.0961	0.1378	0.0000	542.2281	542.2281	0.0814	0.0000	544.2642
2024	0.4617	0.8954	1.0791	2.3500e-003	0.0602	0.0345	0.0947	0.0162	0.0327	0.0489	0.0000	208.7183	208.7183	0.0311	0.0000	209.4957
Maximum	1.1570	2.9620	2.8831	6.1800e-003	0.4066	0.1375	0.5441	0.1893	0.1281	0.3174	0.0000	548.0716	548.0716	0.0979	0.0000	550.1465

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	3-1-2021	5-31-2021	1.4320	1.4320
2	6-1-2021	8-31-2021	0.6966	0.6966
3	9-1-2021	11-30-2021	1.0440	1.0440
4	12-1-2021	2-28-2022	0.9828	0.9828
5	3-1-2022	5-31-2022	0.9758	0.9758
6	6-1-2022	8-31-2022	0.9749	0.9749
7	9-1-2022	11-30-2022	0.9660	0.9660
8	12-1-2022	2-28-2023	0.9118	0.9118

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

9	3-1-2023	5-31-2023	0.9071	0.9071
10	6-1-2023	8-31-2023	0.9065	0.9065
11	9-1-2023	11-30-2023	0.8978	0.8978
12	12-1-2023	2-29-2024	0.8715	0.8715
13	3-1-2024	5-31-2024	0.7742	0.7742
		Highest	1.4320	1.4320

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	0.0295	0.2524	0.1074	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	577.7669	577.7669	0.0292	0.0102	581.5442
Mobile	0.4932	2.0918	5.7403	0.0206	1.9844	0.0161	2.0005	0.5317	0.0150	0.5467	0.0000	1,898.8299	1,898.8299	0.0810	0.0000	1,900.8560
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	4.8869	17.1009	21.9879	0.0182	0.0109	25.6976
Total	2.3182	2.3693	8.0319	0.0223	1.9844	0.0487	2.0330	0.5317	0.0475	0.5793	46.2809	2,497.2691	2,543.5499	2.5782	0.0212	2,614.3063

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	426.8072	426.8072	0.0255	7.4800e-003	429.6728
Mobile	0.4897	2.0711	5.6513	0.0202	1.9447	0.0159	1.9605	0.5211	0.0148	0.5358	0.0000	1,863.2817	1,863.2817	0.0798	0.0000	1,865.2760
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	4.8869	17.1009	21.9879	0.0182	0.0109	25.6976
Total	2.3007	2.2288	7.8919	0.0212	1.9447	0.0387	1.9834	0.5211	0.0376	0.5587	46.2809	2,310.7611	2,357.0420	2.5732	0.0184	2,426.8548

	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
Percent Reduction	0.76	5.93	1.74	5.15	2.00	20.49	2.44	2.00	20.91	3.55	0.00	7.47	7.33	0.19	13.00	7.17

3.0 Construction Detail**Construction Phase**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	3/26/2021	5	20	
2	Grading	Grading	3/29/2021	5/21/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/17/2024	5	740	
4	Paving	Paving	5/24/2021	7/16/2021	5	40	
5	Architectural Coating	Architectural Coating	8/2/2021	5/31/2024	5	740	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 54

Acres of Paving: 0

Residential Indoor: 772,740; Residential Outdoor: 257,580; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	111.00	36.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction**3.2 Site Preparation - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	0.0389	0.4050	0.2115	3.8000e-004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.5600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1314	1.1314	3.0000e-005	0.0000	1.1322
Total	6.2000e-004	4.1000e-004	4.5600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1314	1.1314	3.0000e-005	0.0000	1.1322

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	0.0389	0.4050	0.2115	3.8000e-004	0.1807	0.0204	0.2011	0.0993	0.0188	0.1181	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	6.2000e-004	4.1000e-004	4.5600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1314	1.1314	3.0000e-005	0.0000	1.1322
Total	6.2000e-004	4.1000e-004	4.5600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1314	1.1314	3.0000e-005	0.0000	1.1322

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.3 Grading - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.1491	0.0000	0.1491	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9900	108.9900	0.0353	0.0000	109.8712
Total	0.0838	0.9280	0.6176	1.2400e-003	0.1491	0.0397	0.1888	0.0693	0.0365	0.1058	0.0000	108.9900	108.9900	0.0353	0.0000	109.8712

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160
Total	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.3 Grading - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.1491	0.0000	0.1491	0.0693	0.0000	0.0693	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9898	108.9898	0.0353	0.0000	109.8711
Total	0.0838	0.9280	0.6176	1.2400e-003	0.1491	0.0397	0.1888	0.0693	0.0365	0.1058	0.0000	108.9898	108.9898	0.0353	0.0000	109.8711

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160
Total	1.3900e-003	9.1000e-004	0.0101	3.0000e-005	2.9400e-003	2.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.5143	2.5143	7.0000e-005	0.0000	2.5160

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9824	138.9824	0.0335	0.0000	139.8206
Total	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9824	138.9824	0.0335	0.0000	139.8206

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	6.7900e-003	0.2210	0.0591	5.3000e-004	0.0126	6.1000e-004	0.0132	3.6500e-003	5.8000e-004	4.2300e-003	0.0000	50.6832	50.6832	2.9000e-003	0.0000	50.7557
Worker	0.0231	0.0151	0.1686	4.6000e-004	0.0489	3.4000e-004	0.0493	0.0130	3.2000e-004	0.0133	0.0000	41.8634	41.8634	1.1000e-003	0.0000	41.8908
Total	0.0299	0.2360	0.2276	9.9000e-004	0.0615	9.5000e-004	0.0625	0.0167	9.0000e-004	0.0176	0.0000	92.5466	92.5466	4.0000e-003	0.0000	92.6465

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2021**Mitigated Construction On-Site**

	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					
Off-Road	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9822	138.9822	0.0335	0.0000	139.8205
Total	0.1141	1.0459	0.9945	1.6200e-003		0.0575	0.0575		0.0541	0.0541	0.0000	138.9822	138.9822	0.0335	0.0000	139.8205

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	6.7900e-003	0.2210	0.0591	5.3000e-004	0.0126	6.1000e-004	0.0132	3.6500e-003	5.8000e-004	4.2300e-003	0.0000	50.6832	50.6832	2.9000e-003	0.0000	50.7557
Worker	0.0231	0.0151	0.1686	4.6000e-004	0.0489	3.4000e-004	0.0493	0.0130	3.2000e-004	0.0133	0.0000	41.8634	41.8634	1.1000e-003	0.0000	41.8908
Total	0.0299	0.2360	0.2276	9.9000e-004	0.0615	9.5000e-004	0.0625	0.0167	9.0000e-004	0.0176	0.0000	92.5466	92.5466	4.0000e-003	0.0000	92.6465

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	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					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	0.0137	0.4546	0.1180	1.1300e-003	0.0274	1.1600e-003	0.0285	7.9100e-003	1.1100e-003	9.0200e-003	0.0000	108.8484	108.8484	6.1000e-003	0.0000	109.0009
Worker	0.0467	0.0294	0.3356	9.7000e-004	0.1060	7.2000e-004	0.1067	0.0282	6.6000e-004	0.0289	0.0000	87.4551	87.4551	2.1400e-003	0.0000	87.5086
Total	0.0604	0.4839	0.4536	2.1000e-003	0.1333	1.8800e-003	0.1352	0.0361	1.7700e-003	0.0379	0.0000	196.3035	196.3035	8.2400e-003	0.0000	196.5095

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2022**Mitigated Construction On-Site**

	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					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	0.0137	0.4546	0.1180	1.1300e-003	0.0274	1.1600e-003	0.0285	7.9100e-003	1.1100e-003	9.0200e-003	0.0000	108.8484	108.8484	6.1000e-003	0.0000	109.0009
Worker	0.0467	0.0294	0.3356	9.7000e-004	0.1060	7.2000e-004	0.1067	0.0282	6.6000e-004	0.0289	0.0000	87.4551	87.4551	2.1400e-003	0.0000	87.5086
Total	0.0604	0.4839	0.4536	2.1000e-003	0.1333	1.8800e-003	0.1352	0.0361	1.7700e-003	0.0379	0.0000	196.3035	196.3035	8.2400e-003	0.0000	196.5095

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	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					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	0.0108	0.3842	0.1044	1.1100e-003	0.0274	5.5000e-004	0.0279	7.9000e-003	5.3000e-004	8.4300e-003	0.0000	106.8365	106.8365	5.4700e-003	0.0000	106.9733
Worker	0.0437	0.0264	0.3082	9.3000e-004	0.1060	7.0000e-004	0.1067	0.0282	6.5000e-004	0.0288	0.0000	84.1710	84.1710	1.9200e-003	0.0000	84.2190
Total	0.0545	0.4106	0.4126	2.0400e-003	0.1333	1.2500e-003	0.1346	0.0361	1.1800e-003	0.0373	0.0000	191.0075	191.0075	7.3900e-003	0.0000	191.1923

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2023**Mitigated Construction On-Site**

	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					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	0.0108	0.3842	0.1044	1.1100e-003	0.0274	5.5000e-004	0.0279	7.9000e-003	5.3000e-004	8.4300e-003	0.0000	106.8365	106.8365	5.4700e-003	0.0000	106.9733
Worker	0.0437	0.0264	0.3082	9.3000e-004	0.1060	7.0000e-004	0.1067	0.0282	6.5000e-004	0.0288	0.0000	84.1710	84.1710	1.9200e-003	0.0000	84.2190
Total	0.0545	0.4106	0.4126	2.0400e-003	0.1333	1.2500e-003	0.1346	0.0361	1.1800e-003	0.0373	0.0000	191.0075	191.0075	7.3900e-003	0.0000	191.1923

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2024**Unmitigated Construction On-Site**

	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					
Off-Road	0.0736	0.6722	0.8083	1.3500e-003		0.0307	0.0307		0.0288	0.0288	0.0000	115.9246	115.9246	0.0274	0.0000	116.6099
Total	0.0736	0.6722	0.8083	1.3500e-003		0.0307	0.0307		0.0288	0.0288	0.0000	115.9246	115.9246	0.0274	0.0000	116.6099

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	3.9600e-003	0.1449	0.0375	4.2000e-004	0.0105	2.0000e-004	0.0107	3.0400e-003	1.9000e-004	3.2300e-003	0.0000	40.8524	40.8524	2.0800e-003	0.0000	40.9044
Worker	0.0158	9.1800e-003	0.1098	3.4000e-004	0.0408	2.6000e-004	0.0410	0.0108	2.4000e-004	0.0111	0.0000	31.1150	31.1150	6.7000e-004	0.0000	31.1316
Total	0.0198	0.1541	0.1473	7.6000e-004	0.0513	4.6000e-004	0.0518	0.0139	4.3000e-004	0.0143	0.0000	71.9674	71.9674	2.7500e-003	0.0000	72.0360

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.4 Building Construction - 2024**Mitigated Construction On-Site**

	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					
Off-Road	0.0736	0.6722	0.8083	1.3500e-003		0.0307	0.0307		0.0288	0.0288	0.0000	115.9244	115.9244	0.0274	0.0000	116.6097
Total	0.0736	0.6722	0.8083	1.3500e-003		0.0307	0.0307		0.0288	0.0288	0.0000	115.9244	115.9244	0.0274	0.0000	116.6097

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	3.9600e-003	0.1449	0.0375	4.2000e-004	0.0105	2.0000e-004	0.0107	3.0400e-003	1.9000e-004	3.2300e-003	0.0000	40.8524	40.8524	2.0800e-003	0.0000	40.9044
Worker	0.0158	9.1800e-003	0.1098	3.4000e-004	0.0408	2.6000e-004	0.0410	0.0108	2.4000e-004	0.0111	0.0000	31.1150	31.1150	6.7000e-004	0.0000	31.1316
Total	0.0198	0.1541	0.1473	7.6000e-004	0.0513	4.6000e-004	0.0518	0.0139	4.3000e-004	0.0143	0.0000	71.9674	71.9674	2.7500e-003	0.0000	72.0360

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.5 Paving - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	0.0251	0.2584	0.2931	4.6000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	40.0470	40.0470	0.0130	0.0000	40.3708
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0251	0.2584	0.2931	4.6000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	40.0470	40.0470	0.0130	0.0000	40.3708

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	1.0400e-003	6.8000e-004	7.5900e-003	2.0000e-005	2.2000e-003	2.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8857	1.8857	5.0000e-005	0.0000	1.8870
Total	1.0400e-003	6.8000e-004	7.5900e-003	2.0000e-005	2.2000e-003	2.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8857	1.8857	5.0000e-005	0.0000	1.8870

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.5 Paving - 2021**Mitigated Construction On-Site**

	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					
Off-Road	0.0251	0.2584	0.2931	4.6000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	40.0469	40.0469	0.0130	0.0000	40.3707
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0251	0.2584	0.2931	4.6000e-004		0.0136	0.0136		0.0125	0.0125	0.0000	40.0469	40.0469	0.0130	0.0000	40.3707

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	1.0400e-003	6.8000e-004	7.5900e-003	2.0000e-005	2.2000e-003	2.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8857	1.8857	5.0000e-005	0.0000	1.8870
Total	1.0400e-003	6.8000e-004	7.5900e-003	2.0000e-005	2.2000e-003	2.0000e-005	2.2200e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8857	1.8857	5.0000e-005	0.0000	1.8870

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2021**Unmitigated Construction On-Site**

	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					
Archit. Coating	0.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0120	0.0840	0.1000	1.6000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003	0.0000	14.0429	14.0429	9.6000e-004	0.0000	14.0670
Total	0.3670	0.0840	0.1000	1.6000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003	0.0000	14.0429	14.0429	9.6000e-004	0.0000	14.0670

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	4.1900e-003	2.7400e-003	0.0306	8.0000e-005	8.8900e-003	6.0000e-005	8.9500e-003	2.3600e-003	6.0000e-005	2.4200e-003	0.0000	7.6058	7.6058	2.0000e-004	0.0000	7.6108
Total	4.1900e-003	2.7400e-003	0.0306	8.0000e-005	8.8900e-003	6.0000e-005	8.9500e-003	2.3600e-003	6.0000e-005	2.4200e-003	0.0000	7.6058	7.6058	2.0000e-004	0.0000	7.6108

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2021**Mitigated Construction On-Site**

	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					
Archit. Coating	0.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0120	0.0840	0.1000	1.6000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003	0.0000	14.0429	14.0429	9.6000e-004	0.0000	14.0670
Total	0.3670	0.0840	0.1000	1.6000e-004		5.1800e-003	5.1800e-003		5.1800e-003	5.1800e-003	0.0000	14.0429	14.0429	9.6000e-004	0.0000	14.0670

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	4.1900e-003	2.7400e-003	0.0306	8.0000e-005	8.8900e-003	6.0000e-005	8.9500e-003	2.3600e-003	6.0000e-005	2.4200e-003	0.0000	7.6058	7.6058	2.0000e-004	0.0000	7.6108
Total	4.1900e-003	2.7400e-003	0.0306	8.0000e-005	8.8900e-003	6.0000e-005	8.9500e-003	2.3600e-003	6.0000e-005	2.4200e-003	0.0000	7.6058	7.6058	2.0000e-004	0.0000	7.6108

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2022**Unmitigated Construction On-Site**

	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					
Archit. Coating	0.8390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	0.8655	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.2600e-003	5.8200e-003	0.0665	1.9000e-004	0.0210	1.4000e-004	0.0212	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	17.3334	17.3334	4.2000e-004	0.0000	17.3440
Total	9.2600e-003	5.8200e-003	0.0665	1.9000e-004	0.0210	1.4000e-004	0.0212	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	17.3334	17.3334	4.2000e-004	0.0000	17.3440

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2022**Mitigated Construction On-Site**

	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					
Archit. Coating	0.8390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463
Total	0.8655	0.1831	0.2358	3.9000e-004		0.0106	0.0106		0.0106	0.0106	0.0000	33.1923	33.1923	2.1600e-003	0.0000	33.2463

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.2600e-003	5.8200e-003	0.0665	1.9000e-004	0.0210	1.4000e-004	0.0212	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	17.3334	17.3334	4.2000e-004	0.0000	17.3440
Total	9.2600e-003	5.8200e-003	0.0665	1.9000e-004	0.0210	1.4000e-004	0.0212	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	17.3334	17.3334	4.2000e-004	0.0000	17.3440

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	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					
Archit. Coating	0.8390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.1694	0.2355	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419
Total	0.8639	0.1694	0.2355	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	8.6600e-003	5.2400e-003	0.0611	1.8000e-004	0.0210	1.4000e-004	0.0211	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	16.6825	16.6825	3.8000e-004	0.0000	16.6921
Total	8.6600e-003	5.2400e-003	0.0611	1.8000e-004	0.0210	1.4000e-004	0.0211	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	16.6825	16.6825	3.8000e-004	0.0000	16.6921

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2023**Mitigated Construction On-Site**

	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					
Archit. Coating	0.8390					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0249	0.1694	0.2354	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419
Total	0.8639	0.1694	0.2354	3.9000e-004		9.2100e-003	9.2100e-003		9.2100e-003	9.2100e-003	0.0000	33.1923	33.1923	1.9900e-003	0.0000	33.2419

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	8.6600e-003	5.2400e-003	0.0611	1.8000e-004	0.0210	1.4000e-004	0.0211	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	16.6825	16.6825	3.8000e-004	0.0000	16.6921
Total	8.6600e-003	5.2400e-003	0.0611	1.8000e-004	0.0210	1.4000e-004	0.0211	5.5900e-003	1.3000e-004	5.7200e-003	0.0000	16.6825	16.6825	3.8000e-004	0.0000	16.6921

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2024**Unmitigated Construction On-Site**

	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					
Archit. Coating	0.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9400e-003	0.0670	0.0996	1.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	14.0429	14.0429	7.9000e-004	0.0000	14.0627
Total	0.3649	0.0670	0.0996	1.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	14.0429	14.0429	7.9000e-004	0.0000	14.0627

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.4500e-003	2.0000e-003	0.0239	8.0000e-005	8.8900e-003	6.0000e-005	8.9400e-003	2.3600e-003	5.0000e-005	2.4200e-003	0.0000	6.7836	6.7836	1.5000e-004	0.0000	6.7873
Total	3.4500e-003	2.0000e-003	0.0239	8.0000e-005	8.8900e-003	6.0000e-005	8.9400e-003	2.3600e-003	5.0000e-005	2.4200e-003	0.0000	6.7836	6.7836	1.5000e-004	0.0000	6.7873

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

3.6 Architectural Coating - 2024**Mitigated Construction On-Site**

	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					
Archit. Coating	0.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.9400e-003	0.0670	0.0996	1.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	14.0429	14.0429	7.9000e-004	0.0000	14.0627
Total	0.3649	0.0670	0.0996	1.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	14.0429	14.0429	7.9000e-004	0.0000	14.0627

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.4500e-003	2.0000e-003	0.0239	8.0000e-005	8.8900e-003	6.0000e-005	8.9400e-003	2.3600e-003	5.0000e-005	2.4200e-003	0.0000	6.7836	6.7836	1.5000e-004	0.0000	6.7873
Total	3.4500e-003	2.0000e-003	0.0239	8.0000e-005	8.8900e-003	6.0000e-005	8.9400e-003	2.3600e-003	5.0000e-005	2.4200e-003	0.0000	6.7836	6.7836	1.5000e-004	0.0000	6.7873

4.0 Operational Detail - Mobile

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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	0.4897	2.0711	5.6513	0.0202	1.9447	0.0159	1.9605	0.5211	0.0148	0.5358	0.0000	1,863.2817	1,863.2817	0.0798	0.0000	1,865.2760
Unmitigated	0.4932	2.0918	5.7403	0.0206	1.9844	0.0161	2.0005	0.5317	0.0150	0.5467	0.0000	1,898.8299	1,898.8299	0.0810	0.0000	1,900.8560

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2075.48	5,325,908	5,219,390
Total	2,075.48	2,075.48	2,075.48	5,325,908	5,219,390

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	273.3286	273.3286	0.0225	4.6600e-003	275.2822
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	285.4958	285.4958	0.0236	4.8700e-003	287.5363
NaturalGas Mitigated	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906
NaturalGas Unmitigated	0.0295	0.2524	0.1074	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	292.2711	292.2711	5.6000e-003	5.3600e-003	294.0080

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	5.47695e+006	0.0295	0.2524	0.1074	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	292.2711	292.2711	5.6000e-003	5.3600e-003	294.0080
Total		0.0295	0.2524	0.1074	1.6100e-003		0.0204	0.0204		0.0204	0.0204	0.0000	292.2711	292.2711	5.6000e-003	5.3600e-003	294.0080

Mitigated

	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
Single Family Housing	2.87608e+006	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906
Total		0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	1.79008e+006	285.4958	0.0236	4.8700e-003	287.5363
Total		285.4958	0.0236	4.8700e-003	287.5363

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.71379e+006	273.3286	0.0225	4.6600e-003	275.2822
Total		273.3286	0.0225	4.6600e-003	275.2822

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

Use only Natural Gas Hearths

	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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Unmitigated	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

6.2 Area by SubCategory

Unmitigated

	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	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

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	tons/yr										MT/yr					
Architectural Coating	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

7.0 Water Detail**7.1 Mitigation Measures Water**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	21.9879	0.0182	0.0109	25.6976
Unmitigated	21.9879	0.0182	0.0109	25.6976

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.2637	1.0000e-004	2.0000e-005	1.2727
Single Family Housing	13.8127 / 8.70798	20.7242	0.0181	0.0109	24.4249
Total		21.9879	0.0182	0.0109	25.6976

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.2637	1.0000e-004	2.0000e-005	1.2727
Single Family Housing	13.8127 / 8.70798	20.7242	0.0181	0.0109	24.4249
Total		21.9879	0.0182	0.0109	25.6976

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.3939	2.4463	0.0000	102.5517
Unmitigated	41.3939	2.4463	0.0000	102.5517

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield at Twin Cities
Sacramento Metropolitan AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	2	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	4	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	9	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Scrapers	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	7.34900E-002	5.03500E-001	6.70730E-001	1.10000E-003	2.83600E-002	2.83600E-002	0.00000E+000	9.44704E+001	9.44704E+001	5.90000E-003	0.00000E+000	9.46179E+001
Cranes	1.18590E-001	1.31788E+000	6.05660E-001	1.87000E-003	5.46000E-002	5.02300E-002	0.00000E+000	1.64123E+002	1.64123E+002	5.30800E-002	0.00000E+000	1.65450E+002
Excavators	9.17000E-003	8.61400E-002	1.30870E-001	2.10000E-004	4.18000E-003	3.84000E-003	0.00000E+000	1.81507E+001	1.81507E+001	5.87000E-003	0.00000E+000	1.82974E+001
Forklifts	1.21700E-001	1.13046E+000	1.27754E+000	1.70000E-003	7.31000E-002	6.72500E-002	0.00000E+000	1.49063E+002	1.49063E+002	4.82100E-002	0.00000E+000	1.50269E+002
Generator Sets	1.18360E-001	1.05089E+000	1.35917E+000	2.43000E-003	5.13700E-002	5.13700E-002	0.00000E+000	2.09127E+002	2.09127E+002	9.60000E-003	0.00000E+000	2.09367E+002
Graders	9.06000E-003	1.18490E-001	3.53400E-002	1.30000E-004	3.75000E-003	3.45000E-003	0.00000E+000	1.16425E+001	1.16425E+001	3.77000E-003	0.00000E+000	1.17367E+001
Pavers	9.85000E-003	1.03800E-001	1.16190E-001	1.90000E-004	5.02000E-003	4.62000E-003	0.00000E+000	1.65130E+001	1.65130E+001	5.34000E-003	0.00000E+000	1.66465E+001
Paving Equipment	7.68000E-003	7.76100E-002	1.01660E-001	1.60000E-004	3.83000E-003	3.53000E-003	0.00000E+000	1.43138E+001	1.43138E+001	4.63000E-003	0.00000E+000	1.44295E+001
Rollers	7.58000E-003	7.69700E-002	7.52200E-002	1.00000E-004	4.71000E-003	4.33000E-003	0.00000E+000	9.22022E+000	9.22022E+000	2.98000E-003	0.00000E+000	9.29477E+000
Rubber Tired Dozers	5.23200E-002	5.48560E-001	2.01890E-001	4.30000E-004	2.66200E-002	2.44900E-002	0.00000E+000	3.75281E+001	3.75281E+001	1.21400E-002	0.00000E+000	3.78315E+001
Scrapers	3.71800E-002	4.28110E-001	2.80190E-001	6.10000E-004	1.66600E-002	1.53200E-002	0.00000E+000	5.32667E+001	5.32667E+001	1.72300E-002	0.00000E+000	5.36974E+001
Tractors/Loaders/ Backhoes	1.71230E-001	1.73620E+000	2.35536E+000	3.27000E-003	9.18900E-002	8.45400E-002	0.00000E+000	2.87379E+002	2.87379E+002	9.29400E-002	0.00000E+000	2.89703E+002
Welders	9.90100E-002	5.34420E-001	6.24900E-001	9.50000E-004	2.22900E-002	2.22900E-002	0.00000E+000	6.96416E+001	6.96416E+001	8.03000E-003	0.00000E+000	6.98423E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	7.34900E-002	5.03500E-001	6.70730E-001	1.10000E-003	2.83600E-002	2.83600E-002	0.00000E+000	9.44703E+001	9.44703E+001	5.90000E-003	0.00000E+000	9.46178E+001
Cranes	1.18590E-001	1.31788E+000	6.05660E-001	1.87000E-003	5.46000E-002	5.02300E-002	0.00000E+000	1.64122E+002	1.64122E+002	5.30800E-002	0.00000E+000	1.65449E+002
Excavators	9.17000E-003	8.61400E-002	1.30870E-001	2.10000E-004	4.18000E-003	3.84000E-003	0.00000E+000	1.81506E+001	1.81506E+001	5.87000E-003	0.00000E+000	1.82974E+001
Forklifts	1.21700E-001	1.13045E+000	1.27754E+000	1.70000E-003	7.31000E-002	6.72500E-002	0.00000E+000	1.49063E+002	1.49063E+002	4.82100E-002	0.00000E+000	1.50268E+002
Generator Sets	1.18360E-001	1.05089E+000	1.35917E+000	2.43000E-003	5.13700E-002	5.13700E-002	0.00000E+000	2.09127E+002	2.09127E+002	9.60000E-003	0.00000E+000	2.09366E+002
Graders	9.06000E-003	1.18490E-001	3.53400E-002	1.30000E-004	3.75000E-003	3.45000E-003	0.00000E+000	1.16425E+001	1.16425E+001	3.77000E-003	0.00000E+000	1.17366E+001
Pavers	9.85000E-003	1.03800E-001	1.16190E-001	1.90000E-004	5.02000E-003	4.62000E-003	0.00000E+000	1.65130E+001	1.65130E+001	5.34000E-003	0.00000E+000	1.66465E+001
Paving Equipment	7.68000E-003	7.76100E-002	1.01660E-001	1.60000E-004	3.83000E-003	3.53000E-003	0.00000E+000	1.43138E+001	1.43138E+001	4.63000E-003	0.00000E+000	1.44295E+001
Rollers	7.58000E-003	7.69700E-002	7.52200E-002	1.00000E-004	4.71000E-003	4.33000E-003	0.00000E+000	9.22021E+000	9.22021E+000	2.98000E-003	0.00000E+000	9.29476E+000
Rubber Tired Dozers	5.23200E-002	5.48560E-001	2.01890E-001	4.30000E-004	2.66200E-002	2.44900E-002	0.00000E+000	3.75280E+001	3.75280E+001	1.21400E-002	0.00000E+000	3.78315E+001
Scrapers	3.71800E-002	4.28110E-001	2.80190E-001	6.10000E-004	1.66600E-002	1.53200E-002	0.00000E+000	5.32666E+001	5.32666E+001	1.72300E-002	0.00000E+000	5.36973E+001
Tractors/Loaders/Balckhoes	1.71230E-001	1.73620E+000	2.35536E+000	3.27000E-003	9.18900E-002	8.45400E-002	0.00000E+000	2.87379E+002	2.87379E+002	9.29400E-002	0.00000E+000	2.89703E+002
Welders	9.90100E-002	5.34420E-001	6.24900E-001	9.50000E-004	2.22900E-002	2.22900E-002	0.00000E+000	6.96416E+001	6.96416E+001	8.03000E-003	0.00000E+000	6.98423E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16439E-006	1.16439E-006	0.00000E+000	0.00000E+000	1.16257E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15767E-006	1.15767E-006	0.00000E+000	0.00000E+000	1.20883E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.10189E-006	1.10189E-006	0.00000E+000	0.00000E+000	1.09305E-006
Forklifts	0.00000E+000	8.84596E-006	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14045E-006	1.14045E-006	0.00000E+000	0.00000E+000	1.19785E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.19545E-006	1.19545E-006	0.00000E+000	0.00000E+000	1.19408E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	8.58921E-007	8.58921E-007	0.00000E+000	0.00000E+000	1.70406E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21117E-006	1.21117E-006	0.00000E+000	0.00000E+000	1.20145E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.39726E-006	1.39726E-006	0.00000E+000	0.00000E+000	1.38605E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.08457E-006	1.08457E-006	0.00000E+000	0.00000E+000	1.07587E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.06587E-006	1.06587E-006	0.00000E+000	0.00000E+000	1.32165E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.31414E-006	1.31414E-006	0.00000E+000	0.00000E+000	1.30360E-006
Tractors/Loaders/Balckhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18311E-006	1.18311E-006	0.00000E+000	0.00000E+000	1.20813E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14874E-006	1.14874E-006	0.00000E+000	0.00000E+000	1.14544E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input	Mitigation Input	Mitigation Input
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	PM2.5 Reduction	
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	PM2.5 Reduction	
No	Water Exposed Area	PM10 Reduction	PM2.5 Reduction	Frequency (per day)

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.06	0.02	0.06	0.02	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.38	0.10	0.38	0.10	0.00	0.00
Grading	Fugitive Dust	0.15	0.07	0.15	0.07	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.18	0.10	0.18	0.10	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.26	4.26	4.29	4.31	4.26
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.71	0.99	1.55	1.89	1.73	1.66	0.00	1.87	1.87	1.57	0.00	1.87
Natural Gas	47.48	47.49	47.49	47.20	47.50	47.50	0.00	47.49	47.49	47.50	47.57	47.49
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.13	0.36		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.02			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.02		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
Yes	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	53.00	
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
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Institute Recycling and Composting Services Percent Reduction in Waste Disposed	
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Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Summerfield at Twin Cities

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	351.61	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Project Characteristics - CO2 intensity factor updated per anticipated SMUD RPS standards

Land Use - updated lot acreage per the applicant-provided questionnaire

Construction Phase - total days adjusted per the applicant-provided questionnaire

Grading - updated total acres graded based on applicant-provided questionnaire

Vehicle Trips - trip generation rates are based on the GHD Traffic Impact Analysis prepared for the project

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	55.00	740.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	55.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	PhaseEndDate	10/25/2024	5/31/2024
tblConstructionPhase	PhaseEndDate	5/24/2024	5/17/2024
tblConstructionPhase	PhaseEndDate	7/23/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	8/9/2024	7/16/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	3/26/2021
tblConstructionPhase	PhaseStartDate	8/10/2024	8/2/2021
tblConstructionPhase	PhaseStartDate	7/24/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	3/29/2021
tblConstructionPhase	PhaseStartDate	5/25/2024	5/24/2021
tblGrading	AcresOfGrading	100.00	54.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	351.61
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

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					
2021	9.2175	46.4409	31.4768	0.0636	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,160.339 3	6,160.339 3	1.9469	0.0000	6,209.0112
2022	8.9650	20.7072	22.6918	0.0486	1.2283	0.9061	2.1344	0.3307	0.8573	1.1880	0.0000	4,751.749 2	4,751.749 2	0.7046	0.0000	4,769.364 6
2023	8.7645	18.8248	22.1824	0.0480	1.2283	0.7811	2.0094	0.3307	0.7391	1.0698	0.0000	4,698.400 7	4,698.400 7	0.6914	0.0000	4,715.686 1
2024	8.6202	17.7236	21.8110	0.0476	1.2283	0.6845	1.9128	0.3307	0.6474	0.9781	0.0000	4,656.716 6	4,656.716 6	0.6842	0.0000	4,673.822 6
Maximum	9.2175	46.4409	31.4768	0.0636	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,160.339 3	6,160.339 3	1.9469	0.0000	6,209.011 2

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	9.2175	46.4409	31.4768	0.0636	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,160.339 2	6,160.339 2	1.9469	0.0000	6,209.0112
2022	8.9650	20.7072	22.6918	0.0486	1.2283	0.9061	2.1344	0.3307	0.8573	1.1880	0.0000	4,751.749 2	4,751.749 2	0.7046	0.0000	4,769.364 6
2023	8.7645	18.8248	22.1824	0.0480	1.2283	0.7811	2.0094	0.3307	0.7391	1.0698	0.0000	4,698.400 7	4,698.400 7	0.6914	0.0000	4,715.686 1
2024	8.6202	17.7236	21.8110	0.0476	1.2283	0.6845	1.9128	0.3307	0.6474	0.9781	0.0000	4,656.716 6	4,656.716 6	0.6842	0.0000	4,673.822 6
Maximum	9.2175	46.4409	31.4768	0.0636	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,160.339 2	6,160.339 2	1.9469	0.0000	6,209.011 2

[illegible]

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263
Mobile	3.4486	11.0924	35.6406	0.1224	11.2873	0.0884	11.3757	3.0158	0.0823	3.0981		12,419.3930	12,419.3930	0.5023		12,431.9507
Total	13.6140	12.6765	53.7029	0.1322	11.2873	0.2972	11.5845	3.0158	0.2911	3.3069	0.0000	14,216.2223	14,216.2223	0.5663	0.0324	14,240.0245

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	3.4285	10.9874	35.0463	0.1201	11.0615	0.0869	11.1484	2.9555	0.0809	3.0364		12,186.2750	12,186.2750	0.4942		12,198.6297
Total	13.5170	11.9148	52.8292	0.1257	11.0615	0.2426	11.3041	2.9555	0.2366	3.1920	0.0000	13,144.7886	13,144.7886	0.5421	0.0170	13,163.4061

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

	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
Percent Reduction	0.71	6.01	1.63	4.91	2.00	18.38	2.42	2.00	18.73	3.47	0.00	7.54	7.54	4.27	47.47	7.56

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	3/26/2021	5	20	
2	Grading	Grading	3/29/2021	5/21/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/17/2024	5	740	
4	Paving	Paving	5/24/2021	7/16/2021	5	40	
5	Architectural Coating	Architectural Coating	8/2/2021	5/31/2024	5	740	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 54****Acres of Paving: 0****Residential Indoor: 772,740; Residential Outdoor: 257,580; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	111.00	36.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.1 Mitigation Measures Construction**3.2 Site Preparation - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.3 Grading - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					7.4538	0.0000	7.4538	3.4648	0.0000	3.4648			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.4538	1.9853	9.4391	3.4648	1.8265	5.2913		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978
Total	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.3 Grading - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					7.4538	0.0000	7.4538	3.4648	0.0000	3.4648			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.4538	1.9853	9.4391	3.4648	1.8265	5.2913	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978
Total	0.0802	0.0410	0.5983	1.5400e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		153.2958	153.2958	4.0800e-003		153.3978

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1113	3.6159	0.9233	8.8800e-003	0.2166	9.9200e-003	0.2265	0.0623	9.4900e-003	0.0718		941.3205	941.3205	0.0515		942.6066
Worker	0.4449	0.2277	3.3206	8.5500e-003	0.8444	5.7000e-003	0.8501	0.2240	5.2500e-003	0.2292		850.7917	850.7917	0.0226		851.3577
Total	0.5561	3.8436	4.2439	0.0174	1.0610	0.0156	1.0766	0.2863	0.0147	0.3011		1,792.1122	1,792.1122	0.0741		1,793.9643

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2021**Mitigated Construction On-Site**

	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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.363 9	2,553.363 9	0.6160		2,568.764 3

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1113	3.6159	0.9233	8.8800e-003	0.2166	9.9200e-003	0.2265	0.0623	9.4900e-003	0.0718		941.3205	941.3205	0.0515		942.6066
Worker	0.4449	0.2277	3.3206	8.5500e-003	0.8444	5.7000e-003	0.8501	0.2240	5.2500e-003	0.2292		850.7917	850.7917	0.0226		851.3577
Total	0.5561	3.8436	4.2439	0.0174	1.0610	0.0156	1.0766	0.2863	0.0147	0.3011		1,792.112 2	1,792.112 2	0.0741		1,793.964 3

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	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					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1032	3.4377	0.8507	8.8000e-003	0.2166	8.6900e-003	0.2253	0.0623	8.3100e-003	0.0706		933.1092	933.1092	0.0500		934.3583
Worker	0.4153	0.2048	3.0580	8.2400e-003	0.8444	5.5500e-003	0.8499	0.2240	5.1100e-003	0.2291		820.2803	820.2803	0.0204		820.7890
Total	0.5185	3.6425	3.9088	0.0170	1.0610	0.0142	1.0752	0.2863	0.0134	0.2997		1,753.3895	1,753.3895	0.0703		1,755.1473

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2022**Mitigated Construction On-Site**

	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					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1032	3.4377	0.8507	8.8000e-003	0.2166	8.6900e-003	0.2253	0.0623	8.3100e-003	0.0706		933.1092	933.1092	0.0500		934.3583
Worker	0.4153	0.2048	3.0580	8.2400e-003	0.8444	5.5500e-003	0.8499	0.2240	5.1100e-003	0.2291		820.2803	820.2803	0.0204		820.7890
Total	0.5185	3.6425	3.9088	0.0170	1.0610	0.0142	1.0752	0.2863	0.0134	0.2997		1,753.3895	1,753.3895	0.0703		1,755.1473

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	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					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0816	2.9160	0.7546	8.6300e-003	0.2166	4.1000e-003	0.2207	0.0623	3.9200e-003	0.0662		915.8358	915.8358	0.0449		916.9577
Worker	0.3881	0.1844	2.8148	7.9200e-003	0.8444	5.4200e-003	0.8498	0.2240	4.9900e-003	0.2290		789.4411	789.4411	0.0182		789.8972
Total	0.4697	3.1003	3.5694	0.0166	1.0610	9.5200e-003	1.0705	0.2863	8.9100e-003	0.2952		1,705.2769	1,705.2769	0.0631		1,706.8548

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2023**Mitigated Construction On-Site**

	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					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0816	2.9160	0.7546	8.6300e-003	0.2166	4.1000e-003	0.2207	0.0623	3.9200e-003	0.0662		915.8358	915.8358	0.0449		916.9577
Worker	0.3881	0.1844	2.8148	7.9200e-003	0.8444	5.4200e-003	0.8498	0.2240	4.9900e-003	0.2290		789.4411	789.4411	0.0182		789.8972
Total	0.4697	3.1003	3.5694	0.0166	1.0610	9.5200e-003	1.0705	0.2863	8.9100e-003	0.2952		1,705.2769	1,705.2769	0.0631		1,706.8548

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2024**Unmitigated Construction On-Site**

	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					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0777	2.8613	0.7054	8.5800e-003	0.2166	3.9000e-003	0.2205	0.0623	3.7300e-003	0.0660		910.4814	910.4814	0.0443		911.5895
Worker	0.3645	0.1667	2.6112	7.6100e-003	0.8444	5.3000e-003	0.8497	0.2240	4.8800e-003	0.2289		758.7128	758.7128	0.0165		759.1242
Total	0.4422	3.0280	3.3165	0.0162	1.0609	9.2000e-003	1.0701	0.2863	8.6100e-003	0.2949		1,669.1942	1,669.1942	0.0608		1,670.7137

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.4 Building Construction - 2024**Mitigated Construction On-Site**

	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					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0777	2.8613	0.7054	8.5800e-003	0.2166	3.9000e-003	0.2205	0.0623	3.7300e-003	0.0660		910.4814	910.4814	0.0443		911.5895
Worker	0.3645	0.1667	2.6112	7.6100e-003	0.8444	5.3000e-003	0.8497	0.2240	4.8800e-003	0.2289		758.7128	758.7128	0.0165		759.1242
Total	0.4422	3.0280	3.3165	0.0162	1.0609	9.2000e-003	1.0701	0.2863	8.6100e-003	0.2949		1,669.1942	1,669.1942	0.0608		1,670.7137

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.5 Paving - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.5 Paving - 2021**Mitigated Construction On-Site**

	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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483
Total	0.0601	0.0308	0.4487	1.1500e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		114.9719	114.9719	3.0600e-003		115.0483

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2021**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	6.6723	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0882	0.0451	0.6581	1.6900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		168.6254	168.6254	4.4900e-003		168.7376
Total	0.0882	0.0451	0.6581	1.6900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		168.6254	168.6254	4.4900e-003		168.7376

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2021**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	6.6723	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0882	0.0451	0.6581	1.6900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		168.6254	168.6254	4.4900e-003		168.7376
Total	0.0882	0.0451	0.6581	1.6900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		168.6254	168.6254	4.4900e-003		168.7376

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2022**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	6.6580	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0823	0.0406	0.6061	1.6300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		162.5781	162.5781	4.0300e-003		162.6789
Total	0.0823	0.0406	0.6061	1.6300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		162.5781	162.5781	4.0300e-003		162.6789

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2022**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	6.6580	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0823	0.0406	0.6061	1.6300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		162.5781	162.5781	4.0300e-003		162.6789
Total	0.0823	0.0406	0.6061	1.6300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		162.5781	162.5781	4.0300e-003		162.6789

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.6451	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0769	0.0365	0.5579	1.5700e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		156.4658	156.4658	3.6200e-003		156.5562
Total	0.0769	0.0365	0.5579	1.5700e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		156.4658	156.4658	3.6200e-003		156.5562

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2023**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.6451	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0769	0.0365	0.5579	1.5700e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		156.4658	156.4658	3.6200e-003		156.5562
Total	0.0769	0.0365	0.5579	1.5700e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		156.4658	156.4658	3.6200e-003		156.5562

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2024**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.6342	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0722	0.0330	0.5175	1.5100e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		150.3755	150.3755	3.2600e-003		150.4570
Total	0.0722	0.0330	0.5175	1.5100e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		150.3755	150.3755	3.2600e-003		150.4570

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

3.6 Architectural Coating - 2024**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.6342	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0722	0.0330	0.5175	1.5100e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		150.3755	150.3755	3.2600e-003		150.4570
Total	0.0722	0.0330	0.5175	1.5100e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		150.3755	150.3755	3.2600e-003		150.4570

4.0 Operational Detail - Mobile

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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					
Mitigated	3.4285	10.9874	35.0463	0.1201	11.0615	0.0869	11.1484	2.9555	0.0809	3.0364		12,186.2750	12,186.2750	0.4942		12,198.6297
Unmitigated	3.4486	11.0924	35.6406	0.1224	11.2873	0.0884	11.3757	3.0158	0.0823	3.0981		12,419.3930	12,419.3930	0.5023		12,431.9507

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2075.48	5,325,908	5,219,390
Total	2,075.48	2,075.48	2,075.48	5,325,908	5,219,390

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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 Mitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
NaturalGas Unmitigated	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

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					
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
Single Family Housing	15005.4	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263
Total		0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263

Mitigated

	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					
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
Single Family Housing	7.87967	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Use only Natural Gas Hearths

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Summerfield at Twin Cities
Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	351.61	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Project Characteristics - CO2 intensity factor updated per anticipated SMUD RPS standards

Land Use - updated lot acreage per the applicant-provided questionnaire

Construction Phase - total days adjusted per the applicant-provided questionnaire

Grading - updated total acres graded based on applicant-provided questionnaire

Vehicle Trips - trip generation rates are based on the GHD Traffic Impact Analysis prepared for the project

Energy Use -

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation -

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	55.00	740.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	55.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	PhaseEndDate	10/25/2024	5/31/2024
tblConstructionPhase	PhaseEndDate	5/24/2024	5/17/2024
tblConstructionPhase	PhaseEndDate	7/23/2021	5/21/2021
tblConstructionPhase	PhaseEndDate	8/9/2024	7/16/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	3/26/2021
tblConstructionPhase	PhaseStartDate	8/10/2024	8/2/2021
tblConstructionPhase	PhaseStartDate	7/24/2021	7/19/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	3/29/2021
tblConstructionPhase	PhaseStartDate	5/25/2024	5/24/2021
tblGrading	AcresOfGrading	100.00	54.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	351.61
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

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					
2021	9.1820	46.4505	31.3888	0.0634	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,141.676 3	6,141.676 3	1.9464	0.0000	6,190.336 0
2022	8.9326	20.8152	22.2766	0.0471	1.2283	0.9066	2.1350	0.3307	0.8579	1.1886	0.0000	4,607.992 1	4,607.992 1	0.7058	0.0000	4,625.637 1
2023	8.7347	18.9057	21.7768	0.0467	1.2283	0.7815	2.0098	0.3307	0.7395	1.0702	0.0000	4,559.699 4	4,559.699 4	0.6923	0.0000	4,577.006 6
2024	8.5933	17.7979	21.4265	0.0463	1.2283	0.6848	1.9131	0.3307	0.6477	0.9784	0.0000	4,522.775 6	4,522.775 6	0.6853	0.0000	4,539.908 3
Maximum	9.1820	46.4505	31.3888	0.0634	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,141.676 3	6,141.676 3	1.9464	0.0000	6,190.336 0

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

2.1 Overall Construction (Maximum Daily Emission)

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					
2021	9.1820	46.4505	31.3888	0.0634	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,141.6763	6,141.6763	1.9464	0.0000	6,190.3360
2022	8.9326	20.8152	22.2766	0.0471	1.2283	0.9066	2.1350	0.3307	0.8579	1.1886	0.0000	4,607.9921	4,607.9921	0.7058	0.0000	4,625.6371
2023	8.7347	18.9057	21.7768	0.0467	1.2283	0.7815	2.0098	0.3307	0.7395	1.0702	0.0000	4,559.6994	4,559.6994	0.6923	0.0000	4,577.0065
2024	8.5933	17.7979	21.4265	0.0463	1.2283	0.6848	1.9131	0.3307	0.6477	0.9784	0.0000	4,522.7756	4,522.7756	0.6853	0.0000	4,539.9083
Maximum	9.1820	46.4505	31.3888	0.0634	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	6,141.6763	6,141.6763	1.9464	0.0000	6,190.3360

[illegible]

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263
Mobile	2.5423	11.7837	32.5307	0.1107	11.2873	0.0892	11.3765	3.0158	0.0831	3.0989		11,241.3612	11,241.3612	0.4999		11,253.8585
Total	12.7077	13.3678	50.5931	0.1204	11.2873	0.2980	11.5853	3.0158	0.2919	3.3076	0.0000	13,038.1905	13,038.1905	0.5639	0.0324	13,061.9322

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	2.5230	11.6638	32.0548	0.1086	11.0615	0.0877	11.1492	2.9555	0.0817	3.0371		11,030.5078	11,030.5078	0.4923		11,042.8142
Total	12.6115	12.5913	49.8377	0.1142	11.0615	0.2434	11.3049	2.9555	0.2373	3.1928	0.0000	11,989.0214	11,989.0214	0.5402	0.0170	12,007.5906

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

	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
Percent Reduction	0.76	5.81	1.49	5.21	2.00	18.33	2.42	2.00	18.68	3.47	0.00	8.05	8.05	4.20	47.47	8.07

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	3/26/2021	5	20	
2	Grading	Grading	3/29/2021	5/21/2021	5	40	
3	Building Construction	Building Construction	7/19/2021	5/17/2024	5	740	
4	Paving	Paving	5/24/2021	7/16/2021	5	40	
5	Architectural Coating	Architectural Coating	8/2/2021	5/31/2024	5	740	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 54

Acres of Paving: 0

Residential Indoor: 772,740; Residential Outdoor: 257,580; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	111.00	36.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.1 Mitigation Measures Construction**3.2 Site Preparation - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.3 Grading - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					7.4538	0.0000	7.4538	3.4648	0.0000	3.4648			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.4538	1.9853	9.4391	3.4648	1.8265	5.2913		6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226
Total	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.3 Grading - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					7.4538	0.0000	7.4538	3.4648	0.0000	3.4648			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4
Total	4.1912	46.3998	30.8785	0.0620	7.4538	1.9853	9.4391	3.4648	1.8265	5.2913	0.0000	6,007.043 4	6,007.043 4	1.9428		6,055.613 4

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226
Total	0.0738	0.0507	0.5103	1.3500e-003	0.1521	1.0300e-003	0.1532	0.0404	9.5000e-004	0.0413		134.6329	134.6329	3.5900e-003		134.7226

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1179	3.6753	1.0708	8.6600e-003	0.2166	0.0105	0.2272	0.0623	0.0101	0.0724		917.1074	917.1074	0.0557		918.5003
Worker	0.4097	0.2813	2.8323	7.5000e-003	0.8444	5.7000e-003	0.8501	0.2240	5.2500e-003	0.2292		747.2123	747.2123	0.0199		747.7101
Total	0.5275	3.9566	3.9031	0.0162	1.0610	0.0162	1.0772	0.2863	0.0153	0.3016		1,664.3198	1,664.3198	0.0756		1,666.2104

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2021**Mitigated Construction On-Site**

	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					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1179	3.6753	1.0708	8.6600e-003	0.2166	0.0105	0.2272	0.0623	0.0101	0.0724		917.1074	917.1074	0.0557		918.5003
Worker	0.4097	0.2813	2.8323	7.5000e-003	0.8444	5.7000e-003	0.8501	0.2240	5.2500e-003	0.2292		747.2123	747.2123	0.0199		747.7101
Total	0.5275	3.9566	3.9031	0.0162	1.0610	0.0162	1.0772	0.2863	0.0153	0.3016		1,664.3198	1,664.3198	0.0756		1,666.2104

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2022**Unmitigated Construction On-Site**

	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					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1094	3.4881	0.9876	8.5800e-003	0.2166	9.2600e-003	0.2259	0.0623	8.8500e-003	0.0712		908.9586	908.9586	0.0541		910.3119
Worker	0.3831	0.2529	2.5972	7.2300e-003	0.8444	5.5500e-003	0.8499	0.2240	5.1100e-003	0.2291		720.4583	720.4583	0.0179		720.9048
Total	0.4925	3.7409	3.5848	0.0158	1.0610	0.0148	1.0758	0.2863	0.0140	0.3003		1,629.4169	1,629.4169	0.0720		1,631.2167

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2022**Mitigated Construction On-Site**

	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					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.1094	3.4881	0.9876	8.5800e-003	0.2166	9.2600e-003	0.2259	0.0623	8.8500e-003	0.0712		908.9586	908.9586	0.0541		910.3119
Worker	0.3831	0.2529	2.5972	7.2300e-003	0.8444	5.5500e-003	0.8499	0.2240	5.1100e-003	0.2291		720.4583	720.4583	0.0179		720.9048
Total	0.4925	3.7409	3.5848	0.0158	1.0610	0.0148	1.0758	0.2863	0.0140	0.3003		1,629.4169	1,629.4169	0.0720		1,631.2167

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2023**Unmitigated Construction On-Site**

	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					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0867	2.9453	0.8703	8.4100e-003	0.2166	4.4500e-003	0.2210	0.0623	4.2600e-003	0.0666		892.1942	892.1942	0.0485		893.4060
Worker	0.3590	0.2275	2.3797	6.9600e-003	0.8444	5.4200e-003	0.8498	0.2240	4.9900e-003	0.2290		693.4138	693.4138	0.0160		693.8130
Total	0.4457	3.1728	3.2500	0.0154	1.0610	9.8700e-003	1.0708	0.2863	9.2500e-003	0.2956		1,585.6080	1,585.6080	0.0644		1,587.2190

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2023**Mitigated Construction On-Site**

	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					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.209 9	2,555.209 9	0.6079		2,570.406 1

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0867	2.9453	0.8703	8.4100e-003	0.2166	4.4500e-003	0.2210	0.0623	4.2600e-003	0.0666		892.1942	892.1942	0.0485		893.4060
Worker	0.3590	0.2275	2.3797	6.9600e-003	0.8444	5.4200e-003	0.8498	0.2240	4.9900e-003	0.2290		693.4138	693.4138	0.0160		693.8130
Total	0.4457	3.1728	3.2500	0.0154	1.0610	9.8700e-003	1.0708	0.2863	9.2500e-003	0.2956		1,585.608 0	1,585.608 0	0.0644		1,587.219 0

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2024**Unmitigated Construction On-Site**

	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					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0826	2.8890	0.8134	8.3600e-003	0.2166	4.2200e-003	0.2208	0.0623	4.0300e-003	0.0663		887.0663	887.0663	0.0479		888.2633
Worker	0.3380	0.2056	2.2002	6.6900e-003	0.8444	5.3000e-003	0.8497	0.2240	4.8800e-003	0.2289		666.4694	666.4694	0.0144		666.8288
Total	0.4206	3.0946	3.0135	0.0151	1.0609	9.5200e-003	1.0704	0.2863	8.9100e-003	0.2952		1,553.5357	1,553.5357	0.0623		1,555.0921

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.4 Building Construction - 2024**Mitigated Construction On-Site**

	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					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	0.0826	2.8890	0.8134	8.3600e-003	0.2166	4.2200e-003	0.2208	0.0623	4.0300e-003	0.0663		887.0663	887.0663	0.0479		888.2633
Worker	0.3380	0.2056	2.2002	6.6900e-003	0.8444	5.3000e-003	0.8497	0.2240	4.8800e-003	0.2289		666.4694	666.4694	0.0144		666.8288
Total	0.4206	3.0946	3.0135	0.0151	1.0609	9.5200e-003	1.0704	0.2863	8.9100e-003	0.2952		1,553.5357	1,553.5357	0.0623		1,555.0921

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.5 Paving - 2021**Unmitigated Construction On-Site**

	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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419
Total	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.5 Paving - 2021**Mitigated Construction On-Site**

	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					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419
Total	0.0554	0.0380	0.3827	1.0100e-003	0.1141	7.7000e-004	0.1149	0.0303	7.1000e-004	0.0310		100.9746	100.9746	2.6900e-003		101.0419

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2021**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	6.6723	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0812	0.0558	0.5614	1.4900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		148.0961	148.0961	3.9500e-003		148.1948
Total	0.0812	0.0558	0.5614	1.4900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		148.0961	148.0961	3.9500e-003		148.1948

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2021**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	6.6723	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0812	0.0558	0.5614	1.4900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		148.0961	148.0961	3.9500e-003		148.1948
Total	0.0812	0.0558	0.5614	1.4900e-003	0.1674	1.1300e-003	0.1685	0.0444	1.0400e-003	0.0454		148.0961	148.0961	3.9500e-003		148.1948

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2022**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	6.6580	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0759	0.0501	0.5148	1.4300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		142.7935	142.7935	3.5400e-003		142.8820
Total	0.0759	0.0501	0.5148	1.4300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		142.7935	142.7935	3.5400e-003		142.8820

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2022**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	6.6580	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0759	0.0501	0.5148	1.4300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		142.7935	142.7935	3.5400e-003		142.8820
Total	0.0759	0.0501	0.5148	1.4300e-003	0.1674	1.1000e-003	0.1685	0.0444	1.0100e-003	0.0454		142.7935	142.7935	3.5400e-003		142.8820

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2023**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	6.6451	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0712	0.0451	0.4717	1.3800e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		137.4334	137.4334	3.1700e-003		137.5125
Total	0.0712	0.0451	0.4717	1.3800e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		137.4334	137.4334	3.1700e-003		137.5125

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2023**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	6.6451	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0712	0.0451	0.4717	1.3800e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		137.4334	137.4334	3.1700e-003		137.5125
Total	0.0712	0.0451	0.4717	1.3800e-003	0.1674	1.0700e-003	0.1684	0.0444	9.9000e-004	0.0454		137.4334	137.4334	3.1700e-003		137.5125

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2024**Unmitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	6.6342	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0670	0.0407	0.4361	1.3300e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		132.0930	132.0930	2.8500e-003		132.1643
Total	0.0670	0.0407	0.4361	1.3300e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		132.0930	132.0930	2.8500e-003		132.1643

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

3.6 Architectural Coating - 2024**Mitigated Construction On-Site**

	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					
Archit. Coating	6.4534					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	6.6342	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0670	0.0407	0.4361	1.3300e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		132.0930	132.0930	2.8500e-003		132.1643
Total	0.0670	0.0407	0.4361	1.3300e-003	0.1674	1.0500e-003	0.1684	0.0444	9.7000e-004	0.0454		132.0930	132.0930	2.8500e-003		132.1643

4.0 Operational Detail - Mobile

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	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					
Mitigated	2.5230	11.6638	32.0548	0.1086	11.0615	0.0877	11.1492	2.9555	0.0817	3.0371		11,030.5078	11,030.5078	0.4923		11,042.8142
Unmitigated	2.5423	11.7837	32.5307	0.1107	11.2873	0.0892	11.3765	3.0158	0.0831	3.0989		11,241.3612	11,241.3612	0.4999		11,253.8585

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2,075.48	5,325,908	5,219,390
Total	2,075.48	2,075.48	2,075.48	5,325,908	5,219,390

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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 Mitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
NaturalGas Unmitigated	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

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					
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
Single Family Housing	15005.4	0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263
Total		0.1618	1.3829	0.5885	8.8300e-003		0.1118	0.1118		0.1118	0.1118		1,765.3358	1,765.3358	0.0338	0.0324	1,775.8263

Mitigated

	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					
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
Single Family Housing	7.87967	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Use only Natural Gas Hearths

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Summerfield at Twin Cities - Sacramento Metropolitan AQMD Air District, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Appendix B

Air Quality Management Plan

Summerfield at Twin Cities Road Project

Air Quality Mitigation Plan

Prepared for
The City of Galt



May 2020

Prepared by



Summerfield at Twin Cities Road Project Air Quality Mitigation Plan

Lead Agency

City of Galt
Community Development Department
495 Industrial Drive
Galt, CA 95632

Prepared By

Raney Planning and Management, Inc.
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TABLE OF CONTENTS

INTRODUCTION	1
PROJECT SUMMARY	1
Project Location	1
Required City Approvals	4
PURPOSE OF THE AQMP	6
METHODOLOGY	7
Required Air Quality Emissions Reduction Percentage	8
ANALYSIS.....	8
Unmitigated Baseline Operational Emissions	8
Establishing Emissions Reduction Targets	9
Summary of Mitigation Measures.....	10
Project On-Model Mitigated Operational Emissions.....	10
Project Off-Model Mitigated Operational Emissions.....	12
Ozone Precursor Conclusion	14
Particulate Matter	14
SOURCES	16

ATTACHMENTS

Attachment A: AQMP CalEEMod Modeling Results

INTRODUCTION

The Summerfield at Twin Cities Road Project (Project) is subject to the California Environmental Quality Act (CEQA). Accordingly, the City of Galt, as lead agency, is preparing an Initial Study/Mitigated Negative Declaration (IS/MND) for the Project, which would assess whether the Project would result in significant air pollutant emissions impacts.

In 2010, the Sacramento Local Agency Formation Commission (LAFCo) prepared an Environmental Impact Report (EIR) for an Amendment to the City of Galt's Sphere of Influence (SOI). The SOI Amendment was adopted, and included the addition of approximately 1,053 acres north of the City and removal of approximately 1,612 acres from the western boundary of the SOI, thus resulting in a net decrease of approximately 560 acres to the previous Galt SOI. As part of LAFCo's SOI EIR, AQ Measure 1 was implemented. AQ Measure 1 requires that at the time of submittal of any application to annex property into the City's SOI, the City must prepare an AQMP. The AQMP must include a plan to reduce the operational ozone precursor emissions by 35 percent when compared to the potential emissions that could occur. The AQMP must be prepared in coordination with the Sacramento Metropolitan Air Quality Management District (SMAQMD) and the Sacramento Area Council of Government (SACOG).

This AQMP was prepared in compliance with AQ Measure 1, and addresses and mitigates the emissions of ozone precursors (i.e., reactive organic gases [ROG] and nitrous oxides [NO_x]) associated with the Project. This AQMP has been prepared in compliance with the SMAQMD *Recommended Guidance for Land Use Emission Reductions*¹ and is intended to provide air quality impact mitigation measures that would be applied to the Project necessary for the Project to meet the requirements of the City of Galt, CEQA, and applicable regional air quality goals. All modeling results are included as Attachment A to this document.

PROJECT SUMMARY

The Project Summary section includes a discussion regarding the specific location of the Project, as well as the project components.

Project Location

The project site consists of 58 acres located on the north side of Twin Cities Road, between Waldo Road and Hauschildt Road, in Sacramento County (see Figure 1 and Figure 2). The site is identified as Assessor's Parcel Numbers 148-1100-006. The site is located outside of the City of Galt City limits but is within the City's sphere of influence. Although the site is not located within the City of Galt boundaries, the Galt General Plan designates the site Commercial and Rural Residential. The site is zoned by Sacramento County as Agricultural/Residential (AR-5).

Currently, the project site is vacant and undeveloped. The land has primarily been used for grazing and is regularly disked. A total of 3.02 acres of aquatic resources exist within the middle and north portions of the site. The aquatic resources consist of 1.79 acres of seasonal wetlands, 0.49 acre of marsh, 0.73 acre of ditches, and 0.02 acre of pond.

¹ Sacramento Metropolitan Air Quality Management District. *Recommended Guidance for Land Use Emission Reductions Version 4.1 (for Operational Emissions)*. April 20, 2020.

Figure 1
Regional Project Location

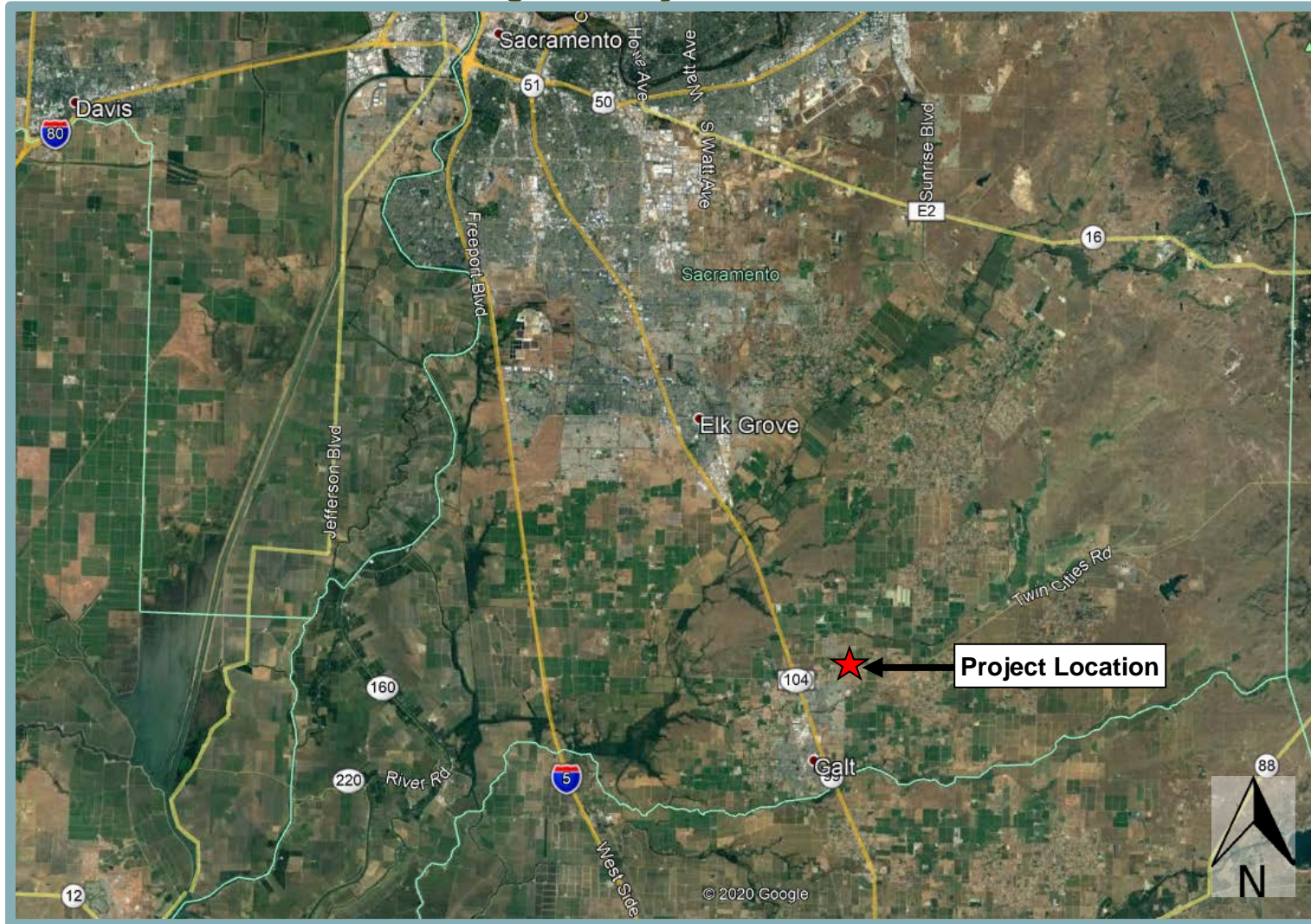


Figure 2
Approximate Project Site Boundaries Map



Project Description

The proposed project would include construction of a gated housing subdivision, consisting of 108 single-family residential lots, a private circulation system, landscape areas, a trail, a 2.2-acre private park, 3.3 acres of open space, and associated improvements. The project would require annexation of the 58-acre site into the City of Galt, approval of a Vesting Tentative Map, a General Plan Amendment, and a Rezone/Prezone.

The single-family residential lots would range from 6,510 sf to 12,788 sf with an average lot size of 7,216 sf (see Figure 3). Each unit would have private driveways with access from the new private drive aisles. Each unit would have access to a front, side, and rear private yard. Landscaping lots would be provided along the frontage and throughout the site.

Annexation of the Project site into the City of Galt is a formal municipal reorganization action that requires approval by the Sacramento LAFCo. The annexation would formally transfer all local governmental powers and municipal services pertaining to the Project to the City of Galt. Upon proposed development of the annexed site, Galt would be responsible for providing water service, sewer service, police protection, library and general government services, along with maintaining water and sewer mains, on-site storm drainage, and local parks and recreation resources.

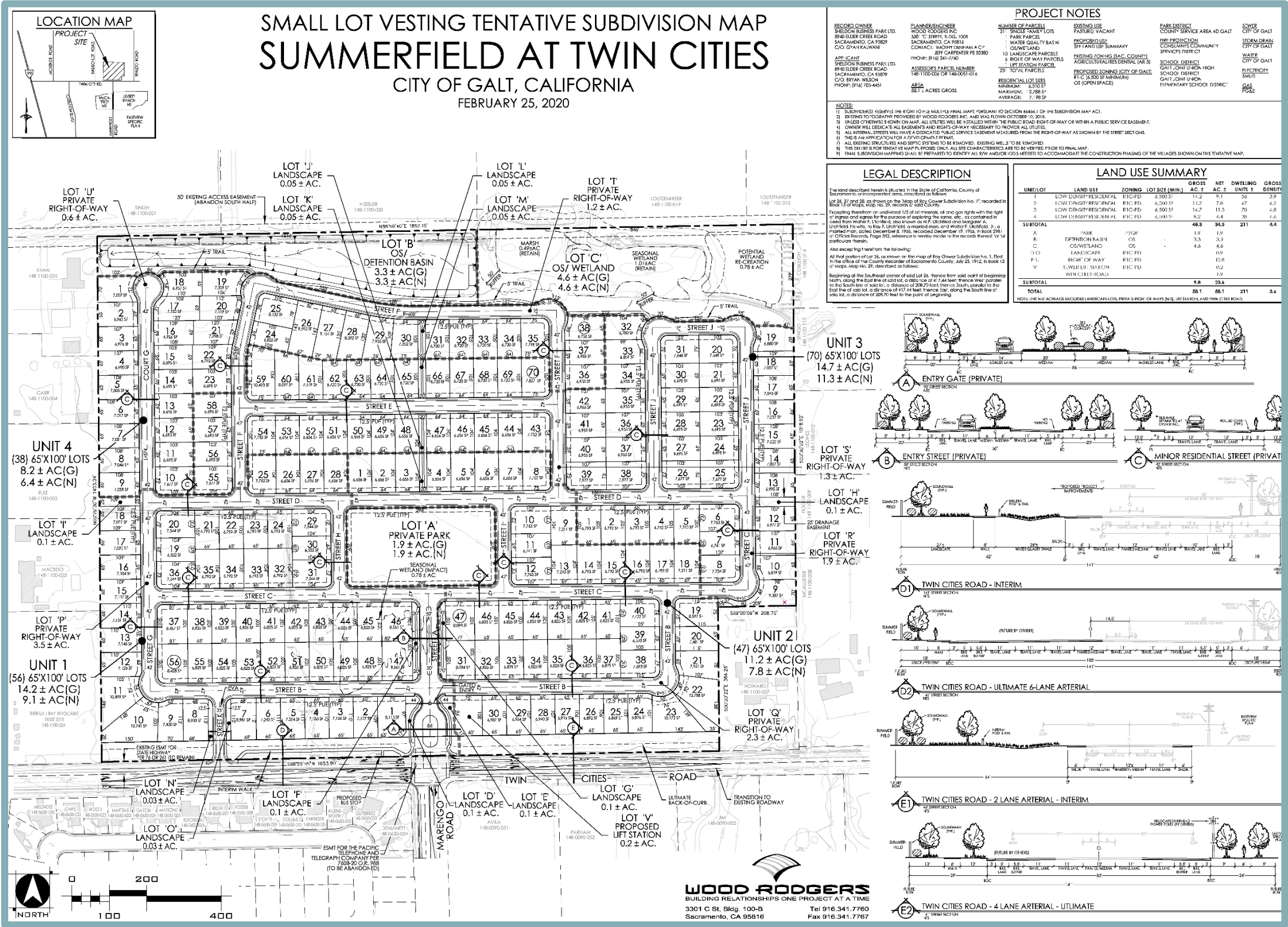
More detail about the components included as part of the proposed project can be found in the Initial Study.

Required City Approvals

The proposed project would require the following approvals from the City of Galt:

- Approval of this Initial Study/Mitigated Negative Declaration;
- Adoption of a Mitigation Monitoring and Reporting Plan (MMRP);
- Annexation into the City of Galt;
- General Plan Amendment (land use designations and Circulation Element);
- Rezone/Pre-Zone;
- Approval of a Large Lot Vesting Tentative Map; and
- Approval of a Small Lot Vesting Tentative Map.

Figure 3
Tentative Site Plan



PURPOSE OF THE AQMP

CEQA requires that IS/MNDs identify and evaluate any potential environmental impacts of a Project. The analysis of potential effects must include both direct project impacts and indirect impacts. The analysis must then describe feasible measures that could reduce any potentially significant adverse impacts to less-than-significant levels. To assist in the evaluation of air quality impacts, the SMAQMD developed the CEQA Guide. The CEQA Guide outlines a methodology for calculating project emissions whereby a project is divided into separate construction and operational phases. For each phase, the CEQA Guide establishes significance thresholds related to elevated regional ambient ozone concentrations, which are considered a cumulative impact. Project emissions are compared to these significance thresholds, and mitigation measures are required for projects with emissions exceeding these thresholds.

As discussed above, per the 2010 SOI EIR, LAFCo requires an AQMP to be prepared prior to annexation of land into the City of Galt in the area north of Twin Cities Road. Because annexation is a component of the proposed project, an AQMP must be prepared. The SMAQMD's *Recommended Guidance for Land Use Emission Reductions Version 4.1 (for Operational Emissions)* was used to direct the contents of this document. Following build-out of the proposed project, operations of the proposed residences would constitute a source of ozone precursor emissions. In compliance with AQ Measure 1, development of the project site will be required to demonstrate a site-wide ozone precursor emissions reduction of 35 percent. Although an AQMP is required, it should be noted that as demonstrated in the Initial Study prepared for the proposed project, the project-related emissions would be well below the SMAQMD's adopted thresholds of significance for construction and operational phases of development. Therefore, this AQMP is prepared solely to meet the requirements of AQ Measure 1 from the 2010 SOI EIR.

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere, ozone is a product of the photochemical process involving the sun's energy, and is a secondary pollutant formed as a result of a complex chemical reaction between reactive organic gases (ROG) and oxides of nitrogen (NO_x) emissions in the presence of sunlight. Ozone at the Earth's surface causes numerous adverse health effects and is a major component of smog. High concentrations of ground level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. This AQMP focuses on two categories of ozone precursors, ROG and NO_x , which are discussed in further detail below.

Reactive Organic Gas

Reactive Organic Gas (ROG) is a reactive chemical gas composed of hydrocarbon compounds typically found in paints and solvents that contributes to the formation of smog and ozone by involvement in atmospheric chemical reactions. A separate health standard does not exist for ROG. However, some compounds that make up ROG are toxic, such as the carcinogen benzene.

Oxides of Nitrogen

Oxides of Nitrogen (NO_x) are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter. The major component of NO_x , nitrogen dioxide (NO_2), is a reddish-brown gas that discolors the air and is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of NO_x . NO_x reacts with ROG to form smog, which could result in adverse impacts to human health, damage the environment, and cause poor visibility. Additionally, NO_x emissions are a major component of acid rain. Health

effects related to NO_x include lung irritation and lung damage and can cause increased risk of acute and chronic respiratory disease.

To assist in documenting, quantifying, and monitoring the mitigation measures included in this AQMP, the selected mitigation measures are explained in the context of the AQMP. The AQMP is a stand-alone document separate from any other documents or plans required by CEQA or other laws, ordinances, or regulations. During the environmental review process, and before adoption of the IS/MND by the lead agency, SMAQMD independently verifies the AQMP. The verified AQMP is then referenced in the IS/MND as an air quality mitigation measure, appended to the IS/MND, and at the discretion of the lead agency may be referenced as a separate condition of approval.

METHODOLOGY

For this analysis, an unmitigated baseline and a mitigated operational scenario were modeled. The SMAQMD establishes the basis for the use of an unmitigated baseline scenario in the document *Recommended Guidance for Land Use Emission Reductions*, where the unmitigated baseline is considered to be development of the proposed project without consideration of any inherent design or site features (e.g., design enhancements, vehicle miles traveled [VMT] reductions, etc.). Although SMAQMD directs that the unmitigated baseline does not incorporate any design features of the project, the unmitigated baseline should incorporate any statewide regulations that may serve to reduce emissions. For instance, the California Building Standards Code (CBSC) requires that all single-family residential units of three stories or less be developed with on-site renewable energy systems sufficient to meet all electricity demands from the residences. The unmitigated baseline emissions estimates prepared for the project incorporate all relevant CBSC requirements, as all development in California is required to incorporate such features.

The unmitigated baseline was compared to the mitigated operational emissions that would result from the proposed project. The mitigated operational scenario included mitigation measures and development strategies that would be incorporated as part of the proposed development. Both the unmitigated baseline and mitigated total ozone precursors for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 software - a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects.² The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. The emissions were modeled during the full buildout year, which was assumed to be 2025. All project modeling results are included as Attachment A. It should be noted that the modeling conducted for this AQMP was based on a previous iteration of the project which included 212 units. The project design has since been updated to include only 211 units. However, the difference in operational air quality emissions from one less unit would be negligible, and the requirements and conclusions of this AQMP remain applicable.

As noted previously, this AQMP has been prepared to meet the requirements of AQ Measure 1 from the 2010 SOI EIR, as the project-related emissions would be well below the SMAQMD's adopted thresholds of significance for construction and operational phases of development. The

² ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.1*. September 2016.

emissions data calculated as described above were compared to the percent reduction requirements set forth by LAFCo to determine whether on-site mitigation measures would be sufficient to meet the requirements of Mitigation Measure AQ 1 from the 2010 SOI EIR. Mitigation measures are described that would ensure that the Project would meet the required percent reductions from unmitigated levels.

Required Air Quality Emissions Reduction Percentage

The SMAQMD has developed the *Recommended Guidance for Land use Emission Reductions Version 4.1*, dated April 2020, to instruct project proponents how to quantify, apply, and comply with various measures for projects within the SMAQMD jurisdictional area. Preparation of an AQMP for the proposed project is required under AQ Measure 1 of the City of Galt's SOI EIR,³ and development of the site is subject to a 35 percent reduction target.

According to SMAQMD, a project's NO_x and ROG emissions reduction target should be based on mobile emissions only; however, reductions of ozone precursors from non-mobile emission reduction measures (e.g., natural gas or energy reductions) can still be accounted for and applied.

Two types of mitigation measures may be applied - those that are included in CalEEMod (known as on-model measures) and those located solely within the SMAQMD's *Recommended Guidance for Land Use Emission Reductions* (called off-model measures). Many of the on- and off-model measures are based on the California Air Pollution Control Officers Association's (CAPCOA) guidelines *Quantifying Greenhouse Gas Mitigation Measures*.⁴ Further clarification on the measures can be found in the CalEEMod User Guide and the CAPCOA Measures.

ANALYSIS

The unmitigated baseline and mitigated operational emissions are presented below, and compared, in order to determine if the proposed project would meet the 35 percent reduction requirement.

Unmitigated Baseline Operational Emissions

Using CalEEMod, baseline mobile emissions of ROG and NO_x from operations following build-out of the proposed project was estimated. Results of the modeling are presented in Table 1. As noted above, the unmitigated baseline scenario does not include any inherent design or site features. Accordingly, the modeling for the unmitigated baseline run assumed the following:

- Land uses would include:
 - 212 residential units⁵ on 45.9 acres of land; and
 - 1.9 acres of parkland.
- An operational year of 2025 was assumed;
- Sacramento Metropolitan Utilities District (SMUD) would be the utility provider;
- The CO₂ intensity factor for the year 2025 was updated per SMUD's Renewable Portfolio Standard (RPS) goals; and

³ Sacramento Local Agency Formation Commission. *Draft Environmental Impact Report for the City of Galt Sphere of Influence Amendment* [pg 24]. July 2010.

⁴ California Air Pollution Control Officers Association. *Quantifying Greenhouse Gas Mitigation Measures*. August 2010.

⁵ The modeling was based on a previous iteration of the project which included 212 units. The project design has since been updated to include only 211 units. However, the difference in emissions from one less unit would be negligible, and the requirements and conclusions included within this AQMP remain applicable.

- The project would exceed the 2016 CBSC (the CalEEMod default) by 53 percent, as required by the 2019 CBSC.

Table 1		
Unmitigated Baseline Operational Ozone Precursor Emissions		
Source	ROG (tons/yr)	NO_x (tons/yr)
Mobile	0.4788	2.0301
Total	2.2898	2.1877
Source: CalEEMod, April 2020 (see Attachment A).		

All development projects within California are required to comply with Title 24 of the California Building Standards Code. Title 24 includes the California Green Building Standards Code (CALGreen) and the California Building Energy Efficiency Standards Code. The California Building Energy Efficiency Standards Code and CALGreen require new structures to be constructed in a manner that reduces energy consumption. Title 24 requirements are updated on a triennial basis, and the most recent update, the 2019 Standards, went into effect January 1, 2020. Updates to Title 24 require increasingly more strict energy efficiency measures and design requirements with the eventual goal of achieving net zero energy buildings through energy conservation and on-site renewable energy production. For the purposes of this analysis, the 2019 Title 24 was applied to the Project. Adherence to the energy efficiency requirements for residential developments included in the California Building Energy Efficiency Standards Code would result in a reduction in building energy consumption as opposed to structures built without the Title 24 requirements. In addition, Galt's 2030 General Plan Update Policy COS-7.4 encourages new development to exceed Title 24, and integrate design techniques to allow solar access, maximize passive solar use, and aid passive cooling.

Establishing Emissions Reduction Targets

Unmitigated emissions related to the Project are required to be reduced by 35 percent per the SOI Amendment EIR. As discussed above, emissions reductions targets for the Project are determined based on the mobile emissions of the Project. The emissions reductions that would be required for the Project are presented in Table 2 below.

Table 2			
Required Emissions Reductions			
Pollutant	Estimated Mobile Emissions (tons/yr)	Percent Reduction Required	Reduction Target (tons/yr)
ROG	0.4788	35	0.1676
NO _x	2.0301	35	0.7105
Source: CalEEMod, April 2020 (see Attachment A).			

As discussed above, development of the project site would be required to reduce criteria pollutant emissions by 35 percent of mobile emissions from the operational baseline. As shown in Table 2, ROG emissions must be reduced by 0.1676 tons/yr, and NO_x must be reduced by 0.7105 tons/yr. This AQMP will show that the Project would achieve the aforementioned emissions reductions by implementing the measures presented herein.

Summary of Mitigation Measures

The project includes the following features inherent in the project design, which would contribute to the reduction in emissions in comparison to the unmitigated baseline condition:

On-Model Mitigation Measures

The following project feature(s) that would provide a reduction in ozone precursor emissions were applied as on-model mitigation measures in CalEEMod:

1. Traffic calming measures would be required on 50 percent of all streets and intersections;
2. Increase transit accessibility; and
3. Limit natural gas use on-site to only allow natural gas use for cooking appliances only (no natural gas water or space heating).

Off-Model Mitigation Measures

The following measures that would provide reductions in ozone precursor emissions were included in off-model emissions reductions calculations for the Project:

4. Anti-Idling/Congestion Strategies for roadways; and
5. Purchase and retirement of criteria pollutant emissions credits from any source within 50-miles of the project site, subject to approval by SMAQMD.

Project On-Model Mitigated Operational Emissions

The on-model measures described for the Project would result in mitigated operational ozone precursor emissions as shown in Table 3 below. As shown in the table, the emissions resulting from the mitigated run would correlate to a total reduction of ROG emissions by approximately 0.0098 tons/year, and a total reduction of NO_x emissions by approximately 0.1213 tons/year. Because the on-model mitigations alone do not reduce the operational emissions by the 35 percent required for the Project, further mitigation is required.

Table 3		
Project Total On-Model Mitigated Operational Emissions		
Source	ROG (tons/yr)	NO_x (tons/yr)
Baseline Operational Emissions	2.2898	2.1877
Mitigated Operational Emissions	2.2800	2.0664
Emissions Reduction	0.0098	0.1213
Percent of Reduction Goal	2.05%	5.98%
<i>Source: CalEEMod, April 2020 (see Attachment A).</i>		

Detailed Description of On-Model Mitigation Measures

As mentioned above, two types of mitigation measures have been applied for the Project - those that are included in CalEEMod (known as on-model measures) and those located solely within the SMAQMD's *Recommended Guidance for Land use Emission Reductions* (called off-model measures). Further detail regarding the Project's on-model measures are provided below.

It should be noted that the efficacy of many of the CalEEMod on-model mitigation measures, discussed below, rely on the setting of the project area. The CalEEMod Low-Density Suburban project setting is characterized by an area with dispersed, low-density, single-use auto-mobile dependent land use patterns, often outside of the central city. Because the project involves

relatively low-density residential development along the outskirts of the City, the project would be considered a Low-Density Suburban.

The protocol within SMAQMD's *Recommended Guidance for Land use Emission Reductions* focuses on reducing ozone emissions through reductions in VMT. Because vehicles release ozone precursors during use, reducing VMT results in a reduction of vehicles usage, and thus a reduction in the emission of ozone precursors. Reducing VMT is typically achieved through encouraging alternative means of transportation, which reduces the use of single-passenger vehicles, designing new developments with efficient circulation networks, and various other methods that reduce existing and anticipated VMT.

VMT reductions often result from a mode shift, where a commuter who previously relied on a single-passenger vehicle for commuting begins to instead use other means of transportations such as walking, biking, carpooling or using public transit. In order for such mode shifts to occur, the infrastructure must be designed to accommodate such activities. For instance, new developments must include sidewalks while reducing barriers to pedestrians such as walls, slopes, and excessive landscaping. In addition, bike lanes, bicycle parking, and bicycle-related signage would be provided within the Project area, as appropriate. By increasing pedestrian and bicycle access and interconnectivity, projects can decrease the amount of VMT typically associated with development.⁶ Development in the project area would be required to include pedestrian infrastructure to help facilitate pedestrian access, provide bicycle infrastructure, and encourage mode shifts away from single-passenger vehicle use, thus reducing project-wide operational VMT.

1. Traffic Calming Measures:

Providing traffic calming measures encourage people to walk or bike rather than using a single-passenger vehicle. Traffic calming features include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others. The mode shift from vehicle use to walking or bicycling would reduce VMT.

2. Increase Transit Accessibility:

Per SMAQMD's *Recommended Guidance for Land use Emission Reductions*, a project is considered to increase transit accessibility if the project includes:

- A transit stop with high-quality, high-frequency bus service located within a ten-minute walk;
- Fast, frequent, and reliable transit service connecting to a high percentage of regional destinations; and
- Neighborhood design that is suitable for walking and cycling, and includes a safe and convenient pathway to the transit stop.

Several transit services are available in Galt through South County Transit, which includes the following systems: Dial-A-Ride, Highway 99 Express, Delta Route, and Commuter Express. Dial-A-Ride provides service within the City limits of Galt, and the Highway 99 Express provides

⁶ California Air Pollution Control Officers Association. *Quantifying Greenhouse Gas Mitigation Measures*. August 2010.

service connecting Galt with the Lodi Transit Center, Elk Grove, and South Sacramento. Delta Route provides service from Isleton and other Delta communities to Galt, and the Commuter Express provides direct service from Galt to midtown and downtown Sacramento.⁷ The proposed project includes construction of a bus turnout along the project site's southern boundary. As such, a high-quality, high-frequency, and reliable transit service that connects to a high percentage of regional destinations would be provided within a ten-minute walk of the project site. The close proximity of the transit stop would reduce VMT.

3. Limit On-site Natural Gas Use:

Appliances that use natural gas, such as clothes dryers and cooking equipment, as well as certain building features, such as space heaters and water heaters, emit NO_x and ROG during operation. Compared to the on-site combustion of natural gas, the use of electric appliances and electric heating, ventilation, and air conditioning (HVAC) systems within residential developments represents a less emissions-intensive source of energy. Reductions in the use of natural gas through the replacement of appliances that would otherwise be fueled by natural gas with all-electric appliances would result in an increase in the consumption of electricity.⁸ Electricity is less emissions-intensive source of energy, as compared to natural gas. Emissions resulting from the decreased use of natural gas on-site, as well as increased electricity consumption, has been calculated for the proposed project and applied to the CalEEMod model run. For the proposed project, natural gas use was only allowed for cooking appliances. All other appliances and HVAC systems were assumed to be electric.

Project Off-Model Mitigated Operational Emissions

The off-model measures would result in a further reduction of mitigated operational emissions of NO_x as shown in Table 4.

Table 4 Off-Model Reduction from Baseline		
Reduction Measure	ROG Off-Model Reductions	NO_x Off-Model Reductions
Anti-Idling Street Design	--	1%
Purchase of Emissions Credits	32.95%	28.02%
Total Off-Model Reduction	32.95%	29.02%

As shown in the Table 4, the overall percent reduction of emissions from off-model mitigation measures for the project site would be an additional 32.95 percent for ROG and 29.02 percent for NO_x.

Detailed Description of Off-Model Mitigation Measures

Brief descriptions of the listed design and sustainability features are provided below. As discussed below, specific details necessary to accurately calculate the actual project-specific reductions in ozone precursor emissions due to some of the design and sustainability features are not available

⁷ South County Transit. *Welcome to South County Transit – SCT Link*. Available at: <http://www.sctlink.com/>. Accessed February 2020.

⁸ California Energy Commission. *California Residential Appliance Saturation Study, Volume 2: Study Results*. Accessible at: https://webtools.dnvgl.com/RASS2009/Uploads/2009_RASS_Volume%202_FINAL_101310.pdf. Accessed April 2020.

at this time. However, SMAQMD's *Recommended Guidance for Land use Emission Reductions* recognizes the importance of the emissions reduction techniques below, and allows for percent reduction estimates to be used where applicable to plan level projects, such as the current Project.

4. Anti-Idling/Congestion Strategies:

Anti-Idling/Congestion Strategies for roadways reduce vehicle idling by implementing strategies that reduce or remove impediments to the free flow of motor vehicles. Strategies include installation of roundabouts, removal of four-way stop signs, diverging diamond intersections, permissive-protective left-turns, etc., and are applicable for ozone precursor emission reductions of all land use projects that include roadways or intersections.

Galt's 2030 General Plan currently includes various measures that would implement Anti-Idling/Congestion Strategies. For instance, Policy COS-6.6 recommends the use of traffic calming (e.g., traffic circles, curb extensions, and median islands) measures where appropriate in new subdivisions. Additionally, Policy COS-6.1, regarding traffic signal synchronization would create a more efficient flow of traffic through areas with multiple signaled intersections, and Policy C-1.12, regarding grid like street systems, would increase the efficiency of new street systems. Implementation of the aforementioned policies during development of the Project would result in reductions in vehicle idling and congestion while increasing the efficiency of the circulation network, which would in turn reduce the amount of fuel consumed by vehicles and the amount of mobile sourced ozone precursor emissions. Based on consultation with SMAQMD, the vehicle emissions reductions due to anti-idling/congestion strategies was assumed to equal one percent of the total emissions from future development within the project site.⁹

5. Purchase and Retirement of Criteria Pollutant Emissions Credits:

Emission Reduction Credits (ERCs) were initially established as part of the 1977 Clean Air Act Amendments and greatly expanded in the 1990 Clean Air Act Amendments. ERCs are available for five different pollutants: ROG, NO_x, PM₁₀, SO_x (Oxides of Sulfur), and CO (Carbon Monoxide).¹⁰ An owner can bank ERCs for later use as emission offsets if actual emissions are reduced from stationary sources, mobile sources or transportation sources. If the emission reductions meet the SMAQMD criteria to be certified as ERCs, the owner receives a certificate showing the owner's name, the location where the emission reductions were generated, and the amount of ERCs, in pounds per calendar quarter, for each criteria pollutant. In other words, when an owner reduces emissions that qualify for the ERC program, the owner receives a certificate that can be traded on the open market. Therefore, when projects are required to reduce emissions, such as the proposed Summerfield at Twin Cities Road Project, the project applicant may purchase ERCs from local sellers as a means to reduce current project emissions. The use of ERCs to compensate for emission increases from a new source is subject to SMAQMD Rule 202 – New Source Review.¹¹

In order to achieve the remaining 32.95 percent reduction for ROG, the project applicant would be required to purchase 0.1578 tons/year of ROG ERCs ($0.4788 \text{ tons/year ROG} \times 0.3295 = 0.1578 \text{ tons/year}$). For NO_x, the applicant would be required to purchase 0.5688 tons/year of NO_x ERCs to achieve the remaining 28.02 percent reduction ($2.0301 \text{ tons/year NO}_x \times 0.2802 = 0.5688$

⁹ Huss, Karen, Associate Air Quality Planner/Analyst, Sacramento Metropolitan Air Quality Management District. Personal Communication with Rod Stinson, Raney Planning & Management Inc.

¹⁰ Feather River Air Quality Management District. *Emissions Reduction Credits (ERCs)*. Available at: <https://www.fraqmd.org/emission-reduction-credits-ercs>. Accessed May 2020.

¹¹ Sacramento Air Quality Management District. *Rule 204 Emissions Reduction Credits*. September 5, 1996.

tons/year). The applicant shall purchase the aforementioned credits from a location within 50 miles of the project site, subject to approval by SMAQMD.

Ozone Precursor Conclusion

Based on the above analysis, as presented in Table 5 below, the requirements of this AQMP would result in a total reduction from unmitigated baseline mobile emissions of 35 percent for both ROG and NO_x, which achieves the reduction requirement set forth in the 2010 SOI EIR. If one or more of the requirements of this AQMP are found to be infeasible at the time of development, the City shall allow for replacement mitigation measures to ensure that a minimum 35 percent overall reduction is achieved. For example, the City could require that trees used for landscaping within the Project site are characterized as low-biogenic volatile organic compound (BVOC) species per the *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* prepared by SMAQMD. Promoting the use of low BVOC trees is identified as a viable strategy for SMAQMD to achieve emissions reductions within the Sacramento Valley Air Basin, the air basin in which Galt and the project sites are located, thus improving air quality for the air basin.¹² The City of Galt, in coordination with the SMAQMD, shall work with future developers to ensure proper implementation of the measures included in this AQMP, as well as any future replacement mitigation measures. Examples of replacement mitigation measures include the installation of Electric Vehicle (EV) charging equipment in excess of CBSC standards and the implementation of off-site pedestrian and bicycle infrastructure improvements.

Table 5 Total Reduction from Baseline		
Measure Type	ROG Reduction Achieved	NO_x Reduction Achieved
Reduction from Unmitigated Baseline Per On-Model Measures ¹	2.05%	5.98%
Reduction from Unmitigated Baseline Per Off-Model Measures	32.95%	29.02%
TOTAL REDUCTION²	35%	35%
35% REDUCTION ACHIEVED?	YES	YES
¹ See Table 3 above. ² Total Percent Reduction shown above includes all on- and off-model measures.		

Particulate Matter

Although SMAQMD's *Recommended Guidance for Land Use Emission Reductions* only includes recommendations for reductions of the ozone precursors NO_x and ROG, the District maintains thresholds for Particulate Matter (PM) pollution.

PM is a complex mixture of extremely small particles and liquid droplets. The district maintains construction related and operational thresholds for particles that are 10 micrometers in diameter or smaller (PM₁₀) and particles that are 2.5 micrometers in diameter or smaller (PM_{2.5}). The District's Operational thresholds for PM pollution are presented in Table 6.

¹² Sacramento Metropolitan Air Quality Management District. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. September 26, 2013.

Table 6 SMAQMD Operational Thresholds for PM			
PM₁₀ (lbs/day)	PM₁₀ (tons/yr)	PM_{2.5} (lbs/day)	PM_{2.5} (tons/yr)
80	14.6	82	15
<i>Source: SMAQMD Thresholds of Significance Table. May 2015.</i>			

While SMAQMD's *Recommended Guidance for Land Use Emission Reductions* does not require AQMPs to include specific measures to reduce PM emissions, many of the on- and off-model measures discussed above would have the co-benefit of reducing PM pollution. To demonstrate the PM emissions reduction that would be achieved by this AQMD, the baseline PM emissions were estimated using the same methodology as described above for baseline ozone emissions estimation. The baseline PM emissions for buildout of the annexation area is presented in Table 7, below.

Table 7 Baseline Operational PM Emissions			
PM₁₀ (lbs/day)	PM₁₀ (tons/yr)	PM_{2.5} (lbs/day)	PM_{2.5} (tons/yr)
11.84	1.96	3.34	0.55
<i>Source: CalEEMod, April 2020 (see Attachment A).</i>			

Application of the on-model mitigation measures presented above would result in a total reduction of PM emissions as shown in Table 8 below. As shown in the table, on-model mitigation measures applied to the Project would achieve reductions in PM emissions. Similar to ozone precursors, much of the PM emissions related to the Project would be related to mobile sources of emissions. Therefore, the off-model measures related to anti-idling would also reduce VMT, and contribute further PM emissions reductions from the reductions presented in Table 8.

Table 8 Total Reduction of Emissions Due to On-Model Mitigation Measures				
	PM₁₀ (lbs/day)	PM₁₀ (tons/year)	PM_{2.5} (lbs/day)	PM_{2.5} (tons/year)
Baseline Emissions	11.84	1.96	3.34	0.55
Mitigated Emissions	10.89	1.91	3.04	0.53
Total Reduction from Baseline	0.95	0.05	0.3	0.02
PERCENT REDUCTION¹	8.02%	2.55%	8.99%	3.63%
<i>Source: CalEEMod, April 2020 (see Attachment A).</i>				

However, because SMAQMD's *Recommended Guidance for Land Use Emission Reductions* does not provide methodology for calculating the PM emissions reductions that would result due to off-model VMT reductions, such reductions cannot be calculated at this time. Nevertheless, application of the on-model and off-model mitigation measures included in this AQMP would reduce the PM emissions related to operations of the Project.

SOURCES

The following documents are referenced information sources used for the purposes of this AQMP:

1. California Air Pollution Control Officers Association. *Quantifying Greenhouse Gas Mitigation Measures*. August 2010.
2. California Energy Commission. *California Residential Appliance Saturation Study, Volume 2: Study Results*. Accessible at: https://webtools.dnvgl.com/RASS2009/Uploads/2009_RASS_Volume%202_FINAL_101310.pdf. Accessed April 2020.
3. ENVIRON International Corporation and the California Air Districts. *California Emissions Estimator Model User's Guide Version 2016.3.1*. September 2016.
4. Feather River Air Quality Management District. *Emissions Reduction Credits (ERCs)*. Available at: <https://www.fraqmd.org/emission-reduction-credits-ercs>. Accessed May 2020.
5. Huss, Karen, Associate Air Quality Planner/Analyst, Sacramento Metropolitan Air Quality Management District. Personal Communication with Rod Stinson, Raney Planning & Management Inc.
6. Sacramento Local Agency Formation Commission. *Draft Environmental Impact Report for the City of Galt Sphere of Influence Amendment* [pg 24]. July 2010.
7. Sacramento Metropolitan Air Quality Management District. *Recommended Guidance for Land Use Emission Reductions Version 4.1 (for Operational Emissions)*. April 20, 2020.
8. Sacramento Metropolitan Air Quality Management District. *Rule 204 Emissions Reduction Credits*. September 5, 1996.
9. Sacramento Metropolitan Air Quality Management District. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan*. September 26, 2013.
10. South County Transit. *Welcome to South County Transit – SCT Link*. Available at: <http://www.sctlinc.com/>. Accessed February 2020.

Attachment A AQMP CalEEMod Modeling Outputs

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

Summerfield AQMP (Baseline)

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	297	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Energy Use - Adjusted per 2019 CBSC

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblConstructionPhase	PhaseEndDate	6/18/2021	5/10/2021
tblEnergyUse	T24E	678.97	319.12
tblEnergyUse	T24NG	23,147.69	10,879.41
tblLandUse	LotAcreage	68.83	45.90
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

2.0 Emissions Summary

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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					
2021	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566
Maximum	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566

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					
2021	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566
Maximum	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566

[illegible]

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2021	5-31-2021	0.0001	0.0001
		Highest	0.0001	0.0001

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	384.3554	384.3554	0.0255	7.4800e-003	387.2210
Mobile	0.4788	2.0301	5.5680	0.0200	1.9240	0.0157	1.9396	0.5155	0.0146	0.5301	0.0000	1,841.2868	1,841.2868	0.0786	0.0000	1,843.2520
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	4.8869	14.4449	19.3319	0.0182	0.0109	23.0416
Total	2.2898	2.1877	7.8086	0.0210	1.9240	0.0385	1.9625	0.5155	0.0374	0.5529	46.2809	2,243.6584	2,289.9392	2.5721	0.0184	2,359.7230

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	384.3554	384.3554	0.0255	7.4800e-003	387.2210
Mobile	0.4788	2.0301	5.5680	0.0200	1.9240	0.0157	1.9396	0.5155	0.0146	0.5301	0.0000	1,841.2868	1,841.2868	0.0786	0.0000	1,843.2520
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	4.8869	14.4449	19.3319	0.0182	0.0109	23.0416
Total	2.2898	2.1877	7.8086	0.0210	1.9240	0.0385	1.9625	0.5155	0.0374	0.5529	46.2809	2,243.6584	2,289.9392	2.5721	0.0184	2,359.7230

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/8/2021	5/10/2021	5	1	

Acres of Grading (Site Preparation Phase): 0

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

Acres of Grading (Grading Phase): 0**Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	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	0.0000	0.0000

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	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	0.0000	0.0000

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566
Total	3.0000e-005	2.0000e-005	2.3000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0566	0.0566	0.0000	0.0000	0.0566

4.0 Operational Detail - Mobile

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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	0.4788	2.0301	5.5680	0.0200	1.9240	0.0157	1.9396	0.5155	0.0146	0.5301	0.0000	1,841.2868	1,841.2868	0.0786	0.0000	1,843.2520
Unmitigated	0.4788	2.0301	5.5680	0.0200	1.9240	0.0157	1.9396	0.5155	0.0146	0.5301	0.0000	1,841.2868	1,841.2868	0.0786	0.0000	1,843.2520

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	3.59	43.23	31.81	24,508	24,508
Single Family Housing	2,018.24	2,100.92	1827.44	5,139,388	5,139,388
Total	2,021.83	2,144.15	1,859.25	5,163,896	5,163,896

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	230.8768	230.8768	0.0225	4.6600e-003	232.8304
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	230.8768	230.8768	0.0225	4.6600e-003	232.8304
NaturalGas Mitigated	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906
NaturalGas Unmitigated	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	2.87608e+006	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906
Total		0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906

Mitigated

	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
Single Family Housing	2.87608e+006	0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906
Total		0.0155	0.1325	0.0564	8.5000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	153.4786	153.4786	2.9400e-003	2.8100e-003	154.3906

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	1.71379e+006	230.8768	0.0225	4.6600e-003	232.8304
Total		230.8768	0.0225	4.6600e-003	232.8304

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	1.71379e+006	230.8768	0.0225	4.6600e-003	232.8304
Total		230.8768	0.0225	4.6600e-003	232.8304

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

	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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Unmitigated	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

6.2 Area by SubCategory

Unmitigated

	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	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

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	tons/yr										MT/yr					
Architectural Coating	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

7.0 Water Detail**7.1 Mitigation Measures Water**

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	19.3319	0.0182	0.0109	23.0416
Unmitigated	19.3319	0.0182	0.0109	23.0416

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.0674	1.0000e-004	2.0000e-005	1.0764
Single Family Housing	13.8127 / 8.70798	18.2644	0.0181	0.0109	21.9651
Total		19.3319	0.0182	0.0109	23.0416

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.0674	1.0000e-004	2.0000e-005	1.0764
Single Family Housing	13.8127 / 8.70798	18.2644	0.0181	0.0109	21.9651
Total		19.3319	0.0182	0.0109	23.0416

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.3939	2.4463	0.0000	102.5517
Unmitigated	41.3939	2.4463	0.0000	102.5517

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

Summerfield AQMP (Baseline)

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	297	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Energy Use - Adjusted per 2019 CBSC

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblConstructionPhase	PhaseEndDate	6/18/2021	5/10/2021
tblEnergyUse	T24E	678.97	319.12
tblEnergyUse	T24NG	23,147.69	10,879.41
tblLandUse	LotAcreage	68.83	45.90
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

2.0 Emissions Summary

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

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					
2021	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	137.9662	137.9662	3.6700e-003	0.0000	138.0580
Maximum	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	137.9662	137.9662	3.6700e-003	0.0000	138.0580

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					
2021	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	137.9662	137.9662	3.6700e-003	0.0000	138.0580
Maximum	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	137.9662	137.9662	3.6700e-003	0.0000	138.0580

[illegible]

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	3.5568	11.4286	36.6458	0.1258	11.5946	0.0909	11.6855	3.0979	0.0846	3.1825		12,762.0544	12,762.0544	0.5166		12,774.9681
Total	13.6453	12.3561	54.4287	0.1314	11.5946	0.2466	11.8412	3.0979	0.2403	3.3382	0.0000	13,720.5679	13,720.5679	0.5645	0.0170	13,739.7445

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	3.5568	11.4286	36.6458	0.1258	11.5946	0.0909	11.6855	3.0979	0.0846	3.1825		12,762.0544	12,762.0544	0.5166		12,774.9681
Total	13.6453	12.3561	54.4287	0.1314	11.5946	0.2466	11.8412	3.0979	0.2403	3.3382	0.0000	13,720.5679	13,720.5679	0.5645	0.0170	13,739.7445

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/8/2021	5/10/2021	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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		0.0000

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

4.0 Operational Detail - Mobile

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

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	lb/day										lb/day					
Mitigated	3.5568	11.4286	36.6458	0.1258	11.5946	0.0909	11.6855	3.0979	0.0846	3.1825		12,762.0544	12,762.0544	0.5166		12,774.9681
Unmitigated	3.5568	11.4286	36.6458	0.1258	11.5946	0.0909	11.6855	3.0979	0.0846	3.1825		12,762.0544	12,762.0544	0.5166		12,774.9681

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	3.59	43.23	31.81	24,508	24,508
Single Family Housing	2,018.24	2,100.92	1827.44	5,139,388	5,139,388
Total	2,021.83	2,144.15	1,859.25	5,163,896	5,163,896

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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 Mitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
NaturalGas Unmitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

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					
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
Single Family Housing	7879.67	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

Mitigated

	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					
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
Single Family Housing	7.87967	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Summer

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

Summerfield AQMP (Baseline)

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566
City Park	1.90	Acre	1.90	82,764.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	297	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Energy Use - Adjusted per 2019 CBSC

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	30.00	1.00
tblConstructionPhase	PhaseEndDate	6/18/2021	5/10/2021
tblEnergyUse	T24E	678.97	319.12
tblEnergyUse	T24NG	23,147.69	10,879.41
tblLandUse	LotAcreage	68.83	45.90
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblTripsAndVMT	WorkerTripNumber	0.00	18.00

2.0 Emissions Summary

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

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					
2021	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	121.1696	121.1696	3.2300e-003	0.0000	121.2503
Maximum	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	121.1696	121.1696	3.2300e-003	0.0000	121.2503

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					
2021	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	121.1696	121.1696	3.2300e-003	0.0000	121.2503
Maximum	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372	0.0000	121.1696	121.1696	3.2300e-003	0.0000	121.2503

[illegible]

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	2.6208	12.1384	33.4677	0.1137	11.5946	0.0918	11.6864	3.0979	0.0854	3.1833		11,551.5642	11,551.5642	0.5142		11,564.4191
Total	12.7093	13.0659	51.2506	0.1193	11.5946	0.2474	11.8420	3.0979	0.2411	3.3390	0.0000	12,510.0778	12,510.0778	0.5621	0.0170	12,529.1955

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Mobile	2.6208	12.1384	33.4677	0.1137	11.5946	0.0918	11.6864	3.0979	0.0854	3.1833		11,551.5642	11,551.5642	0.5142		11,564.4191
Total	12.7093	13.0659	51.2506	0.1193	11.5946	0.2474	11.8420	3.0979	0.2411	3.3390	0.0000	12,510.0778	12,510.0778	0.5621	0.0170	12,529.1955

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/8/2021	5/10/2021	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	0	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	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		0.0000

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

4.0 Operational Detail - Mobile

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

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	lb/day										lb/day					
Mitigated	2.6208	12.1384	33.4677	0.1137	11.5946	0.0918	11.6864	3.0979	0.0854	3.1833		11,551.5642	11,551.5642	0.5142		11,564.4191
Unmitigated	2.6208	12.1384	33.4677	0.1137	11.5946	0.0918	11.6864	3.0979	0.0854	3.1833		11,551.5642	11,551.5642	0.5142		11,564.4191

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	3.59	43.23	31.81	24,508	24,508
Single Family Housing	2,018.24	2,100.92	1827.44	5,139,388	5,139,388
Total	2,021.83	2,144.15	1,859.25	5,163,896	5,163,896

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	10.00	5.00	6.50	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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 Mitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
NaturalGas Unmitigated	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

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					
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
Single Family Housing	7879.67	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

Mitigated

	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					
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
Single Family Housing	7.87967	0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289
Total		0.0850	0.7262	0.3090	4.6400e-003		0.0587	0.0587		0.0587	0.0587		927.0201	927.0201	0.0178	0.0170	932.5289

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Summerfield AQMP (Baseline) - Sacramento Metropolitan AQMD Air District, Winter

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Baseline)

Sacramento Metropolitan AQMD Air District, Mitigation Report

Construction Mitigation Summary

[illegible]

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Rubber Tired Dozers	Diesel	No Change	0	0	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	0	No Change	0.00

[illegible][illegible]

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input	Mitigation Input	Mitigation Input
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	PM2.5 Reduction	
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	PM2.5 Reduction	
No	Water Exposed Area	PM10 Reduction	PM2.5 Reduction	Frequency (per day)
No	Unpaved Road Mitigation	Moisture Content %	Vehicle Speed (mph)	0.00
No	Clean Paved Road	% PM Reduction	0.00	

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.13	0.36		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

No	Neighborhood Enhancements	Improve Pedestrian Network			
No	Neighborhood Enhancements	Provide Traffic Calming Measures			
No	Neighborhood Enhancements	Implement NEV Network	0.00		
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00		
No	Parking Policy Pricing	Limit Parking Supply	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00		
No	Transit Improvements	Provide BRT System	0.00		
No	Transit Improvements	Expand Transit Network	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		
	Transit Improvements	Transit Improvements Subtotal	0.00		
		Land Use and Site Enhancement Subtotal	0.00		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"			
No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00
No	Commute	Provide Ride Sharing Program			
	Commute	Commute Subtotal	0.00		

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
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Institute Recycling and Composting Services Percent Reduction in Waste Disposed	
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Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

Summerfield AQMP (Mitigated)

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.90	Acre	1.90	82,764.00	0
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	297	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Vehicle Trips - Based on GHD Traffic Impact Analysis

Energy Use - Adjusted per 2019 CBSC and prohibition of natural gas-fueled water and space heating

Mobile Land Use Mitigation - Project would include bus turnout on Twin Cities Rd.; mitigation incorporated based on CAP Checklist

Water Mitigation -

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

Table Name	Column Name	Default Value	New Value
tblEnergyUse	NT24NG	2,687.00	310.00
tblEnergyUse	T24E	678.97	4,659.12
tblEnergyUse	T24NG	23,147.69	0.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblVehicleTrips	HO_TL	6.50	6.49
tblVehicleTrips	HS_TL	5.00	4.99
tblVehicleTrips	HW_TL	10.00	9.98
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

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					
2021	0.0593	0.6081	0.3242	5.9000e-004	0.2730	0.0307	0.3037	0.1495	0.0282	0.1777	0.0000	51.8507	51.8507	0.0163	0.0000	52.2574
Maximum	0.0593	0.6081	0.3242	5.9000e-004	0.2730	0.0307	0.3037	0.1495	0.0282	0.1777	0.0000	51.8507	51.8507	0.0163	0.0000	52.2574

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					
2021	0.0593	0.6081	0.3242	5.9000e-004	0.2730	0.0307	0.3037	0.1495	0.0282	0.1777	0.0000	51.8507	51.8507	0.0163	0.0000	52.2573
Maximum	0.0593	0.6081	0.3242	5.9000e-004	0.2730	0.0307	0.3037	0.1495	0.0282	0.1777	0.0000	51.8507	51.8507	0.0163	0.0000	52.2573

[illegible]

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2021	5-31-2021	0.6357	0.6357
		Highest	0.6357	0.6357

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	358.3343	358.3343	0.0347	7.2300e-003	361.3574
Mobile	0.4929	2.0899	5.7321	0.0206	1.9807	0.0161	1.9968	0.5307	0.0150	0.5457	0.0000	1,895.5518	1,895.5518	0.0809	0.0000	1,897.5750
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	4.8869	14.4449	19.3319	0.0182	0.0109	23.0416
Total	2.2887	2.1181	7.9176	0.0207	1.9807	0.0285	2.0092	0.5307	0.0274	0.5581	46.2809	2,271.9023	2,318.1831	2.5836	0.0182	2,388.1824

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Energy	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	358.3343	358.3343	0.0347	7.2300e-003	361.3574
Mobile	0.4841	2.0383	5.5101	0.0196	1.8817	0.0154	1.8971	0.5042	0.0144	0.5185	0.0000	1,806.8451	1,806.8451	0.0778	0.0000	1,808.7890
Waste						0.0000	0.0000		0.0000	0.0000	41.3939	0.0000	41.3939	2.4463	0.0000	102.5517
Water						0.0000	0.0000		0.0000	0.0000	3.9096	12.5906	16.5001	0.0147	8.7600e-003	19.4767
Total	2.2800	2.0664	7.6956	0.0198	1.8817	0.0278	1.9094	0.5042	0.0267	0.5309	45.3035	2,181.3413	2,226.6448	2.5769	0.0160	2,295.8316

	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
Percent Reduction	0.38	2.44	2.80	4.64	5.00	2.42	4.96	5.00	2.38	4.87	2.11	3.99	3.95	0.26	11.90	3.87

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	4/9/2021	5	30	

Acres of Grading (Site Preparation Phase): 0

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

Acres of Grading (Grading Phase): 0**Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1536	50.1536	0.0162	0.0000	50.5591
Total	0.0583	0.6075	0.3173	5.7000e-004	0.2710	0.0307	0.3017	0.1490	0.0282	0.1772	0.0000	50.1536	50.1536	0.0162	0.0000	50.5591

Unmitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.3000e-004	6.1000e-004	6.8300e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6972	1.6972	4.0000e-005	0.0000	1.6983
Total	9.3000e-004	6.1000e-004	6.8300e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6972	1.6972	4.0000e-005	0.0000	1.6983

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0583	0.6075	0.3173	5.7000e-004		0.0307	0.0307		0.0282	0.0282	0.0000	50.1535	50.1535	0.0162	0.0000	50.5590
Total	0.0583	0.6075	0.3173	5.7000e-004	0.2710	0.0307	0.3017	0.1490	0.0282	0.1772	0.0000	50.1535	50.1535	0.0162	0.0000	50.5590

Mitigated Construction Off-Site

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.3000e-004	6.1000e-004	6.8300e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6972	1.6972	4.0000e-005	0.0000	1.6983
Total	9.3000e-004	6.1000e-004	6.8300e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.6972	1.6972	4.0000e-005	0.0000	1.6983

4.0 Operational Detail - Mobile

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	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	0.4841	2.0383	5.5101	0.0196	1.8817	0.0154	1.8971	0.5042	0.0144	0.5185	0.0000	1,806.8451	1,806.8451	0.0778	0.0000	1,808.7890
Unmitigated	0.4929	2.0899	5.7321	0.0206	1.9807	0.0161	1.9968	0.5307	0.0150	0.5457	0.0000	1,895.5518	1,895.5518	0.0809	0.0000	1,897.5750

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2075.48	5,316,085	5,050,281
Total	2,075.48	2,075.48	2,075.48	5,316,085	5,050,281

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	9.98	4.99	6.49	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	354.8272	354.8272	0.0347	7.1700e-003	357.8295
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	354.8272	354.8272	0.0347	7.1700e-003	357.8295
NaturalGas Mitigated	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279
NaturalGas Unmitigated	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	65720	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279
Total		3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279

Mitigated

	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
Single Family Housing	65720	3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279
Total		3.5000e-004	3.0300e-003	1.2900e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004	0.0000	3.5071	3.5071	7.0000e-005	6.0000e-005	3.5279

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

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
Single Family Housing	2.63387e+006	354.8272	0.0347	7.1700e-003	357.8295
Total		354.8272	0.0347	7.1700e-003	357.8295

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	2.63387e+006	354.8272	0.0347	7.1700e-003	357.8295
Total		354.8272	0.0347	7.1700e-003	357.8295

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

	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	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Unmitigated	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

6.2 Area by SubCategory

Unmitigated

	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	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

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	tons/yr										MT/yr					
Architectural Coating	0.2388					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4911					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	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
Landscaping	0.0656	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568
Total	1.7955	0.0252	2.1842	1.2000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	3.5713	3.5713	3.4200e-003	0.0000	3.6568

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	16.5001	0.0147	8.7600e-003	19.4767
Unmitigated	19.3319	0.0182	0.0109	23.0416

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.0674	1.0000e-004	2.0000e-005	1.0764
Single Family Housing	13.8127 / 8.70798	18.2644	0.0181	0.0109	21.9651
Total		19.3319	0.0182	0.0109	23.0416

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.26381	1.0674	1.0000e-004	2.0000e-005	1.0764
Single Family Housing	11.0501 / 8.70798	15.4327	0.0146	8.7300e-003	18.4002
Total		16.5001	0.0147	8.7500e-003	19.4767

8.0 Waste Detail**8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	41.3939	2.4463	0.0000	102.5517
Unmitigated	41.3939	2.4463	0.0000	102.5517

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.16	0.0325	1.9200e-003	0.0000	0.0805
Single Family Housing	203.76	41.3614	2.4444	0.0000	102.4712
Total		41.3939	2.4463	0.0000	102.5517

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

Summerfield AQMP (Mitigated)

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.90	Acre	1.90	82,764.00	0
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	297	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Vehicle Trips - Based on GHD Traffic Impact Analysis

Energy Use - Adjusted per 2019 CBSC and prohibition of natural gas-fueled water and space heating

Mobile Land Use Mitigation - Project would include bus turnout on Twin Cities Rd.; mitigation incorporated based on CAP Checklist

Water Mitigation -

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblEnergyUse	NT24NG	2,687.00	310.00
tblEnergyUse	T24E	678.97	4,659.12
tblEnergyUse	T24NG	23,147.69	0.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblVehicleTrips	HO_TL	6.50	6.49
tblVehicleTrips	HS_TL	5.00	4.99
tblVehicleTrips	HW_TL	10.00	9.98
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

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					
2021	3.9603	40.5340	21.6928	0.0394	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,823.6231	3,823.6231	1.1957	0.0000	3,853.5153
Maximum	3.9603	40.5340	21.6928	0.0394	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,823.6231	3,823.6231	1.1957	0.0000	3,853.5153

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					
2021	3.9603	40.5340	21.6928	0.0394	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,823.623 1	3,823.623 1	1.1957	0.0000	3,853.515 3
Maximum	3.9603	40.5340	21.6928	0.0394	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,823.623 1	3,823.623 1	1.1957	0.0000	3,853.515 3

[illegible]

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Mobile	3.4468	11.0827	35.5858	0.1222	11.2664	0.0883	11.3547	3.0102	0.0822	3.0924		12,397.89 60	12,397.89 60	0.5016		12,410.43 50
Total	13.4522	11.3006	53.0667	0.1233	11.2664	0.1866	11.4530	3.0102	0.1805	3.1907	0.0000	12,450.57 25	12,450.57 25	0.5321	3.9000e-004	12,463.99 13

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Mobile	3.3966	10.8206	34.1027	0.1165	10.7031	0.0845	10.7876	2.8597	0.0786	2.9383		11,816.175 9	11,816.175 9	0.4813		11,828.208 3
Total	13.4021	11.0385	51.5836	0.1175	10.7031	0.1828	10.8859	2.8597	0.1769	3.0366	0.0000	11,868.85 23	11,868.85 23	0.5119	3.9000e-004	11,881.76 45

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

	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
Percent Reduction	0.37	2.32	2.79	4.66	5.00	2.04	4.95	5.00	1.97	4.83	0.00	4.67	4.67	3.81	0.00	4.67

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	4/9/2021	5	30	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580
Total	0.0721	0.0369	0.5385	1.3900e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		137.9662	137.9662	3.6700e-003		138.0580

4.0 Operational Detail - Mobile

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	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					
Mitigated	3.3966	10.8206	34.1027	0.1165	10.7031	0.0845	10.7876	2.8597	0.0786	2.9383		11,816.1759	11,816.1759	0.4813		11,828.2083
Unmitigated	3.4468	11.0827	35.5858	0.1222	11.2664	0.0883	11.3547	3.0102	0.0822	3.0924		12,397.8960	12,397.8960	0.5016		12,410.4350

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2,075.48	5,316,085	5,050,281
Total	2,075.48	2,075.48	2,075.48	5,316,085	5,050,281

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	9.98	4.99	6.49	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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 Mitigated	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
NaturalGas Unmitigated	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

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					
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
Single Family Housing	180.055	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Total		1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

Mitigated

	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					
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
Single Family Housing	0.180055	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Total		1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail**8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Summer

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

Summerfield AQMP (Mitigated)

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.90	Acre	1.90	82,764.00	0
Single Family Housing	212.00	Dwelling Unit	45.90	381,600.00	566

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	3.5	Precipitation Freq (Days)	58
Climate Zone	6			Operational Year	2025
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MW hr)	297	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Co2 Intensity adjusted to reflect SMUD progress towards RPS

Land Use - Based on Project Plans

Construction Phase - Construction modeled separately

Off-road Equipment - Construction modeled separately

Vehicle Trips - Based on GHD Traffic Impact Analysis

Energy Use - Adjusted per 2019 CBSC and prohibition of natural gas-fueled water and space heating

Mobile Land Use Mitigation - Project would include bus turnout on Twin Cities Rd.; mitigation incorporated based on CAP Checklist

Water Mitigation -

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

Table Name	Column Name	Default Value	New Value
tblEnergyUse	NT24NG	2,687.00	310.00
tblEnergyUse	T24E	678.97	4,659.12
tblEnergyUse	T24NG	23,147.69	0.00
tblLandUse	LotAcreage	68.83	45.90
tblProjectCharacteristics	CO2IntensityFactor	590.31	297
tblVehicleTrips	HO_TL	6.50	6.49
tblVehicleTrips	HS_TL	5.00	4.99
tblVehicleTrips	HW_TL	10.00	9.98
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.79
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.79
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.79

2.0 Emissions Summary

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

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					
2021	3.9546	40.5427	21.6136	0.0392	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,806.8264	3,806.8264	1.1953	0.0000	3,836.7076
Maximum	3.9546	40.5427	21.6136	0.0392	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,806.8264	3,806.8264	1.1953	0.0000	3,836.7076

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					
2021	3.9546	40.5427	21.6136	0.0392	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,806.8264	3,806.8264	1.1953	0.0000	3,836.7076
Maximum	3.9546	40.5427	21.6136	0.0392	18.2032	2.0454	20.2486	9.9670	1.8818	11.8488	0.0000	3,806.8264	3,806.8264	1.1953	0.0000	3,836.7076

[illegible]

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

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	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Mobile	2.5406	11.7726	32.4868	0.1105	11.2664	0.0891	11.3555	3.0102	0.0830	3.0932		11,221.9173	11,221.9173	0.4992		11,234.3970
Total	12.5460	11.9905	49.9678	0.1115	11.2664	0.1874	11.4538	3.0102	0.1813	3.1915	0.0000	11,274.5937	11,274.5937	0.5298	3.9000e-004	11,287.9533

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	lb/day										lb/day					
Area	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Energy	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Mobile	2.4923	11.4736	31.2992	0.1053	10.7031	0.0853	10.7884	2.8597	0.0794	2.9391		10,695.7561	10,695.7561	0.4801		10,707.7593
Total	12.4978	11.6914	48.7802	0.1063	10.7031	0.1836	10.8867	2.8597	0.1777	3.0374	0.0000	10,748.4325	10,748.4325	0.5107	3.9000e-004	10,761.3156

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

	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
Percent Reduction	0.38	2.49	2.38	4.65	5.00	2.03	4.95	5.00	1.96	4.83	0.00	4.67	4.67	3.60	0.00	4.67

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/1/2021	4/9/2021	5	30	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

3.2 Site Preparation - 2021**Unmitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Unmitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

3.2 Site Preparation - 2021**Mitigated Construction On-Site**

	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					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Mitigated Construction Off-Site

	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					
Hauling	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
Vendor	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
Worker	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503
Total	0.0664	0.0456	0.4593	1.2200e-003	0.1369	9.2000e-004	0.1379	0.0363	8.5000e-004	0.0372		121.1696	121.1696	3.2300e-003		121.2503

4.0 Operational Detail - Mobile

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	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					
Mitigated	2.4923	11.4736	31.2992	0.1053	10.7031	0.0853	10.7884	2.8597	0.0794	2.9391		10,695.7561	10,695.7561	0.4801		10,707.7593
Unmitigated	2.5406	11.7726	32.4868	0.1105	11.2664	0.0891	11.3555	3.0102	0.0830	3.0932		11,221.9173	11,221.9173	0.4992		11,234.3970

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	2,075.48	2,075.48	2,075.48	5,316,085	5,050,281
Total	2,075.48	2,075.48	2,075.48	5,316,085	5,050,281

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Single Family Housing	9.98	4.99	6.49	46.50	12.50	41.00	86	11	3

4.4 Fleet Mix

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741
Single Family Housing	0.568817	0.036545	0.209097	0.111572	0.015710	0.004830	0.018344	0.024276	0.001951	0.001803	0.005698	0.000617	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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 Mitigated	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
NaturalGas Unmitigated	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

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					
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
Single Family Housing	180.055	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Total		1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

Mitigated

	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					
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
Single Family Housing	0.180055	1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088
Total		1.9400e-003	0.0166	7.0600e-003	1.1000e-004		1.3400e-003	1.3400e-003		1.3400e-003	1.3400e-003		21.1829	21.1829	4.1000e-004	3.9000e-004	21.3088

6.0 Area Detail**6.1 Mitigation Measures Area**

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

	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					
Mitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475
Unmitigated	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

6.2 Area by SubCategory

Unmitigated

	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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

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	1.3084					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.1705					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	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
Landscaping	0.5247	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970		31.4935	31.4935	0.0302		32.2475
Total	10.0035	0.2013	17.4739	9.2000e-004		0.0970	0.0970		0.0970	0.0970	0.0000	31.4935	31.4935	0.0302	0.0000	32.2475

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail**8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Summerfield AQMP (Mitigated) - Sacramento Metropolitan AQMD Air District, Winter

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Summerfield AQMP (Mitigated)**Sacramento Metropolitan AQMD Air District, Mitigation Report****Construction Mitigation Summary**

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Rubber Tired Dozers	Diesel	No Change	0	3	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	4	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Rubber Tired Dozers	4.70900E-002	4.93710E-001	1.81700E-001	3.80000E-004	2.39600E-002	2.20400E-002	0.00000E+000	3.37753E+001	3.37753E+001	1.09200E-002	0.00000E+000	3.40484E+001
Tractors/Loaders/Backhoes	1.12400E-002	1.13750E-001	1.35610E-001	1.90000E-004	6.71000E-003	6.17000E-003	0.00000E+000	1.63783E+001	1.63783E+001	5.30000E-003	0.00000E+000	1.65107E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Rubber Tired Dozers	4.70900E-002	4.93710E-001	1.81700E-001	3.80000E-004	2.39600E-002	2.20400E-002	0.00000E+000	3.37752E+001	3.37752E+001	1.09200E-002	0.00000E+000	3.40483E+001
Tractors/Loaders/Backhoes	1.12400E-002	1.13750E-001	1.35610E-001	1.90000E-004	6.71000E-003	6.17000E-003	0.00000E+000	1.63783E+001	1.63783E+001	5.30000E-003	0.00000E+000	1.65107E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.18430E-006	1.18430E-006	0.00000E+000	0.00000E+000	1.17480E-006
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.22113E-006	1.22113E-006	0.00000E+000	0.00000E+000	1.21133E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input	Mitigation Input	Mitigation Input
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	PM2.5 Reduction	
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	PM2.5 Reduction	
No	Water Exposed Area	PM10 Reduction	PM2.5 Reduction	Frequency (per day)
No	Unpaved Road Mitigation	Moisture Content %	Vehicle Speed (mph)	0.00
No	Clean Paved Road	% PM Reduction	0.00	

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Site Preparation	Fugitive Dust	0.27	0.15	0.27	0.15	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	1.77	2.47	3.87	4.67	4.28	4.33	0.00	4.68	4.68	3.92	0.00	4.68
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	12.84	14.65	19.47	19.87	15.47
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Low Density Suburban

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00	0.00	0.00	
No	Land Use	Increase Diversity	0.13	0.36		
No	Land Use	Improve Walkability Design	0.00	0.00		
No	Land Use	Improve Destination Accessibility	0.00	0.00		
Yes	Land Use	Increase Transit Accessibility	0.24	0.01		
No	Land Use	Integrate Below Market Rate Housing	0.00	0.00		
	Land Use	Land Use SubTotal	0.05			

No	Neighborhood Enhancements	Improve Pedestrian Network	1.00	Project Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures	0.50	50.00	50.00	
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00	0.00		
No	Transit Improvements	Expand Transit Network	0.00	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		0.00	
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.05			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	3.00			
No	Commute	Workplace Parking Charge		0.00		
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	5.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.05		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	100.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	100.00
No	Use Low VOC Paint (Parking)	100.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24		
No	Install High Efficiency Lighting		
No	On-site Renewable		

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	0.00	0.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
Yes	Install low-flow bathroom faucet	32.00	
Yes	Install low-flow Kitchen faucet	18.00	
Yes	Install low-flow Toilet	20.00	
Yes	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value
---------------------	-------------

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	
--	--

Appendix C

SMAQMD Minor Project Health Effects Screening Tool

Minor Project Health Effects Tool

Latitude	38.294597	<-- Step 1: Input latitude (Please chose a value between 38.0 and 39.7)
Longitude	-121.282772	<-- Step 2: Input longitude (Please chose a value between -122.5 and -120.0)

PM2.5 Health Endpoint	Age Range ¹	Incidences (per year) ² (Mean)	Percent of Background Health Incidence ³ (%)
Emergency Room Visits, Asthma	0 - 99	0.70	0.00088
Mortality, All Cause	30 - 99	1.32	0.00071
Hospital Admissions, Asthma	0 - 64	0.045	0.00051
Hospital Admissions, All Cardiovascular (less Myocardial Infarctions)	65 - 99	0.112	0.00011
Hospital Admissions, All Respiratory	65 - 99	0.22	0.00024
Acute Myocardial Infarction, Nonfatal	18 - 24	0.000055	0.00032
Acute Myocardial Infarction, Nonfatal	25 - 44	0.005	0.00044
Acute Myocardial Infarction, Nonfatal	45 - 54	0.0122	0.00042
Acute Myocardial Infarction, Nonfatal	55 - 64	0.0197	0.00041
Acute Myocardial Infarction, Nonfatal	65 - 99	0.070	0.00034

Ozone Health Endpoint	Age Range ¹	Incidences (per year) ² (Mean)	Percent of Background Health Incidence ³ (%)
Hospital Admissions, All Respiratory	65 - 99	0.036	0.00004
Mortality, Non-Accidental	0 - 99	0.021	0.00002
Emergency Room Visits, Asthma	0 - 17	0.180	0.00075
Emergency Room Visits, Asthma	18 - 99	0.266	0.00048

1. Affected age ranges are shown. Other age ranges are available, but the endpoints and age ranges shown here are the ones used by the USEPA in their health assessments. The age ranges are consistent with the epidemiological study that is the basis of the health function.

2. Health effects are shown in terms of incidences of each health endpoint and how it compares to the base (2035 base year health effect incidences, or "background health incidence") values. Health effects and background health incidences are across the Northern California model domain.

3. The percent of background health incidence uses the mean incidence. The background health incidence is an estimate of the average number of people that are affected by the health endpoint in a given population over a given period of time. In this case, these background incidence rates cover the modeled domain. Health incidence rates and other health data are typically collected by the government as well as the World Health Organization. The background incidence rates used here are obtained from BenMAP.

Appendix D

Technical Biological Report



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

TWIN CITIES TECHNICAL BIOLOGICAL REPORT GALT, SACRAMENTO COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Ph.D., Principal/Senior Wildlife Ecologist
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Prepared for

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October 1, 2019

PN 2387-01

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	PROJECT DESCRIPTION.....	2
2	EXISTING CONDITIONS.....	4
2.1	BIOTIC HABITATS	4
2.1.1	Agriculture	5
2.1.2	Seasonal Wetlands, Open Water (Pond) and Freshwater Marsh	5
2.1.3	Constructed Ditches and Channels	8
2.1.4	Low-density Development.....	8
2.2	MOVEMENT CORRIDORS.....	8
2.3	SPECIAL STATUS PLANTS AND ANIMALS	9
2.4	JURISDICTIONAL WATERS	23
3	IMPACTS AND MITIGATIONS	24
3.1	SIGNIFICANCE CRITERIA	24
3.2	RELEVANT GOALS, POLICIES, AND LAWS	25
3.2.1	Threatened and Endangered Species	25
3.2.2	Migratory Birds.....	25
3.2.3	Birds of Prey	26
3.2.4	Bats	26
3.2.5	Wetlands and Other “Jurisdictional Waters”	26
3.2.6	Tree Regulations of the City of Galt	32
3.2.7	Conservation Habitat Plans.....	33
3.3	IMPACTS SPECIFIC TO THE PROJECT	35
3.3.1	Loss of Habitat for Special Status Plants.....	35
3.3.2	Loss of Habitat for Special Status Animals.....	37
3.3.3	Loss of Habitat for Native Wildlife.....	38
3.3.4	Interference with the Movement of Native Wildlife	38
3.3.5	Impacts to California Tiger Salamanders	38
3.3.6	Impacts to Western Spadefoot Toads	41
3.3.7	Impacts to Giant Gartersnakes	44
3.3.8	Impacts to Western Pond Turtles	47
3.3.9	Impacts to Nesting Migratory Birds Including Nesting Raptors and other Protected Birds	50
3.3.10	Impacts to Swainson’s Hawks.....	52
3.3.11	Impacts to Western Burrowing Owls	54
3.3.12	Impacts to Covered Raptor Species.....	58
3.3.13	Impacts to Greater Sandhill Cranes.....	60
3.3.14	Impacts to Tricolored Blackbirds	62
3.3.15	Impacts to Western Red Bat and other Bats	65
3.3.16	Impacts to American Badgers	67
3.3.17	Potential Impacts to Riparian Habitat and Other Sensitive Natural Communities, Including Federally Protected Wetlands.....	68
3.3.18	Degradation of Water Quality in Seasonal Drainages, Stock Ponds and Downstream Waters	72
3.3.19	Conflict with Local Policies or Ordinances	72

3.3.20 Conflict with an Adopted Habitat Conservation Plan	73
LITERATURE CITED	76
APPENDIX A. SOUTH SACRAMENTO COUNTY HABITAT PLAN CONDITIONS AND MEASURES.	78

1 INTRODUCTION

This report, prepared Live Oak Associates, Inc. (LOA), describes the biotic resources of the approximately 60-acre Twin Cities Marengo Road Property (hereafter referred to as the “study area” or “site”), at the intersection of Highway 104 and Marengo Road in Galt, Sacramento County, California, and evaluates possible impacts to these resources resulting from the proposed land use changes upon these resources. The site is bordered by Highway 104 to the south near the intersection of Marengo Road and is surrounded by agricultural fields with a few rural residences and is located in the City of Galt, Sacramento County, California (Figure 1). The site is within the central eastern edge of the Sanjon del los Moqulumnes Land Grant. Based on the Mt. Diablo Meridian, if the United States Public Land Survey (USPLS) were extended over the land grant, then it could be interpreted to be within the southeast $\frac{1}{4}$ of Section 11 and southwest $\frac{1}{4}$ of Section 12 of Township 6 North, Range 5 West. The site is currently comprised of agricultural fields and associated canals.

In general, the development of parcels can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of the City of Galt. This site was evaluated to ascertain whether or not build-out of the proposed project would have a significant impact (as defined by CEQA) on the biological resources of the site and region. Therefore, this report addresses issues related to: 1) sensitive biotic resources occurring in the study area; 2) the federal, state, and local laws regulating such resources, 3) evaluate whether or not the project results in any significant impacts to these resources; and if so, 4) includes mitigation measures to reduce these impacts to less-than-significant (as defined by CEQA).

The analysis of impacts, as discussed in Section 3.0 of this report, was based on the known and potential biotic resources of the study area discussed in Section 2.0. Sources of information used in the preparation of this analysis included: 1) the *California Natural Diversity Data Base* (RareFind5; CDFW 2019); 2) the *California Rare Plant Rank* (CNPS 2019); 3) manuals and references related to plants and animals of the region; and 4) the City of Galt policies and ordinances.

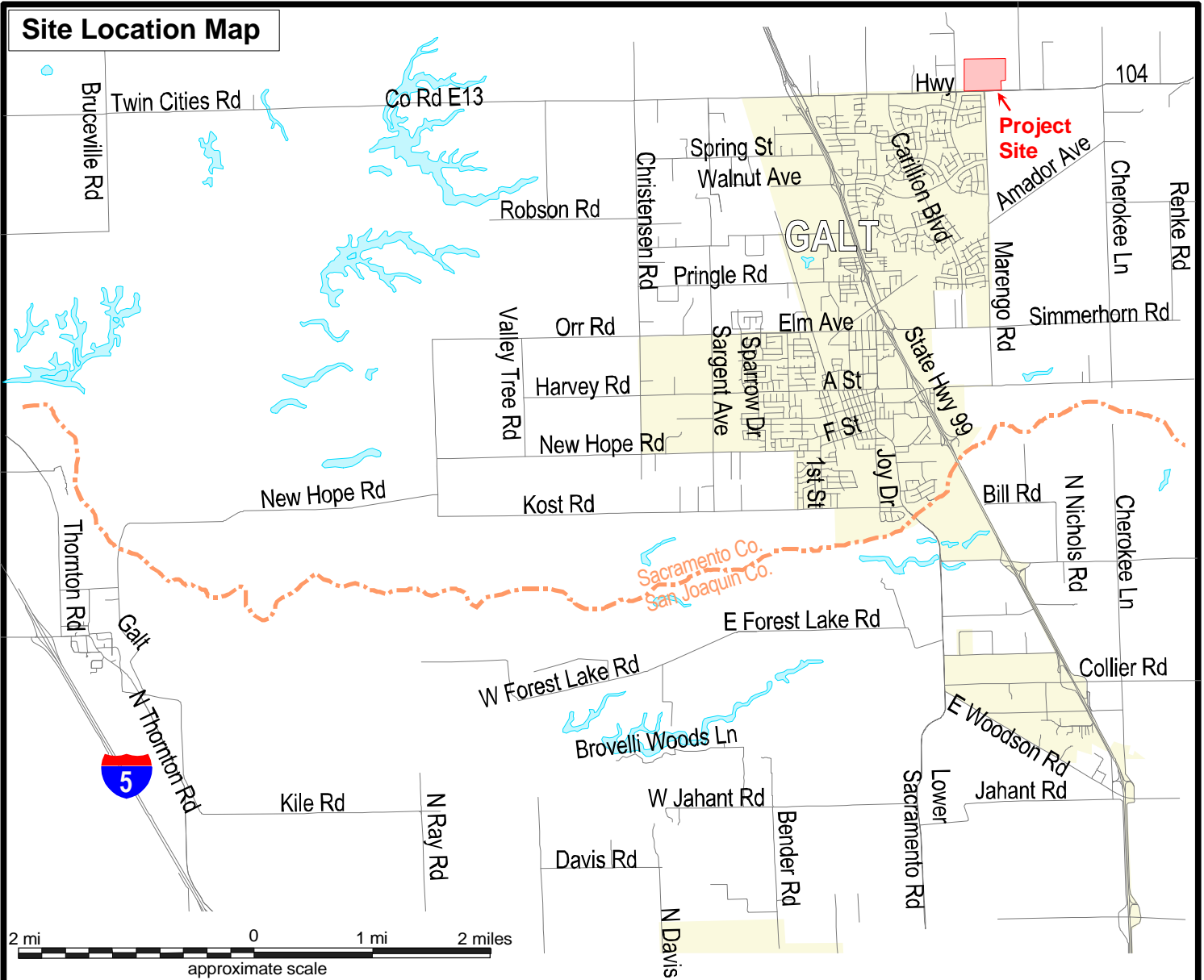
[Somewhere in this introduction, I think you need to introduce the South Sacramento HCP, since you first mention it in the biotic habitats section. At the very least, state that the project site occurs within the SSHCP area.]

A field survey of the study area was conducted on July 1, 2019, by LOA wildlife ecologist Katrina Krakow and plant and wetland ecologist Pamela Peterson.

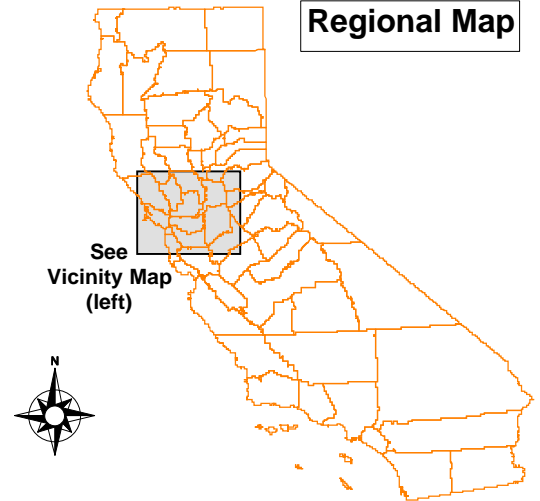
1.1 PROJECT DESCRIPTION

Based on a site plan that LOA was provided (Wood Rogers 2019) the project includes the buildout of the vast majority of the site with 212 residential lots, a private park, and a detention basin. The project proposes to retain marsh and wetland habitat occurring in the northernmost portion of the site, as well as proposes the potential creation of approximately 0.78 acres of wetland restoration in the northernmost portion of the site. There is a residence and associated outbuildings that will also be retained which occur in the southeast corner of the property. The latter development is not considered a part of the project.

Site Location Map



Regional Map



Live Oak Associates, Inc.

Summerfield at Twin Cities B.E.
Site / Vicinity Map

Date	Project #	Figure #
7/09/2019	2387-01	1

2 EXISTING CONDITIONS

The approximately 60-acre project site is located at the intersection of Highway 104 and Marengo Road in Galt, Sacramento County, California. The site is bordered by Highway 104 to the south near the intersection of Marengo Road and is surrounded by agricultural fields with a few rural residences and is located in the City of Galt, Sacramento County, California. The site is currently comprised of agricultural fields and associated canals. The site has relatively flat topography and elevations which range from approximately 51 feet (15 meters) in the northwestern corner to 59 feet in the southeastern corner (18 meters) National Geodetic Vertical Datum (NGVD).

Annual precipitation in the general vicinity of the study area is about 18 inches. Virtually all precipitation falls in the form of rain.

There are two soil types present on the site (NRCS 2019). The soil type that occurs over most of the site is classified as San Joaquin silt loam, leveled, 0 to 1 percent slopes. Xerarents-San Joaquin complex, 0 to 1 percent slopes occurs along the northern boundary of the site. Both of these soils are considered to be hydric soils, which are soils that, under conditions of saturation, flooding or ponding long enough during the growing season, will develop anaerobic conditions in the upper part and may support hydrophytic (wetland) vegetation. Neither of these soils is considered to be particularly alkaline, therefore, plant species endemic to alkaline soils are considered unlikely to occur on the site. San Joaquin silt loam soils are known to support populations of some special status plants in the project's region.

2.1 BIOTIC HABITATS

The site consists of agricultural fields that were fallow at the time of the survey, and natural and manmade hydrological features. The biotic habitats of the site are described in greater detail below and have been classified pursuant to land cover types in the South Sacramento Habitat Conservation Plan (SSHCP) including Agriculture, Seasonal Wetland, Freshwater Marsh, Open Water (pond), and Low-density Development (cement pad and road). An irrigation ditch that occurs along the northern boundary of the site is likely to be classified by the SSHCP as the "Stream/Creek" land cover type.

2.1.1 Agriculture

The vast majority of the site is used for agriculture. The fields were disced and fallow at the time of the July 2019 survey and were observed to support ruderal, non-native vegetation including, but not limited to, Bermuda grass (*Cynodon dactylon*), chicory (*Cichorium intybus*), field bindweed (*Convolvulus arvensis*), Italian thistle (*Carduus pycnocephalus*), farmer's foxtail (*Hordeum murinum*), burclover (*Medicago polymorpha*), yellow starthistle (*Centaurea solstitialis*), English plantain (*Plantago lanceolata*), dissected geranium (*Geranium dissectum*), willowleaf lettuce (*Lactuca saligna*), and wild radish (*Raphanus sativa*). No native plant species were observed to be present in this habitat.

Animal species observed in the agricultural field during the July 2019 survey includes turkey vulture (*Cathartes aura*), Swainson's hawk (*Buteo swainsoni*) adults and juveniles, rock pigeon (*Columba livia*), northern mockingbird (*Mimus polyglottos*), California scrub jay (*Aphelocoma californica*), Say's phoebe (*Sayornis saya*), western kingbird (*Tyrannus verticalis*), barn swallow (*Hirundo rustica*), cliff swallow (*Petrochelidon pyrrhonota*), and house finch (*Haemorrhous mexicanus*). Indirect evidence of species presence includes California ground squirrel (*Otospermophilus beecheyi*) burrows, Botta's pocket gopher (*Thomomys bottae*) sign and striped skunk (*Mephitis mephitis*) diggings.

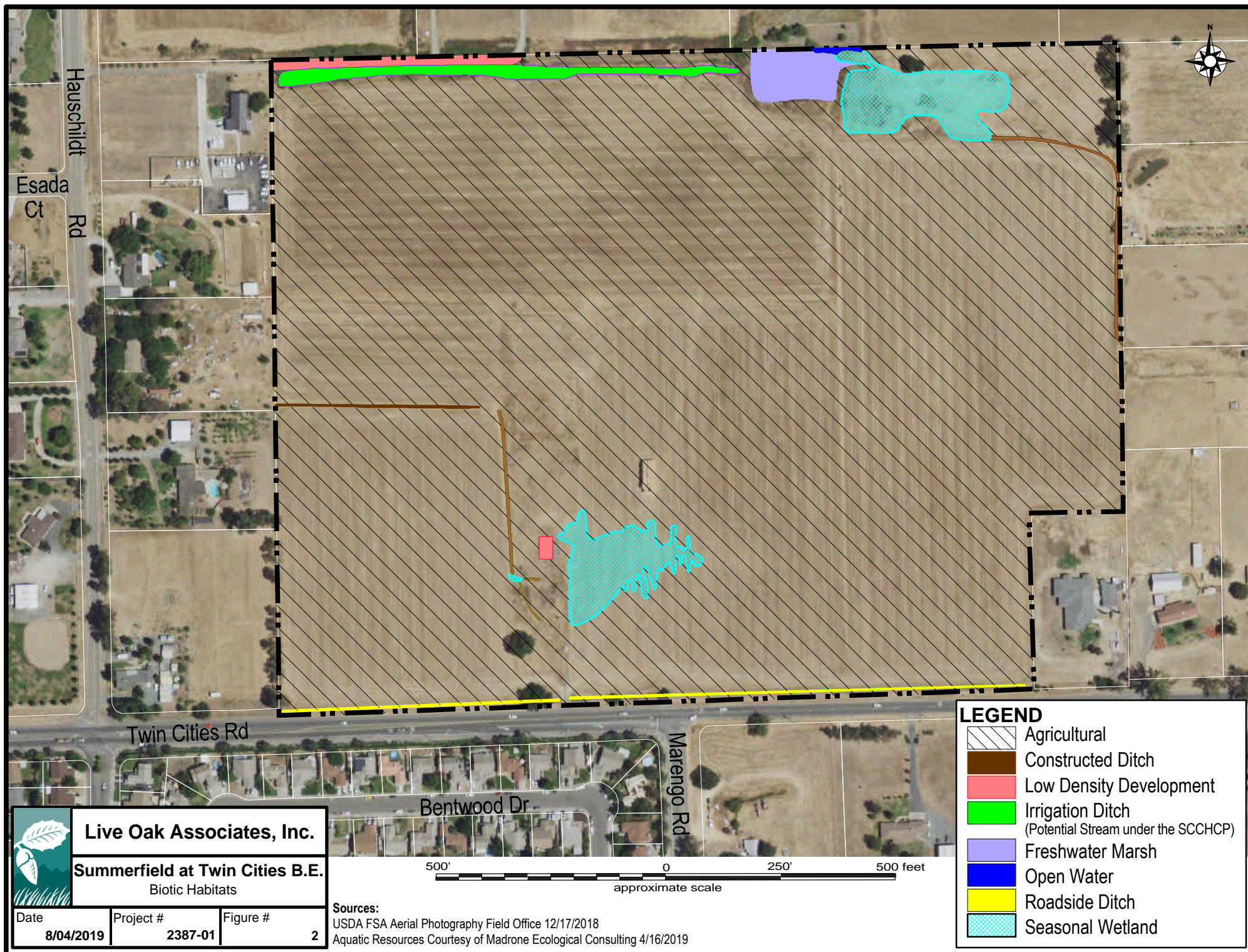
2.1.2 Seasonal Wetlands, Open Water (Pond) and Freshwater Marsh

A formal wetland delineation was previously conducted by Madrone Consulting (2019) on the site, which identified several natural and manmade hydrological features. Although the delineation was confirmed by USACE, they did not issue a Jurisdictional Determination indicating which features of the site were considered to be waters of the U.S. under their jurisdiction. Three seasonal wetlands were identified on the site. At the time of the LOA site visit, these seasonal wetland features were completely dry, and their edges were not well-differentiated from surrounding agricultural land. Therefore, the LOA habitat map has relied upon the formal delineation to depict these features. Additionally, a small freshwater marsh occurs along the northern boundary associated with a pond that occurs mostly off-site to the north. The pond would be classified as "Open Water" land cover under the SSHCP.

Plants observed within the seasonal wetlands of the site, along with their USFWS wetland indicator status, included perennial wild-rye (*Festuca perennis*; FAC) which was dominant throughout,

Fitch's tarweed (*Centromadia fitchii*; FACU), curly dock (*Rumex crispus*; FAC), and doveweed (*Croton setiger*; UPL). The seasonal wetlands occur within the agricultural fields and appear to be impacted by agricultural activities and dominated by non-native annual grasses resulting in wetland habitat considered marginal for native plants and wildlife. Plants observed within the pond and marsh habitats of the study site included, but were not limited to, bulrush (*Scirpus sp.*; FACW-OBL), curly dock, and Russian olive (*Eleaegnus angustifolia*; FAC).

Wildlife that would be expected to occur in the seasonal wetlands of the site would be similar to those described above for the agricultural fields.



2.1.3 Constructed Ditches and Channels

Several constructed ditches occur on the site in both the southwestern and northeastern portions of the site, as well as along the southern border. Generally, these ditches are approximately five feet wide. Plants observed in the constructed ditches were similar to plants observed in the seasonal wetland habitats.

A large irrigation ditch occurs along the western half of the northern site boundary. This feature is approximately nine feet wide and six feet deep. Some riparian woody vegetation was observed to be growing adjacent to the channel including valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), Himalaya blackberry (*Rubus armeniacus*), and black walnut (*Juglans* sp.). This feature appears to drain into Skunk Creek off the site. Per the SSHCP, this feature may be considered to be “Stream/Creek” land cover.

Wildlife species already described above may also utilize the manmade ditches and channels of the site.

2.1.4 Low-density Development

Development on the site consists solely of a cement pad that occurs in the southern portion of the site. Under the SSHCP this would be considered Low-density Development.

2.2 MOVEMENT CORRIDORS

Many terrestrial animals need more than one biotic habitat in order to perform all of their biological activities. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles. Terrestrial animals use ridges, canyons, riparian areas, and open spaces to travel between their required habitats.

The importance of an area as a movement corridor depends on the species in question and its consistent use patterns. Animal movements generally can be divided into three major behavioral categories:

- Movements within a home range or territory;
- Movements during migration; and

- Movements during dispersal.

While no detailed study of animal movements has been conducted for the study area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not proposed development would constitute a significant impact to animal movements.

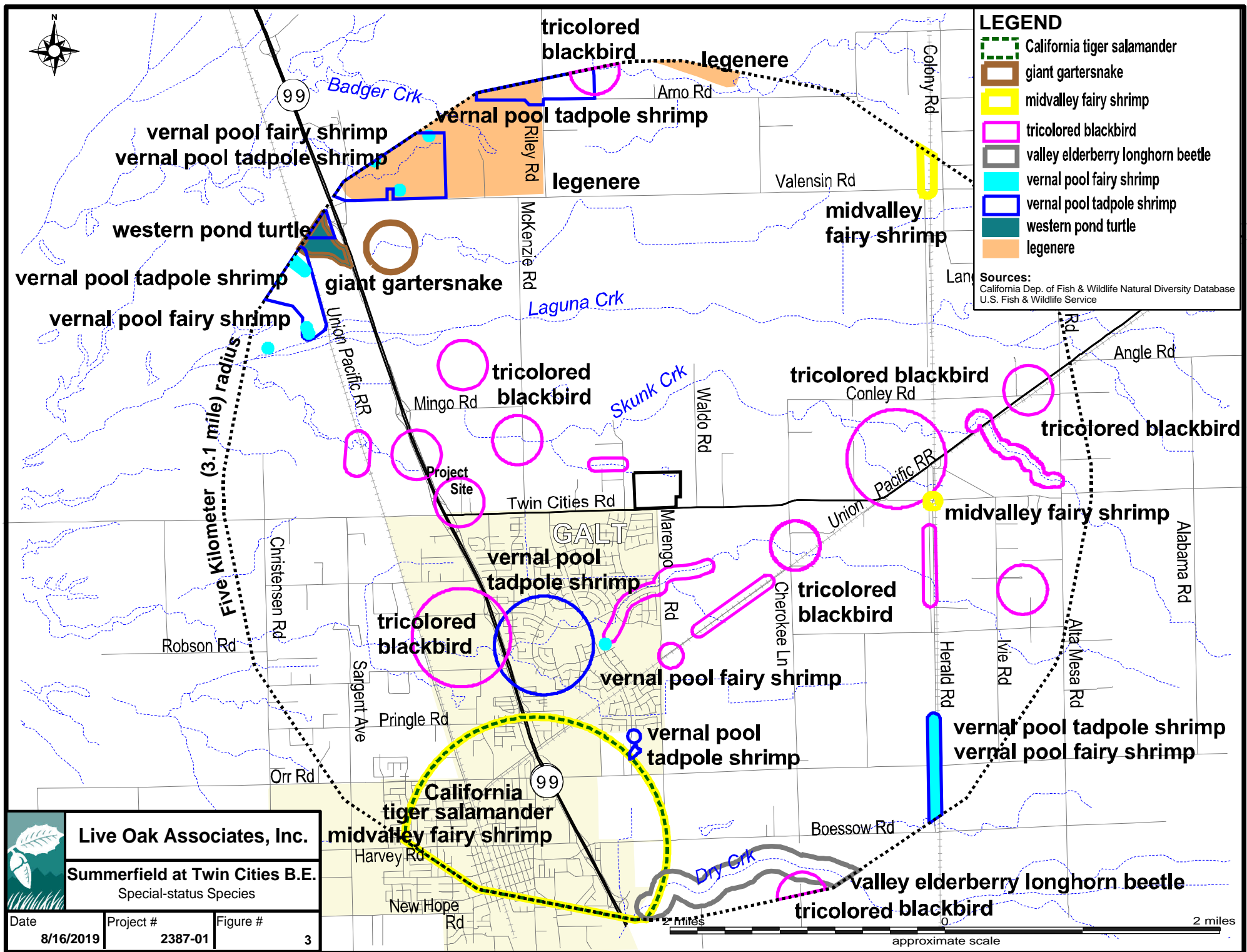
Although irrigation ditches on and adjacent to the site, particularly the irrigation ditch to the north of the site may act as a corridor for local species, the project site is not within a defined linkage and is not expected to act as a regional movement corridor.

2.3 SPECIAL STATUS PLANTS AND ANIMALS


Several species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as “candidates” for such listing. Still others have been designated as “species of special concern” by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2001). Collectively, these plants and animals are referred to as “special status species.”

A number of special status plants and animals occur in the vicinity of the study area. These species, and their potential to occur in the study area, are listed in Table 1. Sources of information for this table included *California Amphibian and Reptile Species of Special Concern* (Thomson et.al. 2016), *California Bird Species of Special Concern* (Shuford and Gardall 2008), *California Natural Diversity Data Base* (CDFW 2019), *Endangered and Threatened Wildlife and Plants* (USFWS 2019), and the *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFW 2019).

A search of published accounts for all of the relevant special status plant and animal species was conducted for the Galt USGS 7.5 minute quadrangle in which the project site occurs, and for the eight surrounding quadrangles (Florin, Elk Grove, Sloughhouse, Bruceville, Clay, Thornton, Lodi North, and Lockeford using the California Natural Diversity Data Base Rarefind5 2019. All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed (See Figures 3 and 4).

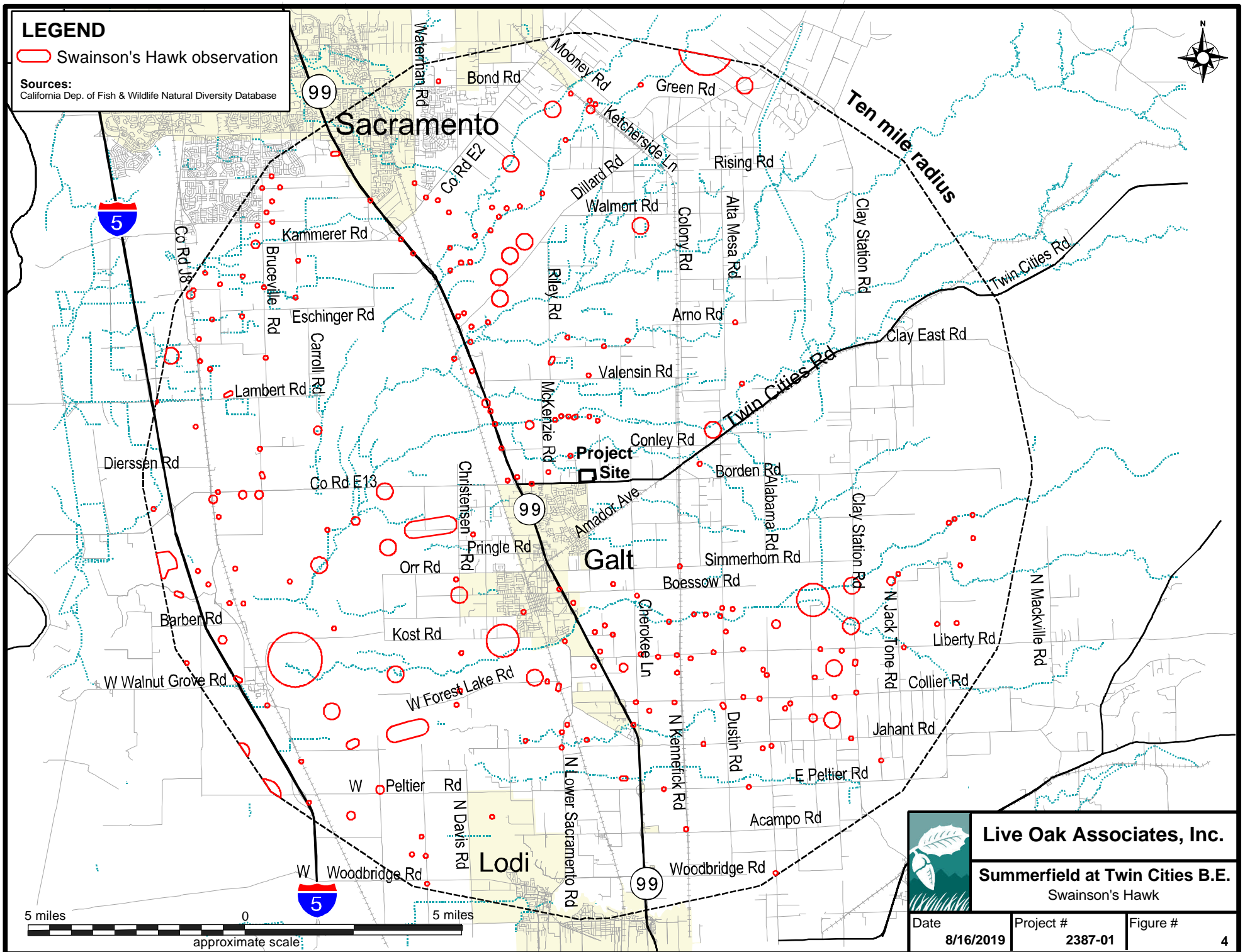


LEGEND

 Swainson's Hawk observation

Sources:

California Dep. of Fish & Wildlife Natural Diversity Database



Live Oak Associates, Inc.

Summerfield at Twin Cities B.E.
Swainson's Hawk

Date

8/16/2019

Project #

2387-01

Figure #

4

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2019 and CNPS 2019)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence in the Study Area
Succulent owl's clover (<i>Castilleja campestris</i> var. <i>succulenta</i>)	FT, CE, CRPR 1B	<u>Habitat</u> : Occurs in vernal pools. <u>Elevation</u> : 50-750 meters. <u>Blooms</u> : (March) April-May	Absent. Although wetlands of the site may provide marginal habitat for this species, there have been no known occurrences in Sacramento County, and only two documented occurrences in surrounding counties, i.e. Solano County (observed in 1961 per CalFlora) and San Joaquin County. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	CE, CRPR 1B, SSHCP Covered Species	<u>Habitat</u> : Occurs in marshes and swamps (lake margins), vernal pools often in clay. Per the SSHCP, this species may occur in vernal pools and seasonal wetlands within the project site region. <u>Elevation</u> : 10-2375 meters. <u>Blooms</u> : April-August.	Unlikely. Although the seasonal wetland and marsh habitat of the site may provide marginal habitat for this species, the closest known occurrences are more than 20 miles north and east of the site. Also, the SSHCP indicates that known Boggs Lake hedge-hyssop occurrences in the region are associated with Red Bluff loam, Red Bluff-Redding complex, Red Bluff-Xerarents complex, Redding gravelly loam, San Joaquin silt loam, San Joaquin-Durixeralfs complex, and Vleck gravelly loam soil types, none of which occur on the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Slender orcutt grass (<i>Orcuttia tenuis</i>)	FT, CE, CRPR 1B SSHCP Covered Species	<u>Habitat</u> : Occurs in vernal pools often gravelly <u>Elevation</u> : 35-1760 meters. <u>Blooms</u> : May-September (October)	Unlikely. Although the seasonal wetlands of the site may provide marginal habitat for this species, the closest known occurrences are more than 10 miles north of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Sacramento orcutt grass (<i>Orcuttia viscida</i>)	FE, CE, CRPR 1B SSHCP Covered Species	<u>Habitat</u> : Occurs in vernal pools. The SSHCP considers this species to be a strict vernal pool endemic. <u>Elevation</u> : 30-100 meters. <u>Blooms</u> : April- July (September).	Unlikely. Although the seasonal wetlands of the site may provide very marginal habitat for this species, the closest known occurrences are more than 10 miles north of the site, and the SSHCP indicates that the closest modelled habitat for this species is more than five miles northeast and east of the site. Also, the SSHCP indicates that this species is associated with Corning complex; Hicksville sandy clay loam; Red Bluff-Redding complex; and Redding gravelly loam soil types, none of which are present on the site. Lastly, the wetlands of the site have been disturbed by agricultural practices.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2019 and CNPS 2019)

Other special status plants listed by CNPS

Species	Status	Habitat	Occurrence in the Study Area
Watershield (<i>Brasenia schreberi</i>)	CRPR 2B	<u>Habitat:</u> Occurs in marshes and swamps (freshwater). <u>Elevation:</u> 33-2200 meters. <u>Blooms:</u> June-September	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrences are more than five miles northeast of the site.
Bristly sedge (<i>Carex comosa</i>)	CRPR 2B	<u>Habitat:</u> Occurs in coastal prairie, marshes and swamps (lake margins), valley and foothill grassland. <u>Elevation:</u> 0-625 meters. <u>Blooms:</u> May- September	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrences are more than five miles northeast of the site.
Bolander's water hemlock (<i>Cicuta maculata</i> var. <i>bolanderi</i>)	CRPR 2B	<u>Habitats:</u> Found in coastal marshes and swamps with fresh or brackish water. <u>Elevation:</u> 0-200 meters. <u>Blooms:</u> July-September.	Absent. No suitable habitat occurs on the site.
Peruvian dodder (<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>)	CRPR 2B	<u>Habitat:</u> Marshes and swamps (freshwater). <u>Elevation:</u> 15-280 meters. <u>Blooms:</u> July-October.	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrence is more than ten miles northeast of the site.
Dwarf downingia (<i>Downingia pusilla</i>)	CRPR 2B, SSHCP Covered Species	<u>Habitat:</u> Occurs in mesic valley and foothill grasslands and vernal pools. <u>Elevation:</u> 1-445 meters. <u>Blooms:</u> March-May	Unlikely. Seasonal wetlands of the site may provide marginal habitat for this species, and the SSHCP notes that in Sacramento County, documented dwarf downingia occurrences are associated with San Joaquin silt loam (as well as several other soil types) and San Joaquin silt loam occurs over a majority of the site. However, the closest known occurrences are more than five miles north of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Woolly rose (<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>)	CRPR 1B	<u>Habitat:</u> Occurs in freshwater marshes and swamps, often found in riprap on sides of levees. <u>Elevation:</u> 45-175 metes. <u>Blooms:</u> Perennial rhizomatous herb (emergent) June-September	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrence is more than five miles northeast of the site.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (Continued adapted from CDFW 2019 and CNPS 2019)

Other special status plants listed by CNPS

Species	Status	Habitat	Occurrence in the Study Area
Ahart's dwarf rush (<i>Juncus leiospermus</i> var. <i>ahartii</i>)	CRPR 1B SSHCP Covered Species	<u>Habitat</u> : Mesic valley and foothill grasslands. <u>Elevation</u> : 30-229 meters <u>Blooms</u> : March-May	Unlikely. The SSHCP identifies land cover types for this species as vernal pool and swale habitat on Red Bluff loam, Red Bluff-Redding complex and Redding gravelly loam soil types in this region. Although the seasonal wetlands of the site may provide marginal habitat for this species, the soils of the site are not Red Bluff or Redding soils and the closest known occurrences are approximately 15 miles north of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Delta tule pea (<i>Lathyrus jepsonii</i>)	CRPR 1B	<u>Habitat</u> : Occurs in freshwater and brackish marshes and swamps. <u>Elevation</u> : 0-5 meters <u>Blooms</u> : May-July (August-September)	Unlikely. The marsh habitat and irrigation ditch provide potential marginal habitat for this species, however, the closest known occurrence is approximately three miles northwest of the site in the Cosumnes River Preserve.
Legenere (<i>Legenere limosa</i>)	CRPR 1B, SSHCP Covered Species	<u>Habitat</u> : Occurs in vernal pools. The SSHCP considers vernal pool and seasonal wetland land cover types to provide potential habitat for this species. <u>Elevation</u> : 1-880 meters. <u>Blooms</u> : April-June.	Unlikely. The seasonal wetlands of the site provide marginal habitat for this species, and the SSHCP indicates that this species is associated with San Joaquin silt loam (along with other soil types) in the region and this soil type is present on the majority of the site. However, seasonal wetlands of the site have been disturbed by agricultural practices and the closest occurrences are almost three miles north and northwest of the site.
Heckard's pepper-grass (<i>Lepidium latipes</i> var. <i>heckardii</i>)	CRPR 1B	<u>Habitat</u> : Occurs in valley and foothill grasslands (alkaline flats). <u>Elevation</u> : 2-200 meters. <u>Blooms</u> : March-May.	Unlikely. Although the seasonal wetlands of the site may provide marginal habitat for this species, the closest known occurrence, and the only occurrence known from Sacramento County is more than 10 miles northwest of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Mason's lilaeopsis (<i>Lilaeopsis masonii</i>)	CRPR 1B	<u>Habitat</u> : Occurs in brackish or freshwater marshes and swamps and riparian scrub. <u>Elevation</u> : 0-10 meters. <u>Blooms</u> : April-November	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrence is more than five miles northwest of the site.
Delta mudwort (<i>Limosella australis</i>)	CRPR 2B	<u>Habitat</u> : Occurs in freshwater or brackish marshes and swamps and riparian scrub. <u>Elevation</u> : 0-3 meters. <u>Bloom</u> : May-August.	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrence is more than five miles northwest of the site.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (Continued adapted from CDFW 2019 and CNPS 2019)

Other special status plants listed by CNPS (cont.)

Species	Status	Habitat	Occurrence in the Study Area
Pincushion navarretia (<i>Navarretia myersii</i>)	CRPR 1B SSHCP Covered Species	<u>Habitat:</u> Occurs in vernal pools, often acidic. The SSHCP considers this species to be a strict vernal pool species and land cover types supporting this species are considered to be vernal pools and swales. <u>Elevation:</u> 20-30 meters. <u>Bloom:</u> April-May.	occurrences in the region include Amador-Gillender complex, 2% to 15% slopes; Corning complex, 0 to 8% slopes; Corning-Redding complex, 8 to 30% slopes; Creviscreek sandy loam, 0 to 3% slopes; Hadselville-Pentz complex, 2% to 30% slopes; Hicksville sandy clay loam, 0 to 2% slopes; occasionally flooded, Pardee-Rancho Seco complex, 3% to 15% slopes; PentzLithic Xerorthents complex, 30% to 50% slopes; Peters clay, 1% to 8% slopes; and Redding gravelly loam, 0 to 8% slopes, none of which are present on the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Sanford's arrowhead (<i>Sagittaria sandfordii</i>)	CRPR 1B, SSHCP Covered Species	<u>Habitat:</u> Occurs in marshes and swamps (assorted shallow freshwater) <u>Elevation:</u> 0-650 meters <u>Blooms:</u> May-October (November)	Possible. The site is within modeled habitat for Sanford's arrowhead by the SSHCP and soils types known to support this species are present on the site. The marsh and irrigation ditch on the site may provide habitat for this species. However, the closest known occurrences are approximately five miles north and west of the site.
Marsh skullcap (<i>Scutellaria galericulata</i>)	CRPR 2B	<u>Habitat:</u> Occurs in lower montane coniferous forest, meadows and seeps (mesic), marshes and swamps. <u>Elevation:</u> 0-2100 meters. <u>Blooms:</u> June-September	Unlikely. The seasonal wetlands of the site provide extremely marginal habitat for this species. The closest occurrences are approximately four miles northwest of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Side-flowering skullcap (<i>Scutellaria lateriflora</i>)	CRPR 2B	<u>Habitat:</u> Meadows and seeps (mesic), marshes and swamps. <u>Elevation:</u> 0-500 meters. <u>Blooms:</u> July- September	Unlikely. The seasonal wetlands of the site provide extremely marginal habitat for this species. The closest occurrences are approximately five miles northwest of the site. Additionally, the wetlands of the site have been disturbed by agricultural practices.
Suisun Marsh aster (<i>Symphyotrichum lentum</i>)	CRPR 1B	<u>Habitat:</u> Occurs in brackish and freshwater marshes and swamps. <u>Elevation:</u> 0-3 meters. <u>Blooms:</u> (April) May-November.	Unlikely. Although the marsh habitat of the site may provide marginal habitat for this species, the closest known occurrence is more than 15 miles west of the site along the Sacramento River.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (Continued adapted from CDFW 2019 and CNPS 2019)

Other special status plants listed by CNPS (cont.)

Species	Status	Habitat	Occurrence in the Study Area
Saline clover (<i>Trifolium hydrophilum</i>)	CRPR 1B	<u>Habitat:</u> Marshes and swamps, mesic and alkaline areas of valley and foothill grasslands, and vernal pools. <u>Elevation:</u> 0-300 meters. <u>Blooms:</u> Annual herb; April-June.	Absent. Suitable habitat is absent on the site for this species due to a lack of alkaline soils.

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence in the Study Area
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT, SSHCP Covered Species	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	Absent. Suitable habitat in the form of elderberry shrubs is absent from the site. Additionally, the SSHCP did not identify the site as supporting potential habitat for this species.
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	FT, SSHCP Covered Species	Occurs in vernal pools of California.	Unlikely. Although the SSHCP identified the site as supporting modeled vernal pool fairy shrimp habitat, the majority of the site has been used agriculturally and has had soils disturbed for many decades. The nearest recorded observation of this species is just over a mile from the site (CNDDDB 2019).
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	FE, SSHCP Covered Species	Occurs in vernal pools of California. Vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	Unlikely. Although the SSHCP identified the site as supporting modeled vernal pool tadpole shrimp habitat, the majority of the site has been used agriculturally and has had soils disturbed for many decades. The nearest recorded observation of this species is just over a mile from the site (CNDDDB 2019).
Midvalley fairy shrimp (<i>Branchinecta mesovallensis</i>)	SSHCP Covered Species	Occurs in vernal pools, vernal swales, and other ephemeral freshwater similar in habitat to other fairy shrimp species.	Unlikely. Although the SSHCP identified the site as supporting modeled midvalley fairy shrimp habitat, the majority of the site has been used agriculturally and has had soils disturbed for many decades. The nearest recorded observation of this species is just over a mile and a half from the site (CNDDDB 2019).
Delta smelt (<i>Hypomesus transpacificus</i>)	FT, SE	Endemic to the upper portions of the San Francisco Bay-Delta Estuary.	Absent. The site is outside the range of this species (Santos et. al. 2014). The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Longfin smelt (<i>Spirinchus thaleichthys</i>)	ST	Bays and estuaries from Alaska south to the San Francisco Bay-Delta Estuary.	Absent. The site is outside the range of this species (Santos et. al. 2014). The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act (cont.)

Species	Status	Habitat	Occurrence in the Study Area
Steelhead – Central Valley DPS (<i>Oncorhynchus mykiss irideus</i> pop.11)	FT	Anadromous form of rainbow trout living in the ocean but migrating up freshwater streams and rivers to spawn.	Absent. The site is outside the range of this species (Santos et. al. 2014). The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
California tiger salamander (<i>Ambystoma californiense</i>)	FT, CT, SSHCP Covered Species	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	Possible. Suitable breeding habitat for this species in the form of stagnant pools with continuous inundation for a minimum of three months is present onsite in the form of the marsh, and potentially the seasonal wetland. Additionally, the SSHCP identified the site as supporting potential breeding and upland habitat. The nearest recorded observation centered approximately 2.5 miles from the site (CNDDDB 2019).
Foothill yellow-legged frog (<i>Rana boylei</i>)	CSC, CCT	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools.	Absent. Habitats required by this species are absent. Additionally, the closest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Giant gartersnake (<i>Thamnophis gigas</i>)	FT, CT, SSHCP Covered Species	Habitat requirements consist of (1) adequate water during the snake's active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter.	Possible. Breeding habitat and suitable large irrigation ditches for the giant gartersnake exist on the site. Additionally, the SSHCP identified the site as supporting potential upland habitat for this species. The nearest recorded observation is centered approximately 2.5 miles from the site (CNDDDB 2019).
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CSC, CCE, SSHCP Covered Species	Breeds near fresh water in dense emergent vegetation.	Possible. The site is within SSHCP-modeled foraging and nesting-foraging habitat for the tricolored blackbird, and the dense blackberry bushes along the irrigation ditch and agricultural fields may support suitable nesting habitat depending on the type of crop planted. The nearest recorded observation centered approximately nearly adjacent to the site in a tributary of Skunk Creek (CNDDDB 2019).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act (cont.)

Species	Status	Habitat	Occurrence in the Study Area
Swainson's hawk (nesting) (<i>Buteo swainsoni</i>)	CT, SSHCP Covered Species	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	Present. A few trees within the center of the site and some eucalyptus occurring along the borders of the site support suitable nesting habitat for the Swainson's hawk and the agricultural field supports foraging habitat. Additionally, juvenile Swainson's hawks were observed flying over the site during the 2019 site visit. The site is within SSHCP-modeled high-value foraging habitat with nesting habitat occurring on or adjacent to the site.
Greater sandhill crane (nesting & nonbreeding/wintering) (<i>Grus canadensis tabida</i>)	CT, CP, SSHCP Covered Species	Breeding habitat includes open grasslands, marshes, and edges of lakes, ponds, and river banks. Wintering habitat includes a communal roost in shallow water.	Possible. The site is within SSHCP-modeled foraging and roosting habitat for the greater sandhill crane. The nearest recorded observation is more than three miles from the site (CNDDDB 2019).
Western yellow-billed cuckoo (nesting) (<i>Coccyzus americanus occidentalis</i>)	FC, CE	Breed in large blocks of riparian habitats, particularly cottonwoods and willows.	Absent. Dense riparian habitat required by the western yellow-billed cuckoo is absent from the site. Additionally, the closes recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Riparian brush rabbit (<i>Sylvilagus bachmani riparius</i>)	FE, CE	Occurs close to the San Joaquin River in riparian forest with dense shrub cover. The only known extant population is in Caswell Memorial State Park on the Stanislaus River in southern San Joaquin County, CA.	Absent. Suitable habitat in the form of riparian forest is absent from the site. Additionally, the closes recorded observation of this species is more than three miles from the site (CNDDDB 2019).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

State Species of Special Concern and Protected Species

Species	Status	Habitat	Occurrence in the Study Area
Ricksecker's water scavenger beetle (<i>Hydrochara rickseckeri</i>)	SSHCP Covered Species	Occurs in vernal pool wetlands with water in winter and early spring and the absence of water in summer.	Unlikely. Although the SSHCP identified the site as supporting modeled Ricksecker's water scavenger beetle habitat, the majority of the site has been used agriculturally and has had soils disturbed for many decades. The nearest recorded observation of this species is more than three miles from the site (SSHCP 2018).
Sacramento splittail (<i>Pogonichthys macrolepidotus</i>)	CSC	Endemic to lakes and rivers of the Central Valley. Occurs in estuaries along the San Francisco Bay and associated bays and marshes, and can survive high salinity and low dissolved oxygen.	Absent. The site is outside the range of this species (Santos et al. 2014). The nearest recorded observation of this species is more than three miles from the site (CNDDB 2019).
Western pond turtle (<i>Actinemys marmorata</i>)	CSC, SSHCP Covered Species	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes. Open slow-moving water of rivers and creeks of central California with rocks and logs for basking.	Possible. The northern portion of the site supports an irrigation ditch and marsh which may provide aquatic habitat for the western pond turtle, although the thick vegetation within the aquatic features reduces the suitability of these features for the western pond turtle. The site is within modeled upland habitat for the western pond turtle. The nearest recorded observation of this species is nearly three miles from the site (CNDDB 2019).
Western spadefoot (<i>Spea hammondi</i>)	CSC, SSHCP Covered Species	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Unlikely. Although the SSHCP identified the site as supporting modeled western spadefoot upland and aquatic habitat, the majority of the site has been used agriculturally and has had soils disturbed for many decades. The nearest recorded observation of this species is more than three miles from the site (CNDDB 2019).
Song sparrow ("Modesto" population) (<i>Melospiza melodia</i>)	CSC	Nests in riparian and dense vegetation fairly near water and along sparsely vegetated irrigation canals.	Possible. The site currently supports dense blackberry brambles along the irrigation ditch and bulrush in the marsh along the northern boundary of the site. The nearest recorded observation of this species is more than three miles from the site (CNDDB 2019).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

State Species of Special Concern and Protected Species (cont.)

Species	Status	Habitat	Occurrence in the Study Area
White-tailed kite (nesting) (<i>Elanus leucurus</i>)	CP, SSHCP Covered Species	Open grasslands and agricultural areas throughout central California.	Possible. Suitable breeding and foraging habitat are present onsite. Additionally, the SSHCP identified the site as supporting modeled foraging habitat for this species with modeled nesting habitat nearby. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Ferruginous hawk (<i>Buteo regalis</i>)	SSHCP Covered Species	Occurs in grassland, shrub-steppe, and edge habitats. Breeds mostly outside of California.	Possible. Although this species is not known to breed in the SSHCP plan area, it does overwinter within the plan area. The site is within SSHCP-modeled foraging habitat and the site provides suitable overwintering habitat. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Northern harrier (nesting) (<i>Circus cyaneus</i>)	CSC, SSHCP Covered Species	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Possible. Suitable breeding and foraging habitat exists onsite for this species. The site is within SSHCP-modeled foraging and nesting-foraging habitat. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Cooper's hawk (<i>Accipiter cooperii</i>)	CSC, SSHCP Covered Species	Breeds in oak woodlands, riparian forests and mixed conifer forests of the Sierra Nevada, but winters in a variety of lowland habitats.	Possible. Suitable breeding and foraging habitat exists onsite for this species. The site is within 0.25 miles of SSHCP-modeled foraging-nesting habitat. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Loggerhead shrike (nesting) (<i>Lanius ludovicianus</i>)	CSC, SSHCP Covered Species	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Nests in tall shrubs and dense trees. Forages in grasslands, marshes, and ruderal habitats. Can often be found in cropland.	Possible. Suitable breeding and foraging habitat exists onsite for this species along the boundaries of the site, particularly the northern and eastern boundaries. The site is within SSHCP-modeled nesting-foraging and foraging habitat. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Burrowing owl (<i>Athene cunicularia</i>)	CSC, SSHCP Covered Species	Found in open, dry grasslands, deserts and ruderal areas. Requires suitable burrows. This species is often associated with California ground squirrels.	Possible. Suitable habitat in the form of ground squirrel burrows exists onsite for this species. The site is within SSHCP-modeled wintering habitat. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (adapted from CDFW 2019 and USFWS 2019)

State Species of Special Concern and Protected Species (cont.)

Species	Status	Habitat	Occurrence in the Study Area
California yellow warbler (<i>Dendroica petechia brewsteri</i>)	CSC	Migrants move through many habitats of Sierra and its foothills. This species breeds in riparian thickets of alder, willow and cottonwoods.	Unlikely. The site currently supports agricultural land and does not support the dense vegetation the yellow warbler prefers for nesting. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	CSC	Occurs in freshwater marshes with cattails, tule, and bulrush during the summer and open, cultivated fields and pastures in the winter.	Possible. The marsh of the site supports dense bullrush and may provide nesting habitat for this species. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
Western red bat (<i>Lasiurus blossevillii</i>)	CSC, SSHCP Covered Species	Roosts in tree or shrub foliage, although will occasionally use caves.	Possible. The site supports SSHCP-modeled foraging habitat and trees on the site and along the site's boundary also provide suitable roosting habitat for this species. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).
American badger (<i>Taxidea taxus</i>)	CSC, SSHCP Covered Species	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils, specifically grassland environments. Natal dens occur on slopes.	Possible. The site supports suitable habitat for this species. Additionally, the site supports SSHCP-modeled onsite. The nearest recorded observation of this species is more than three miles from the site (CNDDDB 2019).

***Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the sites at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the sites, but it could occur there from time to time.

Unlikely: Species not observed on the sites, and would not be expected to occur there except, perhaps, as a transient.

Absent: Species not observed on the sites, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE Federally Endangered

FT Federally Threatened

FPE Federally Endangered (Proposed)

FC Federal Candidate

CSC California Species of Special Concern

CCE California Candidate Endangered

CE California Endangered

CT California Threatened

CR California Rare

CP California Protected

CNPS California Native Plant Society Listing

1A Plants Presumed Extinct in California

1B Plants Rare, Threatened, or Endangered in California and elsewhere

2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere

3 Plants about which we need more information – a review list

4 Plants of limited distribution – a watch list

2.4 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.5 of this report for additional information. The site supports wetlands and other hydrological features that may be considered waters of the U.S. under the jurisdiction of the USACE and/or waters of the state under the jurisdiction of the RWQCB. Although the USACE has confirmed the extent of the potentially jurisdictional waters of the U.S. on the site, it has not issued a Jurisdictional Determination.

3 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

General plans, area plans, and specific projects are subject to the provisions of the California Environmental Quality Act (CEQA). The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are constructed. For example, site development may require the removal of some or all of its existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on a site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed. These impacts may be considered significant. According to *Guide to the California Environmental Quality Act* (Remy et al. 1996), “Significant effect on the environment” means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest. Specific project impacts to biological resources may be considered “significant” if they will:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Reduce substantially the habitat of a fish or wildlife species, including causing a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate an animal community.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

For the purposes of this report, it is assumed that impacts will include the buildout of the project site as depicted in the site plan that has been provided dated May 23, 2019 and as described above in the project description.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal “endangered species” legislation has provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal Endangered Species Acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as “species of special status.” Permits may be required from both the CDFW and USFWS if activities associated with a proposed project will result in the take of a listed species. To “take” a listed species, as defined by the state of California, is “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” said species (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” of a listed species (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFW and the USFWS are responding agencies under the California Environmental Quality Act (CEQA). Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most bird species. The Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory

birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is “unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto”. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by the CDFW.

Additionally, the Bald and Golden Eagle Protection Act (16 U.S.C., sec. 668-668c) prohibits anyone from taking bald or golden eagles, including their parts, nests, or eggs, unless authorized under a federal permit. The act prohibits any disturbance that directly affects an eagle or an active eagle nest as well as any disturbance caused by humans around a previously used nest site during a time when eagles are not present such that it agitates or bothers an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

3.2.4 Bats

Section 2000 and 4150 of the California Fish and Game Code states that it is unlawful to take or possess a number of species, including bats, without a license or permit, as required by Section 3007. Additionally, Title 14 of the California Code of Regulations states it is unlawful to harass, herd, or drive a number of species, including bats. To harass is defined as “an intentional act which disrupts an animal's normal behavior patterns, which includes, but is not limited to, breeding, feeding or sheltering.” For these reasons, bat colonies in particular are considered to be sensitive and therefore, disturbances that cause harm to bat colonies are unlawful.

3.2.5 Wetlands and Other “Jurisdictional Waters”

3.2.5.1 Waters of the U.S.

Natural drainage channels and adjacent wetlands may be considered “Waters of the United States” (hereafter referred to as “jurisdictional waters”) subject to the jurisdiction of the U.S. Army Corps

of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into “navigable waters” (33 U.S.C. §1344), defined in the CWA as “the waters of the United States, including the territorial seas” (33 U.S.C. §1362(7)). Waters of the United States have been defined in the June 29, 2015 Clean Water Rule to include the following:

- 1) All waters used in interstate or foreign commerce (also known as traditional navigable waters), including all waters subject to the ebb and flow of the tide;
- 2) All interstate waters including interstate wetlands;
- 3) The territorial seas;
- 4) All impoundments of Waters of the U.S.;
- 5) All tributaries of waters defined in Nos. 1 through 4 above, where “tributary” refers to a water (natural or constructed) that contributes flow to another water and is characterized by the physical indicators of a bed and bank and an ordinary high water (OHW) mark;
- 6) Adjacent waters, defined as either (a) located in whole or in part within 100 feet of the OHW mark of waters defined in Nos. 1 through 5 above, or (b) located in whole or in part within the 100-year floodplain and within 1,500 feet of the OHW mark of waters defined in Nos. 1 through 5 above;
- 7) Western vernal pools, prairie potholes, Carolina bays and Delmarva bays, pocosins, and Texas coastal prairie wetlands, if determined on a case-specific basis to have a significant nexus to waters defined in Nos. 1 through 3 above;
- 8) Waters that do not meet the definition of adjacency, but are determined on a case-specific basis to have a significant nexus to waters defined in Nos. 1 through 3 above,

and are either (a) located in whole or in part within the 100-year floodplain of waters defined in Nos. 1 through 3 above, or (b) located within 4,000 feet of the OHW mark of waters defined in Nos. 1 through 5 above.

The 2015 rule also redefines exclusions from jurisdiction, which include:

- 1) Waste treatment systems;
- 2) Prior converted cropland;
- 3) Artificially irrigated areas that would revert to dry land should application of irrigation water to the area cease;
- 4) Groundwater;
- 5) Stormwater control features constructed to convey treat or store stormwater created in dry land; and
- 6) Three types of ditches: (a) ditches with ephemeral flow that are not a relocated or excavated tributary, (b) ditches with intermittent flow that are not a relocated or excavated tributary or that do not drain wetlands, and (c) ditches that do not flow, either directly or through another water, to a traditional navigable water.

A ditch may be a water of the U.S. only if it meets the definition of “tributary” and is not otherwise excluded under the provision.

A number of U.S. Supreme Court decisions have attempted to address the jurisdictional status of aquatic features that are not hydrologically connected to navigable waters or their tributaries, or have such an insubstantial hydrologic connection that destruction or modification of the aquatic feature would have little effect on downstream waters of the United States. These Supreme Court decisions are relevant to the analysis of aquatic features within the study area addressed by this report, because some of these features are not connected to navigable waters downstream.

In January of 2001, the U.S. Supreme Court ruled in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision) that “non-navigable, isolated, intrastate” waters could not be claimed as jurisdictional by the USACE on the basis of their use by migratory birds. Although the Court did not specifically address the meaning of the word “isolated,” it upheld the jurisdictional status of “adjacent” wetlands (and other waters), which are by definition wetlands that are “bordering, contiguous, or neighboring” other jurisdictional waters. Therefore, the term “isolated wetland” has implicitly been defined as ‘wetlands that are not bordering, contiguous, or neighboring’ other jurisdictional waters. This definition does not, however, address the degree of proximity necessary to establish that one wetland (or other water) is “adjacent” to a known jurisdictional water. As established by the Supreme Court in the *United States v. Riverside Bayview*

Homes, Inc. in 1985, “wetlands separated from other waters by man-made dikes or barriers, natural river berms, beach dunes, and the like are ‘adjacent wetlands.’”

In June of 2006, the U.S. Supreme Court ruled in the consolidated cases of *June Carabell v. U.S. Army Corps of Engineers* and *John Rapanos v. United States* that wetlands are waters of the United States “if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’” When, in contrast, wetland’s effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term ‘navigable waters.’

On June 5, 2007, the Environmental Protection Agency (EPA) and the USACE jointly issued guidance in interpreting the Carabell/Rapanos cases as they apply to the extent of federal jurisdiction covered by Section 404 of the Clean Water Act. The agencies revised this guidance memorandum on December 2, 2008. The key points of this guidance are that the EPA and the USACE: 1) will assert jurisdiction over traditional navigable waters, wetlands adjacent to traditional navigable waters, relatively permanent non-navigable tributaries of traditional navigable waters where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months), and wetlands that directly abut such tributaries; 2) will decide jurisdiction over relatively impermanent non-navigable tributaries of navigable waters, wetlands adjacent to such tributaries, and wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary, based on a fact-specific analysis to determine whether they have a “significant nexus” with a traditional navigable water; and 3) generally will not assert jurisdiction over swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) or ditches excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water. In applying the “significant nexus” standard, the EPA and USACE will “assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.” “Significant nexus” includes consideration of hydrologic and ecologic factors.

The court rulings and subsequent guidance provided by the EPA and USACE discussed above are germane to the delineation of jurisdictional waters summarized in this report. They are presently

the basis for determining the jurisdictional status of drainage features and wetlands of the study area.

All activities that involve the discharge of dredge or fill material into Waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

3.2.5.2 Waters of the State

The State of California also asserts jurisdiction over drainages and wetlands of the study area. The limits of jurisdiction vary slightly from those of the USACE. The California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB) are the two state regulatory agencies responsible for implementing state regulations that identify and protect waters of the state.

According to Section 1602 of the California Fish and Game Code, public and private entities may not substantially divert or obstruct the natural flow of any river, stream, or lake within the state. This section of Fish and Game Code establishes the State's interest in regulating construction activities in the "bed, channel, or bank" of a natural drainage or stream. A "stream" subject to the jurisdiction of the CDFW has been defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life" (California Code of Regulations, Title 14).

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) and nine local RWQCBs have regulatory authority over activities affecting water quality in all surface waters of the State, consisting of rivers, streams, lakes, and wetlands of the State.

Shortly after the U.S. Supreme Court rendered its SWANCC Decision, the SWRCB notified the Regional Boards that isolated waters, including wetlands, were subject to the jurisdiction of the State of California per provisions of the Porter-Cologne Water Quality Control Act. The Regional

Boards, therefore, now assert jurisdiction over isolated wetlands disclaimed as jurisdictional by the USACE.

The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit.

As determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds. However, the U.S Supreme Court decisions *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (referred together as the Rapanos decision) impose a "significant nexus" test for federal jurisdiction over wetlands. In June 2007, the USACE and Environmental Protection Agency (EPA) established guidelines for applying the significant nexus standard. This standard includes 1) a case-by-case analysis of the flow characteristics and functions of the tributary or wetland to determine if they significantly affect the chemical, physical, and biological integrity of downstream navigable waters and 2) consideration of hydrologic and ecologic factors (EPA and USACE 2007).

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for

plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that results in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction under the SWANCC decision, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Wildlife has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFW via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.2.6 Tree Regulations of the City of Galt

The City of Galt has a Heritage Oak and Public Trees ordinance that requires a permit for the cutting and removal of heritage oak and public trees, or for activities that encroach on heritage trees and public trees (Section 18.52.060 of the Municipal Code). The ordinance requires a permit for any activity that will impact through cutting, removal or encroachment upon a Heritage Tree. The City of Galt defines a heritage oak tree, public tree and encroachment as:

The definition of a Heritage Oak Tree “includes, but is not limited to, any of the following: valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), coast live oak (*Quercus agrifolia*) or oracle oak (*Quercus morehus*) having at least one (1) trunk of six (6) inch diameter measured four (4)

feet above the ground, or multi-trunks with an aggregate diameter of eight (8) inches or more, measured four (4) feet above ground.”

The definition of public tree means “any tree with one-half or more of its trunk or branches on or above public land.”

The definition of encroachment means “any intrusion or human activity into the dripline of an oak tree including, but not limited to, pruning, grading, excavating, trenching, parking of vehicles, storage of materials or equipment, or the construction of structures or other improvements.”

The City does not provide a set policy for replacement of heritage and public trees for permitted removals and it appears this is handled on a case by case basis. The City does have a program for payment of in-lieu fees for the removal of heritage and public trees. The same ordinance sets forth a number of requirements for protection of heritage and public trees being preserved on a development site.

3.2.7 Conservation Habitat Plans

The South Sacramento Habitat Conservation Plan (SSHCP) was adopted 2018 and includes the City of Galt within the Plan area. The SSHCP has five biological goals:

1. Preserve and link intact landscapes that include the highest quality habitat for Covered Species within the Plan Area;
2. Maintain or improve physical, chemical, and biological functions of aquatic resources within the Plan Area;
3. Preserve, re-establish, and establish natural land covers (including cropland and irrigated pasture-grassland) that provide habitat for Covered Species;
4. Maintain or improve habitat value of natural land covers (including cropland and irrigated pasture-grassland) that are preserved within the Plan Area; and
5. Maintain or expand the existing distribution of each Covered Species within the Plan Area.

The SSHCP provides take authorization for 28 species. These species are comprised of 20 animal species and eight plant species.

Animal species for which the SSHCP provides take authorization includes the Vernal pool tadpole shrimp (*Lepidurus packardii*), Vernal pool fairy shrimp (*Branchinecta lynchi*), Midvalley fairy shrimp (*Branchinecta mesoatlantica*), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Ricksecker’s water scavenger beetle (*Hydrochara rickseckeri*), California tiger salamander, (Central Valley population; *Ambystoma californiense*), Western spadefoot (*Spea hammondi*), Western pond turtle (*Actinemys marmorata*), Giant gartersnake (*Thamnophis gigas*), Cooper’s hawk (*Accipiter cooperii*), Tricolored blackbird (*Agelaius tricolor*), Western burrowing owl (*Athene cunicularia hypugaea*), Ferruginous hawk (*Buteo regalis*), Swainson’s hawk (*Buteo*

swainsoni), Northern harrier (*Circus cyaneus*), White-tailed kite (*Elanus leucurus*), Greater sandhill crane (*Grus canadensis tabida*), Loggerhead shrike (*Lanius ludovicianus*), Western red bat (*Lasiurus blossevillii*), and American badger (*Taxidea taxus*).

Plant species for which the SSHCP provides take authorization includes dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii*), slender Orcutt grass (*Orcuttia tenuis*), Sacramento orcutt grass (*Orcuttia viscida*), and Sanford's arrowhead (*Sagittaria sanfordii*).

Impacts under the SSHCP can be mitigated for via land dedication and/or a development fee, which is based on land cover types. The SSHCP identifies 12 land covers for which the payment of fees is required, including Agriculture, Valley Grassland, Vernal Pool, Blue Oak Savanna and Woodland, Riparian, Mine Tailing Riparian Woodland, Seasonal Wetland, Freshwater Marsh, Swale, Stream/Creek (VPIH), Open Water, and Stream/Creek. The fee schedule is updated annually. Other land cover types for which development fees are not applicable include Disturbed, High-density Development and Low-density Development. The SSHCP also provides general avoidance and minimization measures (AMMs) “designed to avoid or minimize effects of Covered Activities on SSHCP land cover types and Covered Species” (County of Sacramento et al. 2018).

In association with the SSHCP, the Plan Permittees and key stakeholders have coordinated with state and federal resource agencies (USACE, RWQCB and CDFW) to implement an SSHCP Aquatic Resources Program (ARP) (County of Sacramento et al. 2018). The basic purpose of the ARP is to institute a locally based aquatic permitting program that is also anticipated to assist the Plan Permittees in complying with the requirements of federal, state, and local laws that protect aquatic resources. The ARP is intended to be consistent with and either meet or exceed the requirements of Sections 404 and 401 of the federal CWA and the Porter-Cologne Act. The ARP is also written to be consistent with California Fish and Game Code Sections 1600–1616 (Lake or Streambed Alteration Agreement). Together, the ARP and SSHCP would result in a comprehensive Conservation Strategy for the conservation of aquatic resources, natural communities, native species, and the 28 species covered by the SSHCP. The objectives of the ARP are:

- **Local Implementation:** Establish local ordinances for successful implementation of the SSHCP and ARP.
- **Local Permitting Program:** Establish a local program carried out by the Plan Permittees to ensure improved permitting efficiency for future SSHCP Covered Activities for CWA 404 permits, 401 certifications, and California Fish and Game Code 1600 agreements. Such efficiency will help the regulated public and resource agencies save time and money, and will facilitate a better decision-making processes at the landscape and project levels.
- **Predictability:** Create a standardized and predictable permitting process for future SSHCP Covered Activities. A regionally integrated process allows permitting consistency and a more environmentally effective decision-making process.
- **Fair and Equitable Decisions:** Create a predictable decision-making outcome based upon a comprehensive approach that incorporates regionally important factors that better serves the regulated public.
- **Greater Ecological Benefits:** Implement ecologically effective, watershed-based aquatic resource mitigation and conservation to achieve more robust protection for aquatic resources in the Plan Area.

As of the time of preparation of this report, the ARP does not appear to have taken effect yet. As such, impacts to waters of the U.S. or state would require that permits be obtained from the USACE, RWQCB and CDFW, or some combination of these three agencies.

3.3 IMPACTS SPECIFIC TO THE PROJECT

The proposed project consists of the development of the majority of the site with residential home lots and infrastructure, with some areas in the northern portion of the site that support wetland and marsh habitats proposed for preservation and for the potential creation of wetland habitat. Any appreciable difference in either scope or general locations of the proposed project elements would require an additional impact assessment to ensure that unanticipated impacts to biotic resources are not likely to occur.

3.3.1 Loss of Habitat for Special Status Plants

Potential Impact. Of the special status plant species that occur, or once occurred, regionally, all but one species is considered either absent from or unlikely to occur on the site. For those considered unlikely to occur on the site, it is because the site provides very marginal habitat for these species,

and there are no occurrences documented within a three-mile radius of the site. Per the SSHCP, modeled Sanford's arrowroot habitat occurs on the site, although the closest documented occurrence is approximately two miles north of the site.

Consistency with SSHCP. The project will follow measures PLANT-1 and PLANT-2 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid impacts of Covered Activities on covered plant species. These measures are set forth below. Their implementation would reduce impacts to Sanford's arrowhead to a less-than-significant level.

Mitigation Measure 3.3.1a. "PLANT-1 (Rare Plant Surveys): If a Covered Activity project site contains modeled habitat for Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), dwarf downingia (*Downingia pusilla*), legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii*), or Sanford's arrowhead (*Sagittaria sanfordii*), the Covered Activity project site will be surveyed for the rare plant by an approved biologist and following the California Department of Fish and Wildlife (CDFW) rare plant survey protocols (CDFG 2009) or the most recent CDFW rare plant survey protocols. An approved biologist will conduct the field surveys and will identify and map plant species occurrences according to the protocols. See Chapter 10 for the process to submit survey information to the Plan Permittee and the Permitting Agencies." (SSHCP 2018)

Mitigation Measure 3.3.1b. "PLANT-2 (Rare Plant Protection): If a rare plant listed in AMM PLANT-1 is detected within an area proposed to be disturbed by a Covered Activity or is detected within 250 feet of the area proposed to be disturbed by a Covered Activity, the Implementing Entity will assure one unprotected occurrence of the species is protected within a SSHCP Preserve before any ground disturbance occurs on the project site." (SSHCP 2018).

Mitigation Measure 3.3.1c. "Objective SAI. Prior to take of an occurrence of Sanford's arrowhead (*Sagittaria sanfordii*), protect one currently unpreserved and "biologically equivalent or superior" (as defined by the TAC) occurrence of Sanford's arrowhead within the Plan Area."

Mitigation Measure 3.3.1d. “Objective SA2. During re-establishment and/or establishment of Seasonal Wetland, Freshwater Marsh, Open Water, and Stream/Creek, translocate impacted Sanford’s arrowhead (*Sagittaria sanfordii*) from other sites.”

3.3.2 Loss of Habitat for Special Status Animals

Potential Impact. Thirty (30) special status animal species occur, or once occurred, regionally. Of these, 14 species would be absent or unlikely to occur on the site due to a lack of suitable habitat for these species. The species that would be absent or unlikely to occur include the Valley elderberry longhorn beetle, Ricksecker’s water scavenger beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, Midvalley fairy shrimp, Delta smelt, longfin smelt, steelhead, Sacramento splittail, western spadefoot, Foothill yellow-legged frog, California yellow warbler, western yellow-billed cuckoo, and riparian brush rabbit.

The remaining 16 special status animal species from Table 1 potentially occur more frequently as potential foragers, transients, may be resident to the site, or they may occur within areas adjacent to the site. These include California tiger salamander, giant gartersnake, western pond turtle, burrowing owl, white-tailed kite, ferruginous hawk, Cooper’s hawk, northern harrier, Swainson’s hawk, greater sandhill crane, loggerhead shrike, Modesto song sparrow, yellow-headed blackbird, tricolored blackbird, western red bat, and American badger.

The white-tailed kite, Cooper’s hawk, northern harrier, Swainson’s hawk, loggerhead shrike, Modesto song sparrow, yellow-headed blackbird, and tricolored blackbird may nest on or adjacent to the site, and the ferruginous hawk, burrowing owl, and greater sandhill crane may forage, roost, or overwinter onsite during migration and winter months.

This project will not create a significant loss of habitat for any of these species. Potential impacts to individuals of these species are discussed further below.

Consistency with SSHCP. Several species covered under the SSHCP (California tiger salamander, giant gartersnake, western pond turtle, burrowing owl, white-tailed kite, ferruginous hawk, Cooper’s hawk, northern harrier, Swainson’s hawk, greater sandhill crane, loggerhead shrike, tricolored blackbird, western red bat, and American badger) have the potential to occur onsite. General Conditions and species-specific measures of the SSHCP will be followed.

Mitigation. No mitigation warranted.

3.3.3 Loss of Habitat for Native Wildlife

Potential Impact. The habitats of the site comprise only a small portion of the regionally available habitat for plant and animal species that are expected to use the habitat. The proposed project would result in the loss of agricultural and wetland habitats. This is not expected to result in a significant effect on local wildlife. Therefore, impacts due to the loss of agricultural habitat and a small loss of seasonal wetland habitat for native wildlife resulting from the proposed project are considered less-than-significant.

Consistency with SSHCP. The project will pay all related SSHCP fees, which will preserve contiguous lands specifically for species covered by the SSHCP. In doing so, it will protect suitable habitat for other locally-occurring native species as well.

Mitigation. No mitigation would be warranted for the loss of habitat for native wildlife.

3.3.4 Interference with the Movement of Native Wildlife

Potential Impact. Buildout of the site is not expected to constrain native wildlife movements. Species currently using the site for movement would continue to do so, and the irrigation ditch and marsh on the northern portion of the site will not be developed, so any wildlife using that portion of the site for movement through the site would be expected to continue to use it for movement.

Consistency with SSHCP. The site is not within or adjacent to any linkage identified by the SSHCP to be preserved.

Mitigation. No mitigation would be warranted for interference with the movement of native wildlife.

3.3.5 Impacts to California Tiger Salamanders

Potential Impacts. Although no California tiger salamanders were observed, nor was evidence of their presence detected, during the 2019 survey, the site supports several aquatic features onsite, including a marsh and seasonal wetlands, that may provide breeding habitat for CTS. The site also occurs within modeled upland and aquatic habitat for the California tiger salamander. Individuals and evidence of this species' presence were not detected during the 2019 survey. Should site grading occur while a California tiger salamander is within a burrow or wetland onsite, they may

be buried, injured, or killed. Any actions related to site development that result in harm, injury, or mortality of California tiger salamanders would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures CTS-1 through CTS-7 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on CTS. These measures are set forth below. Their implementation would reduce impacts to California tiger salamanders to a less-than-significant level.

Mitigation Measure 3.3.5a. “CTS-1 (California Tiger Salamander Daily Construction Schedule): Ground-disturbing Covered Activities within California tiger salamander modeled habitat (Figure 3-16) will occur outside the breeding and dispersal season (occur after July 31 and before October 15), to the maximum extent practicable. If Covered Activities must be implemented in modeled habitat (Figure 3-16) during the breeding and dispersal season (after October 15 and before July 31), construction activities will not start until 30 minutes after sunrise and must be complete 30 minutes prior to sunset.” (SSHCP 2018)

Mitigation Measure 3.3.5b. “CTS-2 (California Tiger Salamander Exclusion Fencing): If a Covered Activity must be implemented in modeled habitat (Figure 3-16) during the breeding and dispersal season (after October 15 and before July 31), exclusion fencing will be installed around the project footprint before October 15. Temporary high-visibility construction fencing will be installed along the edge of work areas, and exclusion fencing will be installed immediately outside of the temporary high-visibility construction fencing to exclude California tiger salamanders from entering the construction area or becoming entangled in the construction fencing. Exclusion fencing will be at least 1 foot tall and be buried at least 6 inches below the ground to prevent salamanders from going under the fencing. Fencing will remain in place until all construction activities within the construction area are complete. No project activities will occur outside the delineated project footprint. An approved biologist must inspect the exclusion fencing and project site every morning before 7:00 a.m. for integrity and for any entrapped California tiger salamanders. If a California tiger salamander is encountered, refer to CTS-5, below. (However, the Implementing Entity may,

with approval of the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), determine that it is appropriate for a Covered Activity project to not implement CTS-2 for certain long and linear roadway Covered Activity projects if it appears that the exclusion fencing will likely trap individuals or cause more take of California tiger salamander than it would prevent.)” (SSHCP 2018)

Mitigation Measure 3.3.5c. “CTS-3 (California Tiger Salamander Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-16), an approved biologist experienced with California tiger salamander identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place, and will inspect the project site for California tiger salamander every morning before 7:00 a.m., or prior to construction activities. As required by BMP-8 (Training of Construction Staff), the approved biologist will also train construction personnel on the required California tiger salamander avoidance procedures, exclusion fencing, and correct protocols in the event that a California tiger salamander enters an active construction zone. If a California tiger salamander is encountered, refer to CTS-5, below.” (SSHCP 2018)

Mitigation Measure 3.3.5d. “CTS-4 (Avoid California Tiger Salamander Entrapment): If Covered Activities must be implemented in modeled habitat, all excavated steep-walled holes or trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes or trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within California tiger salamander modeled habitat will be inspected for California tiger salamanders by the approved biologist prior to being moved. If a California tiger salamander is encountered, refer to CTS-5, below.” (SSHCP 2018)

Mitigation Measure 3.3.5e. “CTS-5 (California Tiger Salamander Encounter Protocol): If a California tiger salamander is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately (California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS)). Construction activities will be suspended in a 100-foot radius of the animal until the animal is relocated by an approved biologist with

appropriate handling permits from the Wildlife Agencies. Prior to relocation, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the salamander, within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to USFWS and CDFW immediately. Any worker who inadvertently injures or kills a California tiger salamander or who finds dead, injured, or entrapped California tiger salamander(s) must immediately report the incident to the approved biologist.” (SSHCP 2018)

Mitigation Measure 3.3.5f. “CTS-6 (Erosion Control Materials in California Tiger Salamander Habitat): If erosion control (BMP-2) is implemented within California tiger salamander modeled habitat (Figure 3-16), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that salamanders are not trapped (no monofilament). Coconut coir matting and fiber rolls with burlap are examples of acceptable erosion control materials. This limitation will be communicated to the contractor through use of special provisions included in the bid solicitation package.” (SSHCP 2018)

Mitigation Measure 3.3.5g. “CTS-7 (Rodent Control): CTS-7 only applies to projects that are within California tiger salamander modeled habitat (Figure 3-16) and on Covered Activities. Rodent control will be allowed only in developed portions of a Covered Activity project site. Where rodent control is allowed, the method of rodent control will comply with the methods of rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service’s (2004) final listing rule for tiger salamander.” (SSHCP 2018)

3.3.6 Impacts to Western Spadefoot Toads

Potential Impacts. Although western spadefoot toads are unlikely to occur on the site, the SSHCP identifies the site as supporting modeled western spadefoot upland and aquatic habitat. Individuals and evidence of this species’ presence were not detected during the 2019 survey. Should site grading occur while a western spadefoot is onsite or within a wetland onsite, they may be buried, injured, or killed. Any actions related to site development that result in the harm, injur, or mortality of western spadefoot would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures WS-1 through WS-6 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on western spadefoot toads. These measures are set forth below. Their implementation would reduce impacts to western spadefoot toads to a less-than-significant level.

Mitigation Measure 3.3.6a. “WS-1 (Western Spadefoot Work Window): Ground-disturbing Covered Activities within western spadefoot modeled habitat (Figure 3-17) will occur outside the breeding and dispersal season (after May 15 and before October 15), to the maximum extent practicable.” (SSHCP 2018)

Mitigation Measure 3.3.6b. “WS-2 (Western Spadefoot Exclusion Fencing): If Covered Activities must be implemented in modeled habitat (Figure 3-17) after October 15 and before May 15, exclusion fencing will be installed around the project footprint before October 15, and the project site must be monitored by an approved biologist following rain events. Temporary high-visibility construction fencing will be installed along the edge of work areas, and silt fencing will be installed immediately behind the temporary high-visibility construction fencing to exclude western spadefoot from entering the construction area. Fencing will remain in place until all construction activities within the construction area are completed. No project activities will occur outside the delineated project footprint. If a western spadefoot is encountered, refer to WS-6, below.” (SSHCP 2018)

Mitigation Measure 3.3.6c. “WS-3 (Western Spadefoot Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-17) in the breeding and dispersal season (after October 15 and before May 15), an approved biologist experienced with western spadefoot identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place, and will inspect the project site daily for western spadefoot prior to construction activities. The approved biologist will also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western spadefoot enters an active construction

zone (i.e., outside the buffer zone). If a western spadefoot is encountered, refer to WS-6, below.” (SSHCP 2018)

Mitigation Measure 3.3.6d. “WS-4 (Avoid Western Spadefoot Entrapment): If a Covered Activity occurs in western spadefoot modeled habitat (Figure 3-17), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western spadefoot modeled habitat will be inspected for western spadefoot by the approved biologist prior to being moved. If a western spadefoot is encountered, refer to WS-6, below.” (SSHCP 2018)

Mitigation Measure 3.3.6e. “WS-5 (Erosion Control Materials in Western Spadefoot Habitat): If erosion control (BMP-2) is implemented within western spadefoot modeled habitat (Figure 3-17), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that western spadefoots are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.” (SSHCP 2018)

Mitigation Measure 3.3.6f. “WS-6 (Western Spadefoot Encounter Protocol): If Covered Activities must be implemented in modeled habitat (Figure 3-17) during the breeding and dispersal season (after October 15 and before May 15), and a western spadefoot is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the western spadefoot within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife immediately. Any worker who inadvertently injures or

kills a western spadefoot or who finds dead, injured, or entrapped western spadefoot(s) must immediately report the incident to the approved biologist.” (SSHCP 2018)

3.3.7 Impacts to Giant Gartersnakes

Potential Impacts. Although giant garter snakes were not observed on the site, the large irrigation ditch and marsh in the northern portion of the site support potential habitat for this species. The site also occurs within SSHCP-modeled upland habitat for the giant gartersnake. Should site grading occur while a giant gartersnake is onsite or within a wetland onsite, they may be buried, injured, or killed. Any actions related to site development that result in harm, injury, or mortality to giant gartersnakes would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures GGS-1 to GGS-8 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on giant gartersnakes. These measures are set forth below. Their implementation would reduce impacts to giant garter snakes to a less-than-significant level.

Mitigation Measure 3.3.7a. “GGS-1 (Giant Gartersnake Surveys): If the SSHCP giant gartersnake modeled habitat maps (Figure 3-18) show that modeled habitat for giant gartersnake is present within a Covered Activity’s project footprint or within 300 feet of a project footprint, then an approved biologist will conduct a field investigation to delineate giant gartersnake aquatic habitat within the project footprint and adjacent areas within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-18, giant gartersnake aquatic habitat includes, but is not limited to, low-gradient streams and creeks, open water, freshwater marsh, agricultural ditches, and rice fields. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential sites and provide these maps to the Local Land Use Permittees and the Implementing Entity. Locations of delineated giant gartersnake habitat must also be noted on plans that are submitted to a Local Land Use Permittee. The applicant will use this information to finalize project design. Covered Activities may occur throughout the year as long as giant gartersnake habitat is identified and fully avoided. Otherwise, Covered Activities must comply with GGS-2 through GGS-8, below. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.7b. “GGS-2 (Giant Gartersnake Work Window): Covered Activities that do not fully avoid giant gartersnake modeled habitat (Figure 3-18) will be conducted during the snake’s active season. Construction and ground-disturbing activities will be initiated after May 1 and will end prior to September 15. If it appears that construction activities may go beyond September 15, the Third-Party Project Proponent or Plan Permittee will contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1. The Local Land Use Permittee and the Implementing Entity will discuss with the Wildlife Agencies additional measures necessary to minimize take.” (SSHCP 2018)

Mitigation Measure 3.3.7c. “GGS-3 (Giant Gartersnake Monitoring): If a Covered Activity is occurring in giant gartersnake modeled habitat (Figure 3-18), an approved biologist experienced with giant gartersnake identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and will inspect the project site daily for giant gartersnake prior to construction activities. If a giant gartersnake is encountered, refer to GGS-7. The approved biologist will also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a giant gartersnake enters an active construction zone (i.e., outside the buffer zone).” (SSHCP 2018)

Mitigation Measure 3.3.7d. “GGS-4 (Giant Gartersnake Habitat Dewatering and Exclusion): If construction activities will occur in giant gartersnake aquatic habitat, aquatic habitat will be dewatered and then remain dry and absent of aquatic prey (e.g., fish and tadpoles) for 15 days prior to initiation of construction activities. If complete dewatering is not possible, the Implementing Entity will be contacted to determine what additional measures may be necessary to minimize effects to giant gartersnake. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing will be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing will be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Giant gartersnake habitat outside construction fencing will be avoided by all construction personnel. The fencing and the work area will be inspected by the approved biologist to ensure that the fencing is intact and that no snakes have entered the work area before

the start of each work day. The fencing will be maintained by the contractor until completion of the project. If giant gartersnake is encountered, refer to GGS-7, below.” (SSHCP 2018)

Mitigation Measure 3.3.7e. “GGS-5 (Avoid Giant Gartersnake Entrapment): If a Covered Activity occurs in giant gartersnake modeled habitat (Figure 3-18), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within giant gartersnake modeled habitat will be inspected for giant gartersnake by the approved biologist prior to being moved. If a giant gartersnake is encountered, refer to GGS-7.” (SSHCP 2018)

Mitigation Measure 3.3.7f. “GGS-6 (Erosion Control Materials in Giant Gartersnake Habitat): If erosion control (BMP- 2) is implemented within giant gartersnake modeled habitat (Figure 3-18), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure snakes are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.” (SSHCP 2018)

Mitigation Measure 3.3.7g. “GGS-7 (Giant Gartersnake Encounter Protocol): If a giant gartersnake is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the giant gartersnake within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service immediately. Any worker who inadvertently injures or kills a giant gartersnake or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.” (SSHCP 2018)

Mitigation Measure 3.3.7h. “GGS-8 (Giant Gartersnake Post-Construction Restoration): After completion of ground-disturbing Covered Activities, the applicant will remove any temporary fill and construction debris and will restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation. Refer to the U.S. Fish and Wildlife Service’s (USFWS) Guidelines for the Restoration and/or Replacement of Giant Gartersnake Habitat (USFWS 1997), or the most current USFWS guidelines at the time of the activity. A photo documentation report showing pre- and post-project conditions will be submitted to the Implementing Entity 1 month after implementation of the restoration.” (SSHCP 2018)

3.3.8 Impacts to Western Pond Turtles

Potential Impacts. The northern portion of the site supports an irrigation ditch and marsh that may provide aquatic habitat for the western pond turtle, although the thick vegetation within these aquatic features reduce their suitability for the species. The site occurs within SSHCP-modeled upland habitat for the western pond turtle. Should site grading occur while a western pond turtle is onsite or within a wetland onsite, they may be buried, injured, or killed. Any actions related to site development that result in harm, injury, or mortality to western pond turtles would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures WPT-1 to WPT-9 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on western pond turtles. These measures are set forth below. Their implementation would reduce impacts to western pond turtles to a less-than-significant level.

Mitigation Measure 3.3.8a. “WPT-1 (Western Pond Turtle Surveys): If the SSHCP western pond turtle modeled habitat maps (Figure 3-19) show that modeled habitat for western pond turtle is present within a Covered Activity’s project footprint or within 300 feet of a project footprint, then an approved biologist will conduct a field investigation to delineate western pond turtle aquatic habitat within the project footprint and within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-19, western pond turtle aquatic habitat includes, but is

not limited to, low-gradient streams and creeks, open water, freshwater marsh, and rice fields. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential sites and provide those maps to the Local Land Use Permittees and the Implementing Entity. Locations of delineated western pond turtle habitat must also be noted on plans that are submitted to a Local Land Use Permittee. The applicant will use this information to finalize project design. Covered Activities may occur throughout the year as long as western pond turtle habitat is identified and fully avoided. Otherwise, Covered Activities must comply with WPT-2 through WPT-9. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.8b. “WPT-2 (Western Pond Turtle Work Window): Maintenance and improvements to existing structures may occur throughout the year as long as western pond turtle habitat is identified and avoided, and movement of equipment is confined to existing roads. Otherwise, construction and ground-disturbing Covered Activities must be conducted outside of western pond turtle’s active season. Construction and ground-disturbing activities will be initiated after May 1 and will commence prior to September 15. If it appears that construction activities may go beyond September 15, the appropriate Plan Permittee will contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1, to determine if additional measures are necessary to minimize take.” (SSHCP 2018)

Mitigation Measure 3.3.8c. “WPT-3 (Western Pond Turtle Monitoring): If a Covered Activity is occurring in western pond turtle modeled habitat (Figure 3-19), an approved biologist experienced with western pond turtle identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and will inspect the project site daily for western pond turtle prior to construction activities. The approved biologist will also training construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western pond turtle enters an active construction zone (i.e., outside the buffer zone).” (SSHCP 2018)

Mitigation Measure 3.3.8d. “WPT-4 (Western Pond Turtle Habitat Dewatering and Exclusion): If construction activities will occur in western pond turtle aquatic habitat, aquatic habitat for the turtle will be dewatered and then remain dry and absent of aquatic prey (e.g.,

crustaceans and other aquatic invertebrates) for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the Implementing Entity will be contacted to determine what additional measures may be necessary to minimize effects to western pond turtle. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing will be erected 36 inches above ground and buried at least 6 inches below the ground to prevent turtles from attempting to burrow or move under the fence into the construction area. In addition, high-visibility fencing will be erected to identify construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Western pond turtle habitat outside construction fencing will be avoided by all construction personnel. The fencing and work area will be inspected by the approved biologist to ensure that the fencing is intact and that no turtles have entered the work area before the start of each work day. Fencing will be maintained by the contractor until completion of the project. If, after exclusion fencing and dewatering, western pond turtles are found within the project footprint or within 300 feet of the project footprint, the Third-Party Project Proponent will discuss the next best steps with the Implementing Entity and Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.8e. “WPT-5 (Avoid Western Pond Turtle Entrapment): If a Covered Activity occurs within western pond turtle modeled habitat (Figure 3-19), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western pond turtle modeled habitat will be inspected for western pond turtle by the approved biologist prior to being moved.” (SSHCP 2018)

Mitigation Measure 3.3.8f. “WPT-6 (Erosion Control Materials in Western Pond Turtle Habitat): If erosion control (BMP-2) is implemented within western pond turtle modeled habitat (Figure 3-19), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be

used to ensure that turtles are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.” (SSHCP 2018)

Mitigation Measure 3.3.8g. “WPT-7 (Western Pond Turtle Modeled Habitat Speed Limit): Covered Activity construction and maintenance vehicles will observe a 20-mile-per-hour speed limit within western pond turtle modeled upland habitat (Figure 3-19).” (SSHCP 2018)

Mitigation Measure 3.3.8h. “WPT-8 (Western Pond Turtle Encounter Protocol): If a western pond turtle is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the turtle, within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service immediately. Any worker who inadvertently injures or kills a western pond turtle or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.” (SSHCP 2018)

Mitigation Measure 3.3.8i. “WPT-9 (Western Pond Turtle Post-Construction Restoration): After completion of ground- disturbing Covered Activities, the applicant will remove any temporary fill and construction debris and will restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation and placing appropriate artificial or natural basking areas in waterways and wetlands. A photo documentation report showing pre- and post-project conditions will be submitted to the Implementing Entity 1 month after implementation of the restoration.” (SSHCP 2018)

3.3.9 Impacts to Nesting Migratory Birds Including Nesting Raptors and other Protected Birds

Potential Impacts. The site’s trees, shrubs, agricultural fields, and edge habitats may support nesting birds and raptors including, but not limited to, special status birds such as white-tailed kite,

ferruginous hawk, Cooper's hawk, northern harrier, Swainson's hawk, loggerhead shrike, Modesto song sparrow, yellow-headed blackbird, and tricolored blackbird. Buildout of the project during the nesting period for migratory birds (i.e., typically between February 1 to August 31), including initial site grading, soil excavation, and/or tree and vegetation removal, poses a risk of nest abandonment and death of any live eggs or young that may be present within the nest within or near the site. Such an effect would be considered a significant impact. To ensure that any active nests will not be disturbed and individual birds will not be harmed by construction activities, the following measures should be followed.

Consistency with SSHCP. Separate measures for migratory bird and raptor species covered by the SSCHP are detailed in Sections 3.3.10-3.3.14. Although the ferruginous hawk is a Covered Species under the SSHCP, the SSHCP does not require specific measures for this species. However, the mitigation measures described below would adequately minimize impacts to this species.

Mitigation. The following measures would ensure that active migratory bird and raptor nests will not be disturbed and individual birds will not be harmed by tree removal or other construction activities. (Avoidance and minimization measures for bird species covered by the SSHCP are included within Sections 3.3.10-3.3.14 and supersede the measures below.) Implementation of these measures would reduce impacts to a less-than-significant level.

Mitigation Measure 3.3.9a. To the maximum extent practicable, vegetation planned for removal should be removed during the non-breeding season (September 1 through January 31). If it is not possible to avoid vegetation removal during the breeding season (February 1 through August 31), then a qualified biologist should conduct pre-construction surveys for nesting migratory birds onsite and within 250 feet (for raptors) of the site, where accessible. The survey should occur within 7 days prior to the onset of ground disturbance or vegetation removal.

If nesting raptors or other migratory birds are detected, a suitable disturbance-free buffer of up to 250 ft should be established around all active nests. The precise dimension of the buffer would be determined by the project biologist and may vary depending on factors such as location, species, topography, line of sight to the construction area, and type of activity that would occur in the vicinity of the nest. The buffer area(s) should be enclosed with temporary fencing, and equipment and workers should not enter the enclosed buffer areas. The buffer should be monitored

periodically by the project biologist to ensure compliance. Buffers should remain in place for the duration of creek maintenance activities, the breeding season, or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents, whichever occurs first.

3.3.10 Impacts to Swainson's Hawks

Potential Impacts. A few trees within the center of the site and some eucalyptus occurring along the borders of the site support suitable nesting habitat for the Swainson's hawk, and the agricultural field supports foraging habitat. Additionally, juvenile Swainson's hawks were observed flying over the site during the 2019 site visit. The site occurs within modeled high-value foraging habitat with nesting habitat occurring on or adjacent to the site. Should site grading, vegetation, or tree removal occur while a Swainson's hawk is nesting, they may be injured or killed. Any actions related to site development that result in harm, injury, or mortality to Swainson's hawks would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures SWHA-1 to SWHA-4 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on Swainson's hawks. These measures are set forth below. Their implementation would reduce impacts to Swainson's hawks to a less-than-significant level.

Mitigation Measure 3.3.10a. "SWHA-1 (Swainson's Hawk Surveys): If modeled habitat for Swainson's hawk (Figure 3-25) is present within a Covered Activity's project footprint or within 0.25 mile of a project footprint, then an approved biologist will conduct a survey to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Nest sites are often associated with Riparian land cover, but also include lone trees in fields, trees along roadways, and trees around structures. Nest trees may include, but are not limited to, Fremont's cottonwood (*Populus fremontii*), oaks (*Quercus spp.*), willows (*Salix spp.*), walnuts (*Juglans spp.*), eucalyptus (*Eucalyptus spp.*), pines (*Pinus spp.*), and Deodar cedar (*Cedrus deodara*). The Third-Party Project Proponent will map all existing and potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are

submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.10b. “SWHA-2 (Swainson’s Hawk Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present within a project footprint or within 0.25 mile of a project footprint if existing or potential nest sites were found during initial surveys and construction activities will occur during the breeding season (March 1 through September 15). An approved biologist will conduct pre-construction surveys within 30 days and 3 days of ground-disturbing activities to determine presence of nesting Swainson’s hawk. Pre-construction surveys will be conducted during the breeding season (March 1 through September 15). If a nest is present, then SWHA-3 and SWHA-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.10c. “SWHA-3 (Swainson’s Hawk Nest Buffer): If active nests are found within the project footprint or within 0.25 mile of any project-related Covered Activity, the Third-Party Project Proponent will establish a 0.25 mile disturbance buffer around the active nest until the young have fledged, with concurrence from the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.10d. “SWHA-4 (Swainson’s Hawk Nest Buffer Monitoring): If nesting Swainson’s hawks are present within the project footprint or within 0.25 mile of any project-related Covered Activity, then an approved biologist experienced with Swainson’s hawk behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place within the buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting Swainson’s hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones,

and protocols in the event that a Swainson's hawk flies into an active construction zone (i.e., outside the buffer zone)." (SSHCP 2018)

3.3.11 Impacts to Western Burrowing Owls

Potential Impacts. While this species was not observed during the field survey, the site occurs within SSHCP-modeled wintering habitat for the burrowing owl, and the site supports suitable habitat for the burrowing owl onsite in the form of ground squirrel burrows. Should site grading occur while a burrowing owl is inside a burrow, they may be buried in their burrow. Any actions related to site development that result in harm, injury, or mortality to burrowing owls would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures WBP-1 to WBP-7 from Chapter 5, Section 4 of the SSHCP (2018). Additionally, should the project cause the passive exclusion of burrowing owls to occur, the project shall follow Objective BO2 of Table 7-80 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on western burrowing owls. These measures are set forth below. Their implementation would reduce impacts to western burrowing owls to a less-than-significant level.

Mitigation Measure 3.3.11a. "WBO-1 (Western Burrowing Owl Surveys): Surveys within modeled habitat are required for both the breeding and non-breeding season. If the project site falls within modeled habitat, an approved biologist will survey the project site and map all burrows, noting any burrows that may be occupied. Occupied burrows are often (but not always) indicated by tracks, feathers, egg shell fragments, pellets, prey remains, and/or excrement. Surveying and mapping will be conducted by the approved biologist while walking transects throughout the entire project site plus all accessible areas within a 250-foot radius from the project site. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, and in open areas with little vegetation, they can be 50 feet apart. This methodology is consistent with current survey protocols for this species (California Burrowing Owl Consortium 1993). Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized

areas. If suitable habitat is identified during the initial survey, and if the project does not fully avoid the habitat, pre-construction surveys will be required. Burrowing owl habitat is fully avoided if project-related activities do not impinge on a 250-foot buffer established by the approved biologist around suitable burrows. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.11b. “WBO-2 (Western Burrowing Owl Pre-Construction Surveys):

Prior to any Covered Activity ground disturbance, an approved biologist will conduct pre-construction surveys in all areas that were identified as suitable habitat during the initial surveys. The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activities. To maximize the likelihood of detecting owls, the pre-construction survey will last a minimum of 3 hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total), or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two pre-construction surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped. Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the Third-Party Project Proponent must begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last-minute changes in schedule or contracting that may occur if burrowing owls are found, the Third-Party Project Proponent may also conduct a preliminary survey up to 15 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.” (SSHCP 2018)

Mitigation Measure 3.3.11c. “WBO-3 (Burrowing Owl Avoidance): If western burrowing owl or evidence of western burrowing owl is observed on the project site or within 250 feet of the project site during pre-construction surveys, then the following will occur:

During Breeding Season: If the approved biologist finds evidence of western burrowing owls within a project site during the breeding season (February 1 through August 31), all project-related activities will avoid nest sites during the remainder of the breeding season or while the nest remains occupied by adults or young (nest occupation includes individuals or family groups foraging on or

near the site following fledging). Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other project-related activities may occur outside of the 250-foot buffer zone. Construction and other project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the Third-Party Project Proponent develops an avoidance, minimization, and monitoring plan that is approved by the Implementing Entity and Wildlife Agencies prior to project construction based on the following criteria:

- The Implementing Entity and Wildlife Agencies approve of the avoidance and minimization plan provided by the project applicant.
- An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same approved biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.

If there is any change in owl nesting and foraging behavior as a result of construction activities, the approved biologist will have authority to shut down activities within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until any owls present are no longer affected by nearby construction activities, and with written concurrence from the Wildlife Agencies.

If monitoring by the approved biologist indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the non-disturbance buffer zone may be removed if approved by the Wildlife Agencies. The approved biologist will excavate the burrow in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl to prevent reoccupation after receiving approval from the Wildlife Agencies.

The Implementing Entity and Wildlife Agencies will respond to a request from the Third-Party Project Proponent to review the proposed construction monitoring plan within 21 days.

During Non-Breeding Season: During the non-breeding season (September 1 through January 31), the approved biologist will establish a minimum 250-foot non-disturbance buffer around occupied burrows. Construction activities outside of this 250-foot buffer will be allowed. Construction activities within the non-disturbance buffer will be allowed if the following criteria are met to prevent owls from abandoning over-wintering sites:

- An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same approved biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl foraging behavior as a result of construction activities, the approved biologist will have authority to shut down activities within the 250-foot buffer.
- If the owls are gone for at least 1 week, the Third-Party Project Proponent may request approval from the Implementing Entity and Wildlife Agencies that an approved biologist excavate usable burrows and install one-way exclusionary devices to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

Mitigation Measure 3.3.11d. “WBO-4 (Burrowing Owl Construction Monitoring): During construction of Covered Activities, 250-foot construction buffer zones will be established and maintained around any occupied burrow. An approved biologist will monitor the site to ensure that buffers are enforced and owls are not disturbed. The approved biologist will also train construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.” (SSHCP 2018)

Mitigation Measure 3.3.11e. “WBO-5 (Burrowing Owl Passive Relocation): Passive relocation is not allowed without the express written approval of the Wildlife Agencies. Passive owl relocation may be allowed on a case-by-case basis on project sites during the non-breeding season (September 1 through January 31) with the written approval of the Wildlife Agencies if the other measures described in this condition preclude work from continuing. Passive relocation must be done in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl. Passive relocation will only be proposed if the burrow needing to be removed or with the potential to collapse from construction activities is the result of a Covered Activity. If passive relocation is approved by the Wildlife Agencies, an approved biologist can passively exclude birds from their burrows during the non-breeding season by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure that owls have left the burrow, and

then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools only. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having materials collapse into the burrow and trap owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies over the 50-year Permit Term.” (SSHCP 2018)

Mitigation Measure 3.3.11f. “WBO-6 (Burrowing Owl Timing of Maintenance Activities): All activities adjacent to existing or planned Preserves, Preserve Setbacks, or Stream Setback areas will be seasonally timed, when safety permits, to avoid or minimize adverse effects on occupied burrows.” (SSHCP 2018)

Mitigation Measure 3.3.11g. “WBO-7 (Rodent Control): Rodent control will be allowed only in developed portions of a Covered Activity project site within western burrowing owl modeled habitat. Where rodent control is allowed, the method of rodent control will comply with the methods of rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service’s (2004) final listing rule for tiger salamander.” (SSHCP 2018)

Mitigation Measure 3.3.11h. “Objective BO2. For each western burrowing owl or western burrowing owl pair passively excluded, preserve 200 acres of modeled habitat for western burrowing owl, and establish a California ground squirrel (*Spermophilus (Otospermophilus) beecheyi*) colony, and augment with artificial burrows as appropriate (determined by TAC). Artificial burrows will be established at appropriate locations throughout the Preserve System pursuant to CDFW (CDFG 2012 guidelines) or as otherwise determined by the TAC.” (SSHCP 2018)

3.3.12 Impacts to Covered Raptor Species

Potential Impacts. The SSHCP mitigation measures for Covered Raptor Species applies to Cooper’s hawk, loggerhead shrike, northern harrier, and white-tailed kite. Breeding habitat for these species occurs onsite. The site is within SSHCP-modeled nesting-foraging and foraging habitat for the loggerhead shrike, SSHCP-modeled foraging habitat for the white-tailed kite, SSHCP-modeled foraging and nesting-foraging habitat for the northern harrier and is within 0.25 miles of SSHCP-modeled Cooper’s hawk foraging-nesting habitat. While individuals and evidence of these species’ presence were not detected during the field survey, they could occur on the site in the future. Should site grading or vegetation or tree removal occur while a covered raptor species is nesting, they may

be injured or killed. Any actions related to site development that result in harm, injury, or mortality to covered raptors would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures RAPTOR-1 to RAPTOR-4 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on raptors. These measures are set forth below. Their implementation would reduce impacts to raptors to a less-than-significant level.

Mitigation Measure 3.3.12a. “RAPTOR-1 (Raptor Surveys): If modeled habitat for a covered raptor species (Figures 3-20, 3-23, 3-24, or 3-28) is present within a Covered Activity’s project footprint or within 0.25 mile of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.12b. “RAPTOR-2 (Raptor Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present with a project footprint or within 0.25 mile of a project footprint if existing or potential nest sites are found during initial surveys and construction activities will occur during the raptor breeding season. An approved biologist will conduct pre-construction surveys within 30 days and 3 days of ground-disturbing activities within the proposed project footprint and within 0.25 mile of the proposed project footprint to determine presence of nesting covered raptor species. Preconstruction surveys will be conducted during the raptor breeding season. If a nest is present, then RAPTOR-3 and RAPTOR-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.12c. “RAPTOR-3 (Raptor Nest/Roost Buffer): If active nests are found within the project footprint or within 0.25 mile of any project-related Covered Activity, the Third-Party Project Proponent will establish a 0.25 mile temporary nest disturbance buffer around the active nest until the young have fledged.” (SSHCP 2018)

Mitigation Measure 3.3.12d. “RAPTOR-4 (Raptor Nest/Roost Buffer Monitoring): If project-related Covered Activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then an approved biologist experienced with raptor behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting raptors begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist/monitor will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a covered raptor species flies into an active construction zone (i.e., outside the buffer zone).” (SSHCP 2018)

3.3.13 Impacts to Greater Sandhill Cranes

Potential Impacts. Although nesting habitat for the greater sandhill crane is absent from the site, they may roost onsite and forage in the agricultural field during the winter months and during migration times. The site also occurs within SSHCP-modeled foraging and roosting habitat for the greater Sandhill crane. Should site grading or vegetation removal occur while a greater sandhill crane is onsite, they may be injured or killed. Any actions related to site development that result in harm, injury, or mortality to greater sandhill cranes would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures GSC-1 to GSC-5 from Chapter 5, Section 4 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on greater sandhill cranes. These measures are set forth below. Their implementation would reduce impacts to greater sandhill cranes to a less-than-significant level.

Mitigation Measure 3.3.13a. “GSC-1 (Greater Sandhill Crane Surveys): If modeled habitat for greater sandhill crane (Figure 3-22) is present within a Covered Activity’s project footprint or within 0.5 mile of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential roosting sites are present within the project footprint and adjacent areas within 0.5 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Roosting sites within the Plan Area are often associated with flooded fields, seasonal wetlands, and freshwater marsh. The Third-Party Project Proponent will map all existing or potential roosting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Roosting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.13b. “GSC-2 (Greater Sandhill Crane Pre-Construction Surveys): Pre-construction surveys will be required to determine if active roosting sites are present within a project footprint or within 0.5 mile of a project footprint if existing or potential roosting sites were found during initial surveys and construction activities will occur when wintering flocks are present within the Plan Area (September 1 through March 15). An approved biologist will conduct pre-construction surveys within 15 days of ground-disturbing activities, and within 0.5 mile of a project footprint, to determine presence of roosting greater sandhill cranes. Pre-construction surveys will be conducted September 1 through March 15, when wintering flocks are present within the Plan Area. If birds are present, then GSC-3, GSC-4, and GSC-5 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.13c. “GSC-3 (Greater Sandhill Crane Roosting Buffer): If active roosting sites are found within the project footprint or within 0.5 mile of any project-related Covered Activity, the Third-Party Project Proponent will establish a 0.5 mile temporary roosting disturbance buffer around the roosting site until the cranes have left.” (SSHCP 2018)

Mitigation Measure 3.3.13d. “GSC-4 (Greater Sandhill Crane Visual Barrier): Greater sandhill cranes have low tolerance for human disturbance, and such disturbance has caused cranes to abandon foraging and roosting sites. Repeat disturbance affects their ability to feed and store energy needed for survival. If project-related activities occur within 0.5 mile of a known roosting site as identified by surveys conducted during implementation of GSC-1 or GSC-2, a visual barrier will be constructed.” (SSHCP 2018)

Mitigation Measure 3.3.13e. “GSC-5 (Greater Sandhill Crane Roosting Buffer Monitoring): If roosting sites are found within the project footprint or within 0.50 mile of any project-related Covered Activity, an approved biologist experienced with greater sandhill crane behavior will be retained by the Third-Party Project Proponent to monitor the roosting site throughout the roosting season and to determine when the birds have left. The approved biologist will be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary disturbance buffer can only occur with the written permission of the Implementing Entity and Wildlife Agencies. If greater sandhill cranes are abandoning their roosting and/or forage sites, the approved biologist will have the authority to shut down construction activities. If roost abandonment occurs, the approved biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid harm and harassment of individuals. The approved biologist will also train construction personnel on the avoidance procedures, buffer zones, and protocols in the event that greater sandhill cranes move into an active construction zone (i.e., outside the buffer zone).” (SSHCP 2018)

3.3.14 Impacts to Tricolored Blackbirds

Potential Impacts. The site occurs within modeled foraging and nesting-foraging habitat for the tricolored blackbird, and the dense blackberry bushes along the irrigation ditch and agricultural fields may support suitable nesting habitat depending on the type of crop planted. Should site grading or vegetation removal occur while tricolored blackbirds are nesting onsite, they may be injured or killed. Any actions related to site development that result in harm, injury, or mortality to tricolored blackbirds would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures TCB-1 to TCB-5 from Chapter 5, Section 4 of the SSHCP (2018). Additionally, should the project cause the loss of any nesting

tricolored blackbird colony site, the project shall follow Objectives TB5 and TB8 of Table 7-87 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on tri-colored blackbirds. These measures are set forth below. Their implementation would reduce impacts to tri-colored blackbirds to a less-than-significant level.

Mitigation Measure 3.3.14a. “TCB-1 (Tricolored Blackbird Surveys): If modeled habitat for tricolored blackbird is present within a Covered Activity’s project footprint or within 500 feet of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential nesting or foraging sites are present within the project footprint and adjacent areas within 500 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Within the Plan Area, potential tricolor blackbird nest sites are often associated with freshwater marsh and seasonal wetlands, or in thickets of willow, blackberry, wild rose, thistle, and other thorny vegetation. Tricolored blackbirds are also known to nest in crops associated with dairy farms. Foraging habitat is associated with annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (such as large tracts of alfalfa and pastures with continuous haying schedules and recently tilled fields), cattle feedlots, and dairies. The Third-Party Project Proponent will map all existing or potential nesting or foraging sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.14b. “TCB-2 (Tricolored Blackbird Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present within a project footprint or within 500 feet of a project footprint if existing or potential nest sites were found during design surveys and construction activities will occur during the breeding season (March 1 through September 15). An approved biologist will conduct pre-construction surveys within 30 days and within 3 days of ground-disturbing activities, and within the proposed project footprint and 500 feet of the proposed project footprint to determine the presence of nesting tricolored blackbird. Pre-construction surveys will be conducted during the breeding season (March 1 through August 31).

Surveys conducted in February (to meet pre-construction survey requirements for work starting in March) must be conducted within 14 days and 3 days in advance of ground-disturbing activities. If a nest is present, then TCB-3 and TCB-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and the Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.14c. “TCB-3 (Tricolored Blackbird Nest Buffer): If active nests are found within the project footprint or within 500 feet of any project-related Covered Activity, the Third-Party Project Proponent will establish a 500-foot temporary buffer around the active nest until the young have fledged.” (SSHCP 2018)

Mitigation Measure 3.3.14d. “TCB-4 (Tricolored Blackbird Nest Buffer Monitoring): If nesting tricolored blackbirds are present within the project footprint or within 500 feet of any project-related Covered Activity, then an approved biologist experienced with tricolored blackbird behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place near the disturbance buffer. Work within the nest disturbance buffer will not be permitted. If the approved biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction will cease until the buffer size is increased to a distance necessary to result in no harm or harassment to the nesting tricolored blackbirds. If the biologist determines that the colonies are at risk, a meeting with the Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will be held to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a tricolored blackbird flies into an active construction zone (i.e., outside the buffer zone).” (SSHCP 2018)

Mitigation Measure 3.3.14e. “TCB-5 (Timing of Pesticide Use and Harvest Timing on Agricultural Preserves): On SSHCP Agricultural Preserves, pesticides (including herbicides) will not be applied from January 1 through July 15.” (SSHCP 2018)

Mitigation Measure 3.3.14f. “Objective TB5. Provide mitigation for loss of any tricolored blackbird nesting colony site that is occupied at the time of Covered Activity implementation or was recorded as an occupied nesting colony at any time since 2008. Sources for occupied nesting colonies are the CNDDDB, Tricolored Blackbird Portal, eBird, or other data sources approved by the Wildlife Agencies. Minimum mitigation is to preserve one extant unpreserved occurrence of a nesting colony prior to take of one nesting colony of tricolored blackbirds. Ensure that at least five extant tricolored blackbird colonies that were occupied in recent years are maintained and managed within the SSHCP Preserve System.” (SSHCP 2018)

Mitigation Measure 3.3.14g. “Objective TB8. For any tricolored blackbird nesting colony that is removed by a Covered Activity, re-establish and/or establish three new colonies within SSHCP Preserves. Re-established and/or established colonies can be in aquatic (freshwater marsh, seasonal wetland) or upland (annual grassland) habitat types, and must be within 0.5 mile of appropriate agricultural forage crops (especially alfalfa) or annual grasslands that provide adequate foraging opportunities.” (SSHCP 2018)

3.3.15 Impacts to Western Red Bat and other Bats

Potential Impacts. While no bats were observed during the field survey, the site supports SSHCP-modeled foraging habitat for western red bats onsite. Roosting habitat is also available onsite and along the border of the site in the form of trees with dense foliage and eucalyptus trees with peeling bark. This is suitable for western red bats and other foliage-roosting bats. No buildings exist onsite; therefore, those bat species that do not roost in trees would only occur onsite when foraging over the site. Should site grading occur while bats are roosting in trees onsite, especially when overwintering or during maternity season, they may be injured or killed. Any actions related to site development that result in harm, injury, or mortality to bats would constitute a significant adverse environmental impact.

Consistency with SSHCP. The project will follow measures BAT-1 through BAT-4 from Chapter 5, Section 4 of the SSHCP (2018). Additionally, should the project result in the loss of any nesting tricolored blackbird colony site, the project shall follow Objectives TB5 and TB8 of Table 7-87 of the SSHCP (2018).

Mitigation. The SSHCP specifies avoidance and minimization measures to avoid direct and indirect effects of Covered Activities on western red bats and other bats. These measures are set

forth below. Their implementation would reduce impacts to western red bats and other bats to a less-than-significant level.

Mitigation Measure 3.3.15a. “BAT-1 (Winter Hibernaculum Surveys): If modeled habitat (Figure 3-30) for western red bat is present within 300 feet of a Covered Activity’s project footprint, then an approved biologist will conduct a field investigation of the project footprint and adjacent areas within 300 feet of a project footprint to determine if a potential winter hibernaculum is present, and to identify and map potential hibernaculum sites. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. If potential hibernaculum sites are found, the Third-Party Project Proponent will note their locations on project designs and will design the project to avoid all areas within a 300-foot buffer around the potential hibernaculum sites. Winter hibernaculum habitat is fully avoided if project-related activities do not impinge on a 300-foot buffer established by the approved biologist around an existing or potential winter hibernaculum site. See Chapter 10 for the process to conduct and submit survey information.” (SSHCP 2018)

Mitigation Measure 3.3.15b. “BAT-2 (Winter Hibernaculum Pre-Construction Surveys): If the Third-Party Project Proponent elects not to avoid potential winter hibernaculum sites within the project footprint plus a 300-foot buffer, additional surveys are required. Prior to any ground disturbance related to Covered Activities, an approved biologist will conduct a pre-construction survey within 3 days of ground-disturbing activities within the project footprint and 300 feet of the project footprint to determine the presence of winter hibernaculum sites. Pre-construction surveys will be conducted during the winter hibernaculum season (November 1 through March 31). If a winter hibernaculum is present, then BAT-3 and BAT-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.” (SSHCP 2018)

Mitigation Measure 3.3.15c. “BAT-3 (Winter Hibernaculum Buffer): If active winter hibernaculum sites are found within the project footprint or within 300 feet of the project footprint, the Third-Party Project Proponent will establish a 300-foot temporary disturbance buffer around the active winter hibernaculum site until bats have vacated the hibernaculum and the Implementing Entity and Wildlife Agencies concur.” (SSHCP 2018)

Mitigation Measure 3.3.15d. “BAT-4 (Bat Eviction Methods): An approved biologist will determine if non-maternity and non-hibernaculum day and night roosts are present on the project site. If necessary, an approved biologist will use safe eviction methods to remove bats if direct impacts to non-maternity and non-hibernaculum day and night roosts cannot be avoided. If a winter hibernaculum site is present, Covered Activities will not occur until the hibernaculum is vacated, or, if necessary, safely evicted using methods acceptable to the Wildlife Agencies.” (SSHCP 2018)

3.3.16 Impacts to American Badgers

Potential Impacts. Although badgers were not observed during the field survey, the site’s agricultural lands support California ground squirrels, which provide a prey base for the American badger. Additionally, the site supports SSHCP-modeled habitat for American badgers onsite. Should site grading occur while a badger is inside a den, they may be buried in their den. Any actions related to site development that result in harm, injury, or mortality to badgers would constitute a significant adverse environmental impact.

Consistency with SSHCP. Although this species is a Covered Species under the SSHCP (2018), the SSHCP does not provide species-specific measures for badgers.

Mitigation. The following measures will ensure that American badgers will not be disturbed and individuals will not be harmed by construction activities. Implementation of the following measures will reduce the potential impacts to American badgers to a less-than-significant level.

Mitigation Measure 3.3.16a. Pre-construction surveys conducted for other species should also be used to determine the presence or absence of badgers in the development footprint.

Mitigation Measure 3.3.16b. If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a construction-free buffer of up to 300 feet (or distance specified by the resource agencies, i.e., CDFW) should be established around the den. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor should be present onsite during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or nest abandonment. The monitor would be necessary onsite until it is determined that young are of an independent age and construction activities would not harm individual badgers.

Mitigation Measure 3.3.16c. Once it has been determined that badgers have vacated the site, the burrows can be collapsed or excavated, and ground disturbance can proceed.

3.3.17 Potential Impacts to Riparian Habitat and Other Sensitive Natural Communities, Including Federally Protected Wetlands

Potential Impacts. The irrigation ditch along the northern portion of the site may be considered a water of the U.S. and State under the jurisdiction of the USACE, RWQCB and CDFW. It has a defined bed and bank, evidence of an Ordinary High Water mark on opposing banks, appears to be hydrologically connected to Skunk Creek, and may at one time have been a naturally occurring tributary water of that creek. The site plan indicates that detention basin will be constructed in the current location of the irrigation ditch.

Seasonal wetlands of the site may be considered jurisdictional waters of the U.S. and state by the USACE and RWQCB, respectively, although they also may be disclaimed by USACE as isolated waters due to the lack of hydrological connectivity to other waters of the U.S. The RWQCB would still take jurisdiction over these wetlands. Seasonal wetland habitat that occurs in the southern central portion of the site will be filled as a result of the project, while wetland and marsh habitat occurring in the northernmost portion of the site will be preserved.

Consistency with SSHCP. Under the SSHCP, the irrigation ditch may be classified as “Stream/Creek” land cover. As such, it may also be subject to payment of SSHCP mitigation fees and conditions for this land cover type and also require a permit under the SSHCP Aquatic Resources Program (ARP).

Any impacts to the seasonal wetlands on the site would be subject to Seasonal Wetland land cover fees and conditions under the SSHCP as well as require a permit under the SSHCP ARP.

The project will comply with the payment of mitigation fees for impacts to Stream/Creek (should the irrigation ditch be classified under this land cover type) and Seasonal Wetland land cover, as well as all condition associated with these land cover types and therefore, the project is consistent with the SSHCP.

Mitigation. To mitigate for impacts to seasonal wetland habitats and potential impacts to the irrigation ditch the project will pay the relevant SSHCP fees for Seasonal Wetland and Stream/Creek land covers as well as obtain a permit under the SSHCP ARP. Paying SSHCP fees

and complying with all SSHCP and ARP conditions related to these land cover types will reduce project impacts to a less-than-significant impact under CEQA (however, see Regulatory Issues, below).

SSHCP conditions that may apply to impacts to Stream/Creek land cover types include:

STREAM-3 (Minor Tributaries to UDA Streams): A 25-foot setback measured from the top of the bank on both sides of the stream channel will be applied to all avoided first and second order tributaries to the streams listed in Table 5-1 and Laguna Creek. Refer to Objective W6 in Chapter 7 (Table 7-1) regarding avoided first and second order tributaries. Trails are not permitted within headwater ephemeral Stream Setbacks.

STREAM-4 (Minimize Effects from Temporary Channel Re-Routing): When an Urban Development Covered Activity temporarily re-routes a stream, creek, or drainage, the re-routing will be completed in a manner that minimizes impacts to beneficial uses and habitat. The following measures will be employed to minimize disturbances that will adversely impact water quality:

- No equipment will be operated in areas of flowing or standing water.
- Construction materials and heavy equipment must be stored outside of the active flow of any waters.
- When work within waters is necessary, the entire stream flow will be diverted around the work area.
- In the event of rain, the disturbed in-water work area will be temporarily stabilized before water body flow exceeds the capacity of the diversion structure. The disturbed water body will be stabilized so that the disturbed areas will not come in contact with the flow.
- Once construction is complete, all project-introduced material (e.g., pipes, gravel, cofferdam, sandbags) must be removed, leaving the water as it was before construction. Excess materials will be disposed of at an appropriate disposal site.
- All work areas will be effectively isolated from stream flows using suitable control measures before commencement of any in-water work. The diverted stream flow will not be contaminated by construction activities. Structures for isolating the in-water work area and/or diverting the stream flow (e.g., cofferdam, geo-textile silt curtain) will not be removed until all disturbed areas are cleaned and stabilized.

- Any flow diversion used during construction will be designed in a manner to prevent pollution and minimize siltation, and will provide flows to downstream reaches. Flows will be maintained to support existing aquatic life, riparian wetlands, and habitat that may be located upstream and downstream from any temporary diversion.
- All surface waters, including ponded waters, will be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity that may result in a discharge to waters.
- If temporary surface water diversions and/or dewatering are anticipated, the Third-Party Project Proponent will develop and maintain on site a surface water diversion and/or dewatering plan. The plan(s) must be developed prior to initiation of any water diversions and will include the proposed method and duration of diversion activities. The plan(s) must be made available to Central Valley Water Board staff upon request.
- When work in a flowing stream is unavoidable and any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will be allowed at all times to pass downstream to maintain beneficial uses of waters below the dam. Construction, dewatering, and removal of temporary cofferdams will not violate the turbidity, settle-able matter, pH, temperature, or dissolved oxygen requirements of any Water Quality Control Plan.
- Any temporary dam or other artificial obstruction will only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation. Stream flow will be temporarily diverted using gravity flow through temporary culverts or pipes, or pumped around the work site with the use of hoses.
- All temporary dewatering methods will be designed to have the minimum necessary impacts to waters to isolate the immediate work area. All dewatering methods will be installed such that natural flow is maintained upstream and downstream of the diversion area. Any temporary dams and diversions will be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the diversion area. All dewatering methods will be removed immediately upon completion of diversion activities.
- A method of containment must be used below any bridge, boardwalk, and/or temporary crossing to prevent debris from falling into the waters through the entire duration of a project.

STREAM-5 (Design for Stream Channel Re-Routing, Widening, or Deepening): When an Urban Development Covered Activity alters a stream, creek, or drainage by re-routing, widening, or deepening a channel, the project design will include the following:

- The main channel of a re-routed channel will be free to migrate laterally over its active and terrace floodplain.
- Channel geometry (plan, profile, and cross-section) of the site will be appropriate for the watershed location and physical/hydrologic condition.
- Local, native materials will be used as fill material to the extent practicable.
- Bioengineering techniques will be used for construction and maintenance of bank stabilization. Bioengineered bank stabilization structures will use vegetation in combination with bank reshaping; biodegradable geotextile materials; and, in some cases, a minimal amount of rock or wood to the extent practicable to dissipate erosive energy. Third-Party Project Proponents will consult a professional engineer when considering using bioengineering techniques.
- All re-routed, widened, or deepened streams are required to establish Stream Setbacks with minimum widths required under STREAM-1, STREAM-2, or STREAM-3. All re-routed, widened, or deepened streams must re-establish/ establish and maintain native Woody Riparian land cover and/or native Grassland Riparian land cover in the entire Stream Setback.

Regulatory Permitting under the SSHCP Aquatic Resources Program (SSHCP ARP). Any filling of waters of the U.S. and State as a result of an SSHCP Covered Activity would need to apply for an Aquatic Resources Impact Permit under the SSHCP ARP (County of Sacramento et. al. 2018). Prior to applying for this permit, an Aquatic Resources Delineation would need to be prepared according to the current minimum standards of the Sacramento District USACE and State Water Quality Control Board, and verified by the USACE.

CWA Section 404 and 401 permits, and a Fish and Game Section 1600 permit, will be required from the USACE, RWQCB and CDFW, respectively, for impacts to waters under their jurisdiction. The project proponent would need to satisfy all agency mitigation requirements to compensate for aquatic impacts. (In the future, the SSHCP is looking to create a streamlined approach to regulatory permitting under the SSHCP ARP that may include a USACE Programmatic General Permit, a

RWQCB Programmatic 401 Water Quality Certification and a CDFW Section 1600 Master or Long-term Stream Alteration Agreement (LTSA).)

3.3.18 Degradation of Water Quality in Seasonal Drainages, Stock Ponds and Downstream Waters

Potential Impact. Eventual site development and construction may require grading that leaves the soil of construction zones barren of vegetation and, therefore, vulnerable to sheet, rill, or gully erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek beds, canals, and adjacent wetlands. Furthermore, urban runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. These pollutants may eventually be carried to sensitive wetland habitats used by a diversity of native wildlife species. The deposition of pollutants and sediments in sensitive riparian and wetland habitats would be considered a potentially significant adverse environmental impact. The project would comply with the City's grading requirements and requirements of the SSHCP should it be implemented prior to start of construction activity. Therefore, the project buildout would result in a less-than-significant impact to water quality.

Consistency with SSHCP. The project will comply with water quality measures and best management practices of the SSHCP.

Mitigation. No mitigation is warranted.

3.3.19 Conflict with Local Policies or Ordinances

Potential Impact. There is at least one oak tree on the site that would likely be considered a Heritage Tree by the City of Galt under their tree ordinance and this tree would be removed as a result of the project.

Consistency with SSHCP. The SSHCP does not address individual trees.

Mitigation. Prior to the removal of any trees, a tree removal permit would need to be obtained from the City of Galt, and all of the conditions of the permit would need to be complied with.

For trees to be retained, a tree preservation plan should be prepared for the project identifying all protection and mitigation measures to be taken. These measures should remain in place for the duration of construction activities at the project site.

3.3.20 Conflict with an Adopted Habitat Conservation Plan

The project would be considered a covered project under the SSHCP. As such, the project would be subject to conditions and fees of the SSHCP.

The site is within the Preserve Planning Unit 8 (PPU 8). According to the SSHCP, “PPU 8 contains documented occurrences of several Covered Species, including five occurrences of greater sandhill crane, 19 of Swainson’s hawk, and a single occurrence of western red bat; otherwise, PPU 8 does not support occurrence concentrations of any particular species (Figures 3-3 through 3-30). ...The Preserve System in PPU 8 is limited to Cropland Preserve located in the northwest of the PPU and in the south of the PPU along Dry Creek. Preservation in PPU 8 focuses on high-value Swainson’s hawk foraging habitat. This PPU also includes a greater sandhill crane roosting pond (Figure 3-22)” (SSHCP 2018).

Species with modeled habitat occurring onsite include Sanford’s arrowhead, Ricksecker’s water scavenger beetle, midvalley fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander (upland and aquatic), western spadefoot (upland and aquatic), giant gartersnake (upland), western pond turtle (upland), Ferruginous hawk (foraging), greater sandhill crane (foraging and roosting), loggerhead shrike (nesting-foraging and foraging), northern harrier (foraging and nesting-foraging), Swainson’s hawk (high value foraging habitat with nesting habitat occurring on or adjacent to the site), tricolored blackbird (foraging and nesting-foraging with known colonies nearby), burrowing owl (wintering habitat), white tailed kite (foraging), American badger, western red bat (foraging), and within 0.25 miles of Cooper’s hawk (foraging-nesting).

3.3.20.1 Fees

Development fees for the SSHCP are updated annually and are paid based on the actual impacts to each habitat type onsite. Fee calculations are described in Chapter 10 of the SSHCP. The current per-acre development fees for onsite habitats include:

- Agriculture \$16,212
- Seasonal Wetland \$138,220
- Freshwater Marsh \$139,088
- Open Water \$113,643
- Streams/Creeks (potentially) \$119,441

However, please note that these fees are subject to annual adjustment.

Alternatively, a project may dedicate land in lieu of paying development fees.

3.3.20.2 Conditions and Measures

Table 3. Application of General Species Take Avoidance and Minimization Measures to the Proposed Project from Section 5.4.2 of the SSHCP. All SSHCP conditions and AMMs are provided in Appendix A.

MEASURE	APPLIES?	DESCRIPTION
SPECIES-1 through -4.	Yes	Applies to all Covered Activities.
PLANT-1 through -2.	Yes	The project site is within modeled habitat for Sanford's arrowhead.
ORCUTT-1 through -2.	No	The project site is not within modeled habitat for Orcutt grass.
STREAM-1 through -2	No	The project will not impact any streams listed in Table 5-1 of the SSHCP
STREAM-3 through -5	Potentially	Should the project impact the irrigation ditch in the northern portion of the site and should the ditch be classified as Creek/Stream land cover, these measures may apply.
CTS-1 through -7.	Yes	The site supports several aquatic features onsite, including a marsh and seasonal wetlands, which may provide breeding habitat for the California tiger salamander. The site is within modeled upland and aquatic habitat for the California tiger salamander.
WS-1 through -7.	Yes	The site supports seasonal wetlands onsite which may be used by the western spadefoot. The site is within modeled upland and aquatic habitat for the western spadefoot.
GG-1 through -8.	Yes	The northern portion of the site supports a canal and marsh, which would be the most likely area for giant gartersnakes to occur onsite. The site is within modeled upland habitat for the giant gartersnake.
WPT-1 through -9.	Yes	The northern portion of the site supports a canal and marsh which may provide aquatic habitat for the western pond turtle, although the thick vegetation within the aquatic features reduce the suitability of these features for the western pond turtle. The site is within modeled upland habitat for the western pond turtle.
TCB-1 through -5.	Yes	The site is within modeled foraging and nesting-foraging habitat for the tricolored blackbird, and the dense blackberry bushes along the canal and agricultural fields may support suitable nesting habitat depending on the type of crop planted.
SWHA-1 through -4.	Yes	A few trees within the center of the site and some eucalyptus occurring along the borders of the site support suitable nesting habitat for the Swainson's hawk and the agricultural field supports foraging habitat. Additionally, juvenile Swainson's hawks were observed flying over the site during the 2019 site visit. The site is within modeled high-value foraging habitat with nesting habitat occurring on or adjacent to the site.
GSC-1 through -5.	Yes	Although nesting habitat for the greater sandhill crane is absent from the site, they may roost onsite and forage in the agricultural field during the winter months and during migration times. The site is within modeled foraging and roosting habitat for the greater Sandhill crane.
WBO-1 through -7.	Yes	Although burrowing owl nesting habitat is absent from the site, the site is within modeled wintering habitat for the burrowing owl.

RAPTOR-1 through -4.	Yes	The SSHCP mitigation measures for Covered Raptor Species applies to Cooper's hawk (<i>Accipiter cooperii</i>), loggerhead shrike (<i>Lanius ludovicianus</i>), northern harrier (<i>Circus cyaneus</i>), and white-tailed kite (<i>Elanus leucurus</i>). Breeding habitat for these species occurs onsite. The site is within modeled nesting-foraging and foraging habitat for the loggerhead shrike, modeled foraging habitat for the white-tailed kite, modeled foraging and nesting-foraging habitat for the northern harrier and is within 0.25 miles of Cooper's hawk foraging-nesting habitat.
BAT-1 through -4.	Yes	The site supports modeled foraging habitat onsite, however, roosting habitat is also available onsite and along the border of the site.

Mitigation. Payment of all applicable SSHCP fees and compliance with all SSHCP conditions and AMMs will ensure the project is consistent with the SSHCP.

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Appendix A. South Sacramento County Habitat Plan Conditions and Measures.
(Taken from Chapter 5 of the SSHCP)

implemented. The Land Use Authority Permittee can compel a Third-Party Project Proponent to stop working if a project is not in compliance with all SSHCP AMMs.¹⁶ Upon construction completion, the Land Use Authority Permittee will monitor and confirm that post-construction conditions are acceptable and consistent with the requirements of the SSHCP permits (e.g., revegetation, soil treatments).¹⁷ Once the constructed project has received final clearance from the Land Use Authority, it is the responsibility of the Land Use Authority to monitor continued operation of installed AMMs (e.g., swales, retention basins) and to monitor compliance with AMMs required for future operations and maintenance of the Covered Activity. The Implementing Entity may also assist with and in some instances may assume responsibility for monitoring continued operation of installed AMMs when those AMMs are part of the Preserve System, Preserve Setbacks, or Stream Setbacks.

On occasion, a local Land Use Authority Permittee may not have authority over a Covered Activity proposed by a Third-Party Project Proponent. In that event, the SSHCP Implementing Entity may develop a Participating Special Entity agreement with the Third-Party Project Proponent (see Chapter 9). As a Participating Special Entity, the Third-Party Project Proponent will incorporate and implement all applicable design and construction AMMs. The Implementing Entity will ensure that AMMs specific to that SSHCP Covered Activity are included in the project's Participating Special Entity agreement and ensure that AMMs are being implemented during construction.

As the SSHCP will be implemented over a 50-year Permit Term, the results of construction monitoring may indicate that certain AMMs are ineffective. Should the Plan Permittees wish to modify or replace an SSHCP AMM, they will follow the modification process outlined in the Adaptive Management Program (see Chapter 8).

5.4.1 General Avoidance and Minimization Measures

General AMMs are designed to avoid or minimize effects of Covered Activities on SSHCP land cover types and Covered Species.

Condition 1. Avoid and Minimize Urban Development Impacts to Watershed Hydrology and Water Quality

National Pollution Discharge Elimination System permits are issued by the Regional Water Quality Control Board to jurisdictions in the region, including the jurisdictions that are also SSHCP Land Use Authority Permittees (i.e., County of Sacramento, and Cities of Rancho

¹⁶ In a situation like this, the Local Land Use Authority Permittee will suspend one or more local permits (e.g., grading permit, building permit) until compliance with terms of all SSHCP requirements is demonstrated.

¹⁷ Post-construction monitoring by the Land Use Authority Permittee could continue for several years.

Final South Sacramento Habitat Conservation Plan

Cordova and Galt). The National Pollution Discharge Elimination System permit is issued to each of the Land Use Authority Permittees every 5 years, and is referred to as the Municipal Separate Storm Sewer System (MS4) permit. MS4 permits contain specific design measures required for all projects constructed within the region. The Stormwater Quality Design Manual for the Sacramento and South Placer Regions (Stormwater Manual) outlines planning tools and requirements to reduce urban runoff from new development and redevelopment projects within the region (Sacramento Stormwater Quality Partnership 2007). The Stormwater Manual is used as a general guidance document to aid with the selection, siting, design, operation, and long-term maintenance of stormwater quality control measures. The Stormwater Manual contains control measures intended to meet the standard of “reducing pollutants in urban runoff to the maximum extent practicable” set forth in the local agencies’ MS4 permits issued by the Central Valley Regional Water Quality Control Board. AMM LID-1 (see below) is designed to ensure compliance with MS4 requirements by requiring Third-Party Project Proponents to minimize increases of peak discharge of stormwater and to eliminate or reduce runoff of pollutants.

Development Covered Activities may adversely alter watershed hydrology and degrade water quality, which, in turn, could diminish or eliminate the conservation benefits provided by the SSHCP Preserve System. Condition 1 is designed to conserve and/or rehabilitate on-site natural creeks and streams. This condition will require the provision of BMPs and low-impact development (LID) drainage control measures to ensure that runoff from developed lands will closely mimic the pre-development hydrograph and retain most pre-development hydrologic functions. Condition 1 will accomplish the hydrograph and hydrologic objectives through application of the listed AMMs to all UDA Covered Activities that occur at the parcel, subdivision, or master plan scale.

LID-1 (Stormwater Quality): When the size of a Covered Activity project exceeds the thresholds established by the State Water Resources Control Board (SWRCB) (see the most recent Stormwater Quality Design Manual for the Sacramento and South Placer Regions, or future SWRCB-approved design manuals applicable to the Plan Area), incorporate stormwater management into site design to satisfy the requirements outlined in the most recent Stormwater Quality Design Manual for the Sacramento and South Placer Regions. Stormwater management may include groundwater recharge (LID-2) and natural site features (LID-3).

LID-2 (Groundwater Recharge): When siting SSHCP Preserves containing Riparian, Open Water, or Freshwater Marsh SSHCP land cover types, the Implementing Entity will prioritize locations that are suitable for groundwater recharge.

LID-3 (Natural Site Features): Incorporate preservation of a site’s natural aquatic features (such as creeks and streams) into project design to retain natural hydrologic patterns and to retain habitat that might be used by Covered Species.

Final South Sacramento Habitat Conservation Plan

Condition 2. Avoid and Minimize Urban Development Direct and Indirect Impacts to Existing Preserves and SSHCP Preserves

Development Covered Activities adjacent to Preserves may adversely impact species that use the Preserve, and erode or eliminate the conservation benefits provided by the Preserve. Condition 2 seeks to avoid or minimize the following Covered Activity environmental stressors that may result in direct and indirect impacts to the SSHCP Preserve System:

- Alterations to landscape hydrology from new impervious surfaces may adversely affect natural communities in the lower watershed, the ecology of a Preserve, and/or downstream aquatic resources.
- Water runoff from development or from roadways directed into Preserves may introduce harmful substances into Preserves. Unseasonal and/or additional water entering a Preserve may eliminate vernal pools and other seasonal wetlands native to the region by converting them to low-functioning perennial wetlands.
- Development adjacent to Preserves may partially to fully remove the soil's "perched aquifer" (see Chapter 3) and reduce or eliminate the micro-watersheds that support the hydrology of vernal pools within the Preserve boundary. These changes may adversely affect the existing hydrologic regime of vernal pools by changing the timing, depth, and/or duration of vernal pool saturation and/or ponding, causing long-term changes to a suite of vernal pool functions. For example, changes to water chemistry could adversely affect species habitat. Although the vernal pools remain, the environmental conditions of the pools may no longer provide habitat for vernal pool Covered Species, or provide the benefit of other wetland functions (e.g., stormwater attenuation) compared to pre-project conditions.
- Introduction or proliferation of non-native or invasive plant and wildlife species may displace native species.
- Landscaping in the interface of a development and a Vernal Pool–Grassland Preserve often includes native or non-native trees and other plant species that are not found in California grasslands and, therefore, cannot survive on the Vernal Pool–Grassland Preserve border without intensive irrigation and cultivation. In addition to adverse effects from irrigation and landscape maintenance, adult trees may become landscape barriers that inhibit species movement and may act to isolate individual Preserves from the larger SSHCP Preserve System.
- Recreational use of Preserves near developed areas may compact soils, eliminate vegetation, impair hydrologic functions, introduce weeds or invasive plant species, and disturb plants and wildlife.

Final South Sacramento Habitat Conservation Plan

- Introduction of light, noise, or vibrations may disrupt normal nocturnal and diurnal cycles of native species.

AMMs associated with Condition 2 must be applied to all UDA Covered Activities that border an existing Preserve or planned SSHCP Preserve.

EDGE-1 (Compatible Land Uses): To the maximum extent practicable, development project Covered Activities will locate compatible land uses (e.g., designated open space such as parks and ball fields, detention basins, and other land uses with less-intensive human activity) in areas immediately adjacent to existing or planned Preserve boundaries. The compatible land use will provide additional buffering of Preserves from potential indirect effects of adjacent urban development. The soil surfaces in a compatible land use area may be re-contoured provided that the soil restrictive layer remains undamaged and most of the soil profile above the restrictive layer remains intact. The Land Use Authority will determine when it is not practicable to locate a compatible land use adjacent to existing or planned Preserve boundaries.

EDGE-2 (Single-Loaded Streets): To the maximum extent practicable, the design of Urban Development Covered Activities will locate single-loaded streets adjacent to existing or planned Preserve. The Land Use Authority will determine when single-loaded streets are not practicable.

EDGE-3 (Preserve Setbacks): Urban Development Covered Activities constructed adjacent to existing or planned Preserves must establish a minimum 50-foot-wide setback outward from the boundary of any existing Preserve or planned SSHCP Preserve. This minimum 50-foot-wide setback will function as a transition between Urban Development and the Preserve, and must be managed to maintain the natural community of vegetation present in the adjacent Preserve. As much of the setback as possible should remain in the same natural habitat as the Preserve.

However, as discussed in Section 5.2.5, Covered Activities in Preserve Setbacks in the UDA, where an existing or planned Preserve is adjacent to an existing roadway (e.g., collectors, arterials, thoroughfares), the 50-foot Preserve Setback will not be required, and any bicycle or pedestrian trail will be established in the road right-of-way. In addition, where a planned roadway crosses an existing or planned Preserve, no Preserve Setback will be required, and any bicycle or pedestrian trail will be established in the road right-of-way.

EDGE-3a (Setback Recreational Trails): Trails are best suited outside of the setback; however, certain types of recreational trails or facilities (e.g., benches, trash receptacles, shade structures, fencing) that can be constructed with minimum ground disturbance and in compliance with EDGE-7 may be allowed within a Preserve Setback, as specified in Section 5.2.5, Covered Activities in Preserve Setbacks in the UDA. Preserve Setback design must locate trails on the side nearest development, away from the Preserve boundary. Trails may be permeable or semi-permeable hiking trails or paved community trails. The maximum trail width will be 16 feet total, including 2-foot-wide shoulders. Post and cable fencing, split rail, or other open fencing will be installed adjacent to recreation trails to keep pedestrians on the trail.

EDGE-3b (Setback Firebreaks): If approved by the local authorities, the Preserve Setback trail may also be used as a firebreak. In instances where a trail cannot act as a firebreak, the firebreak will be located between the trail and the Preserve boundary (see Section 5.2.7). Firebreaks allowed inside the setbacks must be created by methods that will not disturb the soil's restrictive layer, such as mowing, minor scraping of surface vegetation, or shallow tilling, to comply with EDGE-7. Firebreak width within Preserve Setbacks is the minimum width needed to comply with applicable local codes.

EDGE-3c (Setback Shade Trees and Landscaping): To prevent potential impacts from irrigation water or from accumulation of leaf litter onto the grasslands or vernal pools of a Preserve, planting of shade trees or landscaping vegetation will be limited to the area of the Preserve Setback located between the recreation trail and the adjacent urban development (i.e., away from Preserves).

- Only drought-tolerant plant species will be planted. The planting pallet used for Preserve Setback landscaping will not include invasive plant species listed in the California Invasive Plant Council's (Cal-IPC) California Invasive Plant Inventory Database or listed in the Cal-IPC California Invasive Plant Watch List (see <http://www.cal-ipc.org/paf/>). Any shade trees planted along Preserve Setback trails will be native species that are found in California grasslands and that can survive in the Vernal Pool–Grassland border without long-term irrigation or fertilization (e.g., valley oak, black oak, blue oak, oracle oak). In general, no more than 30% of any 1,000-foot-long segment of a Preserve Setback trail will have canopy cover from tree plantings (to be consistent with maximum tree densities naturally found within native California grasslands and savanna).

Final South Sacramento Habitat Conservation Plan

- Drip irrigation will be allowed for a maximum of 5 years to establish shade trees or landscape vegetation between the recreation trail and adjacent urban development. The Implementing Entity has the discretion to allow irrigation to continue past 5 years if extenuating circumstances necessitate it (e.g., during a drought) and the continuance of irrigation will not affect the Preserve. Any irrigation systems located within Preserve Setbacks will be inspected quarterly to determine if such systems are affecting soils or vegetation not part of the intended plantings. Irrigation system repairs will be completed immediately if it is determined that the irrigation system is affecting vegetation or soil moisture not part of the intended tree planting.
- If, during annual monitoring of the adjacent Preserve (see Chapter 8), adverse indirect effects (e.g., leaf litter accumulation, irrigation runoff, plant encroachment) of the Preserve Setback's planted vegetation are detected, then the SSHCP Implementing Entity, the Preserve Manager, and the entity responsible for the Preserve Setback will identify appropriate adaptive management of the Preserve Setback tree or landscape plantings in accordance with the Preserve Setback Easement (see Section 5.2.5 and Chapter 9).

EDGE-4 (Locate Stormwater Control Outside Preserves): Roads, sidewalks, and other impermeable surfaces of Urban Development Covered Activities adjacent to existing or planned Preserves will slope away from Preserves and Preserve Setbacks or intercept drainage with swales or curbs and gutters to preclude drainage from entering Preserves and Preserve Setbacks. Stormwater flows must be directed away from Preserves and Preserve Setbacks and directed into stormwater control facilities inside the development (outside Preserves and Preserve Setbacks)¹⁸ (see EDGE-6 for exception to EDGE-4 in certain SSHCP Linkage Preserves).

EDGE-5 (Stormwater Control in Preserve Setbacks): If trails are established in any Preserve Setback in compliance with EDGE-3, the trail must be sloped away from the Preserve, and rainwater leaving the trail surface must flow into an adjacent low-velocity bio-retention swale or cell to keep rainwater runoff and trail contaminants from entering the Preserve. Low-velocity bio-retention swales or cells are typically small linear features placed on one or both sides of a trail. As required by EDGE-3, trails and their adjacent bio-retention swales or cells must be located on the side of the Preserve Setback nearest development.

¹⁸ Detention basins are allowed in some Linkage Preserves consistent with the requirements of EDGE-6. At the time of SSHCP preparation, seven Linkage Preserves with drainages are planned SSHCP Preserves: L1, L2, L4, L7, L8, L9, and L10 (see Section 5.2.7 and Section 7.5). Also see project-specific measures in Section 5.5.1.

Final South Sacramento Habitat Conservation Plan

EDGE-6 (Detention Basins in Linkage Preserves): Because planned SSHCP Linkage Preserves L1, L2, L4, L7, L8, L9, and L10 (see Section 7.5) surround natural creeks or streams that must receive stormwater from planned adjacent Urban Development Covered Activities, a limited number of stormwater detention basins will be allowed on those Linkage Preserves. Detention basins within Linkage Preserves (see Section 5.2.7) will be designed and constructed with fill material to build up the perimeter of the detention basin so as not to impact the soil restrictive layer (duripan or hardpan) and function of the soil perched aquifer. Detention basins within Linkage Preserves will capture stormwater flows and runoff, and will discharge water to the stream/creek or percolate collected water to the soil perched aquifer. Detention basin structures that collect stormwater entering the basin or convey stormwater leaving the basin must be designed to avoid and minimize effects to Covered Species habitat in the Linkage Preserve.

EDGE-7 (Hardpan/Duripan Protection): To protect the soil perched aquifer and the micro-watersheds supporting existing vernal pool hydrology, activities that have the potential to cut into, disrupt, or remove the soil's restrictive layer (hardpan or duripan) will not occur within Preserves or Preserve Setbacks. However, in certain circumstances, the Covered Activities defined in Section 5.2.6, Covered Activities in Stream Setbacks in the UDA, and Section 5.2.8, Covered Activities in the Laguna Creek Wildlife Corridor of the Preserve System, may result in punctures¹⁹ or other minor disruptions of the soil hardpan or duripan if approved by the Implementing Entity and the Technical Advisory Committee according to the process described in Chapter 9 of the SSHCP. If a Covered Activity on a Preserve or Preserve Setback results in a puncture or other disruption to the soil hardpan or duripan, the puncture will be sealed using bentonite clay or other material that maintains the functionality of the soil's restrictive layer and associated perched aquifer.

EDGE-8 (Outdoor Lighting): All outdoor lighting in Urban Development Covered Activity projects will be designed to minimize light pollution into existing and planned Preserves, except where a Land Use Authority Permittee determines lighting is necessary for public safety or security. Minimization measures may include light fixture placement (e.g., as low to the ground as possible), lamp designs (e.g., shielding, low glare, or no lighting), directing light away from Preserves, or other means to avoid or minimize light pollution. The Third-Party Project Proponent will use the best information available at the time of project design to minimize effects of light pollution on target SSHCP Covered Species (e.g., western spadefoot (*Spea*

¹⁹ Punctures may include small holes that penetrate the soil hardpan or duripan such as might occur when digging or drilling holes for the installation of fence posts, sign posts, or trees.

Final South Sacramento Habitat Conservation Plan

hammondii), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*)).

EDGE-9 (Livestock Access to Preserves): Urban Development Covered Activity projects that include on-site Preserves will include in their design an adequate number of access points and facilities for delivery and pick up of grazing animals (livestock), such that these activities will not significantly alter the Preserve's habitat and are consistent with the protection of livestock and protection of adjacent public property, and include adequate public safety measures.

EDGE-10 (Prevent Invasive Species Spread): Completed Covered Activities (including roads) will be maintained in a manner that avoids the spread of invasive species into Preserve and Open Space areas. Such maintenance measures will include the following:

- To prevent the transport of non-native invasive species onto Preserves, before bringing any equipment onto an SSHCP Preserve or Preserve Setback, equipment must be cleaned of mud, dirt, and plant material. Cleaning will occur in the infested area or another appropriate location as approved by a Plan Permittee.
- Mowing rotation will start in un-infested areas and move to infested areas.
- Invasive plant prevention techniques will be incorporated into maintenance plans.
- The SSHCP Implementing Entity will survey road shoulders, ditches, and rights-of-way that border SSHCP Preserves for invasive weeds or other exotic plant species. Where roadside weed infestations have reached a critical control point, the Implementing Entity or Land Use Authority Permittee will apply the appropriate manual, mechanical, or chemical treatment.

Condition 3. Implement Construction Best Management Practices

AMMs associated with Condition 3 must be applied to all UDA Covered Activities.

BMP-1 (Construction Fencing): Orange construction fencing will be installed to ensure that ground disturbance does not extend beyond the allowed construction footprint (i.e., the limit of project construction plus equipment staging areas and access roads). Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will mark the outer boundary of any Preserve Setback or Stream Setback adjacent to or within the project site with orange construction fencing prior to ground disturbance. This fencing will remain in place until project completion, as identified by the Plan Permittee.

Final South Sacramento Habitat Conservation Plan

BMP-2 (Erosion Control): Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will install temporary control measures for sediment, stormwater, and pollutant runoff as required by the Plan Permittee to protect water quality and species habitat. Silt fencing or other appropriate sediment control device(s) will be installed downslope of any Covered Activity that disturbs soils.

Fiber rolls and seed mixtures used for erosion control will be certified as free of viable noxious weed seed. As discussed in Section 5.4.2, Covered Species Take Avoidance and Minimization Measures, erosion controls installed in or adjacent to Plan Area modeled habitat for giant gartersnake (*Thamnophis gigas*), western pond turtle (*Actinemys marmorata*), California tiger salamander (*California tiger salamander*), or western spadefoot (see Chapter 3) must be of appropriate design and materials that will not entrap the species (e.g., not contain mesh netting). Regular monitoring and maintenance of the project's erosion control measures will be conducted until project completion to ensure effective operation of erosion control measures.

BMP-3 (Equipment Storage and Fueling): Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will ensure that equipment storage and staging will occur in the development footprint only (not sited in any existing on-site Preserve, planned on-site Preserve, Preserve Setback, Stream Setback, or aquatic land cover type). Fuel storage and equipment fueling will occur away from waterways, stream channels, stream banks, and other environmentally sensitive areas within the development footprint.

However, certain equipment storage and fueling activities can be allowed on Preserves within habitat re-establishment/establishment sites (refer to Section 5.2.7) if no location outside of the site is available. If a Covered Activity results in a spill of fuel, hydraulic fluid, lubricants, or other petroleum products, the spill will be absorbed and waste disposed of in a manner to prevent pollutants from entering a waterway, Preserve, Preserve Setback, or Stream Setback.

BMP-4 (Erodible Materials): Plan Permittees and Third-Party Project Proponents implementing Covered Activities must not deposit erodible materials into waterways. Vegetation clippings, brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks. Erodible material must be disposed of such that it cannot enter a waterway, Preserve, Preserve Setback, Stream Setback, or aquatic land cover type. If water and sludge must be pumped from a subdrain or other structure, the material will be conveyed to a temporary settling basin to prevent sediment from entering a waterway.

Final South Sacramento Habitat Conservation Plan

BMP-5 (Dust Control): Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will water active construction sites regularly, if warranted, to avoid or minimize impacts from construction dust on adjacent vegetation and wildlife habitats. No surface water will be used from aquatic land covers; water will be obtained from a municipal source or existing groundwater well.

BMP-6 (Construction Lighting): Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will direct all temporary construction lighting (e.g., lighting used for security or nighttime equipment maintenance) away from adjacent natural habitats, and particularly Riparian and Wetland habitats and wildlife movement areas.

BMP-7 (Biological Monitor): If a Covered Activity includes ground disturbance within Covered Species modeled habitat, an approved biologist will be on site during the period of ground disturbance, and may need to be on site during other construction activities depending on the Covered Species affected. After ground-disturbing project activities are complete, the approved biologist will train an individual to act as the on-site construction monitor for the remainder of construction, with the concurrence of the Permitting Agencies. The on-site monitor will attend the training described in BMP-8. The approved biologist and the on-site monitor will have oversight over implementation of Avoidance and Minimization Measures, and will have the authority to stop activities if any of the requirements associated with those measures are not met. If the monitor requests that work be stopped, the Wildlife Agencies will be notified within one working day by email. The approved biologist and/or on-site monitor will record all observations of listed species on California Natural Diversity Database field sheets and submit them to the California Department of Fish and Wildlife. The approved biologist or on-site monitor will be the contact source for any employee or contractor who might inadvertently kill or injure a Covered Species or who finds a dead, injured or entrapped individual. The approved biologist and on-site monitor's names and telephone numbers will be provided to the Wildlife Agencies prior to the initiation of ground-disturbing activities. Refer to species-specific measures for details on requirements for biological monitors.

BMP-8 (Training of Construction Staff): A mandatory Worker Environmental Awareness Program will be conducted by an approved biologist for all construction workers, including contractors, prior to the commencement of construction activities. The training will include how to identify Covered Species that might enter the construction site, relevant life history information and habitats, SSHCP and

Final South Sacramento Habitat Conservation Plan

statutory requirements and the consequences of non-compliance, the boundaries of the construction area and permitted disturbance zones, litter control training (SPECIES-2), and appropriate protocols if a Covered Species is encountered. Supporting materials containing training information will be prepared and distributed by the approved biologist. When necessary, training and supporting materials will also be provided in Spanish. Upon completion of training, construction personnel will sign a form stating that they attended the training and understand all of the Avoidance and Minimization Measures. Written documentation of the training must be submitted to the Implementing Entity within 30 days of completion of the training, and the Implementing Entity will provide this information to the Wildlife Agencies.

BMP-9 (Soil Compaction): After construction is complete, all temporarily disturbed areas will be restored similar to pre-project conditions, including impacts relating to soil compaction, water infiltration capacity, and soil hydrologic characteristics.

BMP-10 (Revegetation): Plan Permittees and Third-Party Project Proponents implementing ground-disturbing Covered Activities will revegetate any cut-and-fill slopes with native or existing non-invasive, non-native plants (e.g., non-native grasses) suitable for the altered soil conditions and in compliance with EDGE-2 and EDGE-8, if applicable.

BMP-11 (Speed Limit): Project-related vehicles will observe the posted speed limits on paved roads and a 10-mile-per-hour speed limit on unpaved roads and during travel in project areas. Construction crews will be given weekly tailgate instruction to travel only on designated and marked existing, cross-country, and project-only roads.

Condition 4. Avoid and Minimize Impacts that May Result from Implementation of Covered Transportation Projects

Urban Development transportation project and Rural Transportation Project Covered Activities, including bridge projects, can affect Covered Species. AMMs included for Condition 4 seek to avoid or minimize direct and indirect impacts that may result from construction of roadways or roadway improvements. Condition 4 applies to all transportation-related Covered Activities (see Sections 5.2.1 and 5.2.3).

Plan Permittees and Third-Party Project Proponents implementing Urban Development transportation or Rural Transportation Project Covered Activities must comply with the roadway siting, design, and construction AMMs described below.

Final South Sacramento Habitat Conservation Plan

ROAD-1 (Road Project Location): Road projects will be located in the least environmentally sensitive area to avoid, to the maximum extent practicable, impacts on Covered Species, Covered Species habitat, and waters of the United States. Road project alignments will follow existing roads, road easements, and rights-of-way, or be sited in disturbed areas to minimize habitat loss and additional habitat fragmentation.

ROAD-2 (Wildlife Crossing Structures): Road projects that are Urban Development Covered Activities (see Section 5.2.1) (including the Capital Southeast Connector, see Section 5.2.1.1) or are Rural Transportation Covered Activities (see Section 5.2.3) will include an adequate number of wildlife crossing structures, as depicted in Figure 5-10. An adequate number of wildlife crossing structures within the Urban Development Area (UDA) and outside the UDA will provide for continued dispersal and movement of native wildlife throughout the SSHCP Plan Area, as required by the SSHCP Biological Goals and Objectives (see Chapter 7).

The Plan defines “wildlife crossing structure” as a physical structure specifically designed or retrofitted to facilitate undercrossing for target wildlife species. The Plan further classifies wildlife crossings as hydrologic crossings and dry crossings. Hydrologic crossings are built where there is an existing stream, creek, or intermittent drainage to maintain existing hydrologic connectivity within the Plan Area. As described below, hydrologic crossings require specialized features to be built into the crossing structure, such as elevated platforms to allow wildlife to pass under a crossing structure when it is inundated with water. Dry wildlife crossings are built where there is no hydrologic feature but where a crossing is needed to provide for overland connectivity. SSHCP wildlife crossing structures may include structures such as bridges, arches, or box and pipe culverts.

Plan Permittees expect that future wildlife movement and dispersal within the UDA will occur almost entirely within the boundaries of the future interconnected SSHCP Preserve System (see Section 7.5). Therefore, wildlife crossings are needed wherever a roadway crosses (bisects) the conceptual SSHCP Preserve System (see Figure 5-10). Wildlife crossing structures inside the UDA will be sized to accommodate movement of a highly mobile native indicator species (i.e., coyote (*Canis latrans*)). By designing UDA wildlife crossing structures to meet the movement and dispersal requirements of coyote, the Plan Permittees anticipate that the crossing structure will also accommodate most native wildlife species that currently occupy the UDA (see Chapter 3).

The Plan Permittees expect that most of the Plan Area outside of the UDA will remain as Open Space over the 50-year Permit Term (see Chapter 4). Therefore,

Final South Sacramento Habitat Conservation Plan

the Plan Permittees expect that the Rural Transportation Project Covered Activities proposed outside the UDA will have a relatively small effect on the movement and dispersal of larger or more mobile native wildlife species, including coyote. Consequently, the Plan Permittees anticipate that the design of Rural Transportation Project Covered Activities outside the UDA will need to include wildlife crossing structures primarily where the Rural Transportation Project Covered Activities occur within California tiger salamander modeled habitat (see CTS-3 and also Chapter 3, Figure 3-16).

The design and location of wildlife crossing structures both inside the UDA and outside the UDA will be determined by collaboration between the Third-Party Project Proponent, the Land Use Authority, and the Implementing Entity. Crossing design will use the best available scientific and commercial information for the target species. The design of crossing structures will be based on demonstrated effectiveness of design for the target species when such information is available, or will be designed with a high level of certainty of success based on studies of similar taxa in similar environmental settings. The proposed wildlife crossing structures designs will be reviewed and approved by the Implementing Entity prior to final design.

The Implementing Entity will develop a Wildlife Crossing Maintenance Manual to be provided to the entity responsible for maintaining the wildlife crossing. The Wildlife Crossing Maintenance Manual will identify vegetation management, clearing of obstructions, and other techniques to maintain the desired movement and hydrologic connectivity, and to avoid effects to adjacent Preserves.

All SSHCP wildlife crossing structures in the UDA will include the following design elements:

- Open-bottom bridges or arches where the roadway crosses a river or stream. Where an open-bottom bridge or arch is used, the span of the crossing will be at least 1.2 times the bankfull width of the stream and span the banks to allow for dry wildlife passage along each side of the stream and to avoid or minimize piers or footings within the stream. (Bankfull width refers to the width of a stream channel at the point where over-bank flow begins during a flood event.)
- Any wildlife crossing structure that also maintains hydrologic connectivity will be designed to maintain pre-construction water capacity, depth, and velocity. The crossing structure will not restrict or impede normal flows or flood flows, unless a primary purpose of the structure is to manage such

Final South Sacramento Habitat Conservation Plan

flow(s). Wildlife crossing structures must be designed to provide a dry passage (e.g., a platform ledge) higher than flows for a 10-year storm event to allow wildlife to pass through an inundated crossing structure.

- Wildlife crossing structures in the UDA will be designed and sized to accommodate movement of at least medium-sized mammals (e.g., coyote). The opening must be at least 3 feet high and the crossing structure must have a minimum openness ratio of at least 0.4.
- Vegetation leading up to the entrance of a crossing structure and the substrate leading into and within the crossing structure will be natural and appropriate to provide for continuity of habitat, attract the target animal species for which the crossing is designed, and facilitate use of the crossing structure.
- A wildlife crossing under six-lane roads or larger will be designed to provide ambient light and temperature in the longer crossing structures (e.g., either by providing a larger opening or a grate at the top of the structure to improve the attractiveness of the crossing to certain Covered Species and wildlife that may hesitate to cross through dark, confined structures or one with a temperature gradient (Jackson and Griffin 2000)). If a road is less than six lanes in width, these designs will be optional.
- Lighting will not be placed at or near the entrance of a wildlife crossing structure to maintain natural ambient light conditions at night and to increase chances of wildlife use. However, a Land Use Authority Permittees may allow lighting if necessary for human health or safety.

Outside the UDA, wildlife crossing structures may be required for California tiger salamander (refer to CTS-1), and could also be required for other native species.

ROAD-3 (Roadside Pesticide Use²⁰): If pesticide use is necessary along roadsides, the appropriate SSHCP Permittee will ensure that the pesticide application strictly complies with the pesticide label and all other applicable federal, state, and local authorities pertaining to the use, safety, storage, disposal, and reporting of the pesticide. Where roadside weed infestations have reached a critical control point, the Implementing Entity or a Land Use Authority Permittee will apply the appropriate manual, mechanical, or chemical treatment. In addition, the Implementing Entity or appropriate Land Use Authority Permittee will post signs along road shoulders adjacent to sensitive areas that are within the SSHCP

²⁰ Use of pesticides (including rodenticides and herbicides) is not an SSHCP Covered Activity. However, pesticide use specified in Section 5.3 is an allowed land management tool, provided the pesticide application is otherwise legal and conforms to all conditions in Section 5.4.

Final South Sacramento Habitat Conservation Plan

Preserve System (e.g., California tiger salamander breeding ponds, endemic plant populations, vertebrates that rely on insects for part of their diet). The signs will identify pesticide use restrictions or other roadside maintenance restrictions.

Condition 5. Avoid and Minimize Impacts that Result from Public Use of Low-Impact Nature Trails in Preserves

Preserves within the UDA are likely to be surrounded by urban development. As discussed in Section 5.2.7, allowing limited use of SSHCP Preserves will help to foster a sense of community ownership and will provide an opportunity to educate the community about the natural resources to be protected within the SSHCP Preserve System.

Low-impact nature trails will be designed following the AMMs outlined below.

NATURE TRAIL-1 (Nature Trail Plan): A nature trail plan must be prepared for each Preserve where a trail is allowed by the Preserve Management Plan. Nature trails will be unpaved trails that vary in width depending on terrain and existing constraints, but will never exceed 4 feet in width. Where a trail crosses a swale, wooden walkways elevated to a height no greater than 2 feet will be installed. Trail improvements may include mowing vegetation to create or maintain a trail, minor grading to remove trip hazards, and signs providing directional and educational information. Public access to land acquired for preservation will be prohibited until a trail plan can be prepared by the Implementing Entity and approved by the Permitting Agencies. A trail plan will include the following:

- Maps identifying areas that contain sensitive habitats or species occurrences.
- Maps that show the location and footprint of proposed trails.
- Methods used to control public access.
- Trail and use monitoring methods, schedules, and responsibilities.
- Trail operation and maintenance guidelines and responsibilities.
- Clear triggers for use restrictions or closure based on sensitive biological indicators (e.g., seasonal closures of some trails on the basis of activity periods of Covered Species or sensitive species).

NATURE TRAIL-2 (Nature Trail Protection of Duripan): Nature trails will be sited and constructed so as not to interfere with existing soil duripan and the perched aquifer that support the existing hydrologic regime of the Vernal Pool–Grassland, and will not interfere with existing pool hydrology. Trails within Preserves will not be paved.

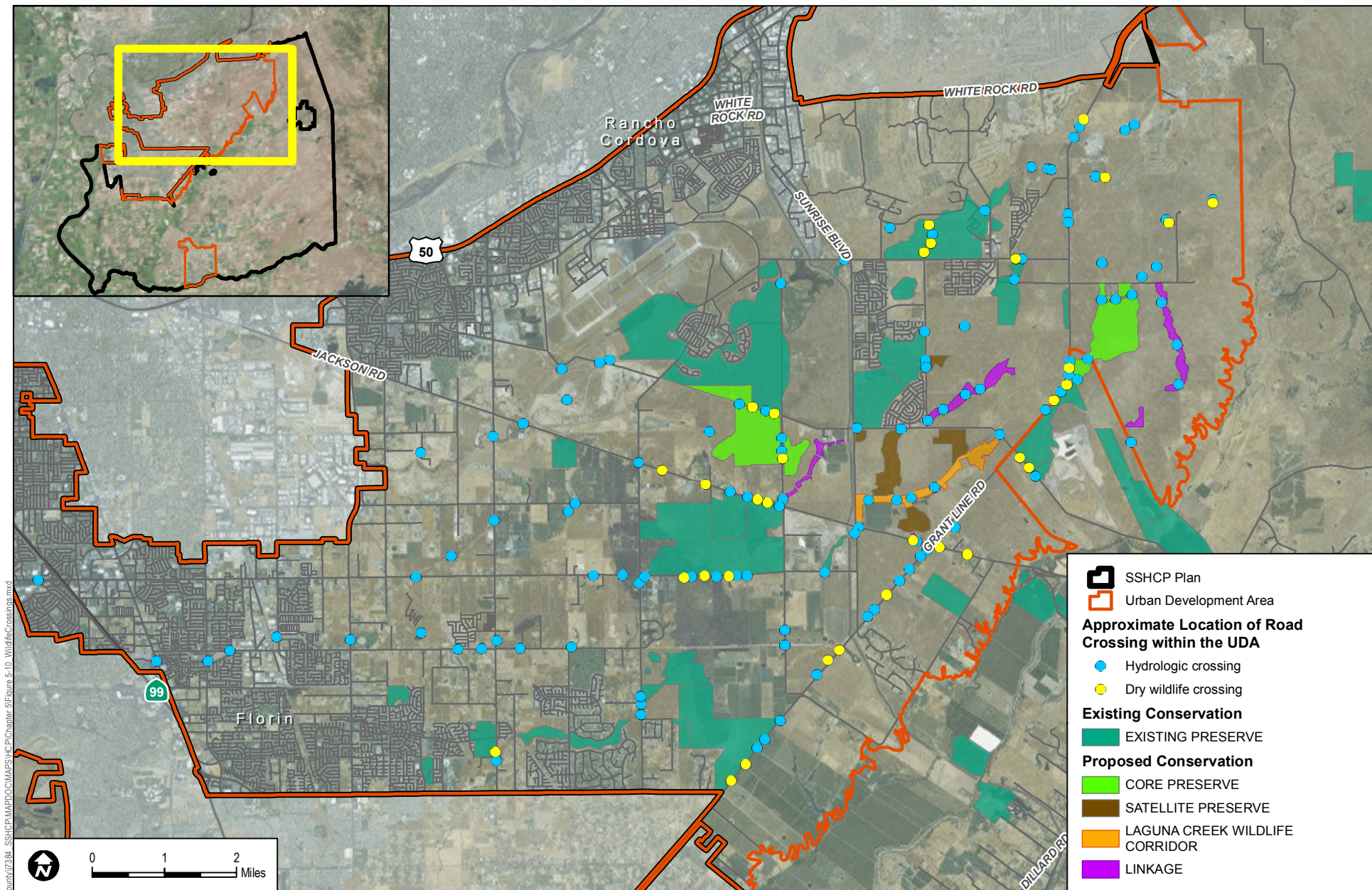


FIGURE 5-10
Wildlife Crossings

SOURCE: ESRI, County of Sacramento 2014, USFWS 2015

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Final South Sacramento Habitat Conservation Plan

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Final South Sacramento Habitat Conservation Plan

NATURE TRAIL-3 (Nature Trail Location): Nature trails will be located away from sensitive natural resources (e.g., vernal pools, riparian habitat, woodland habitat, Covered Species occurrences, raptor nesting sites, tricolored blackbird (*Agelaius tricolor*) colony sites). The Wildlife Agencies will determine the distance necessary to avoid impacts to sensitive natural resources.

NATURE TRAIL-4 (Biological Studies Prior to Nature Trail Design): Biological studies will be conducted within the area being considered for nature trail construction prior to project design. The studies will include land cover type mapping and focused species surveys and/or wetland delineations. The biological studies will include assessments of potential effects of trail construction on Preserve System resources, and recommendations for avoidance and minimization that may be incorporated into project siting, design, construction, and operation.

NATURE TRAIL-5 (Monitoring of Nature Trail Impacts): Impacts that could result from use of a nature trail within a Preserve will be monitored according to the Preserve Management Plan (Chapter 8) to ensure that uses do not conflict with the individual Preserve Management Plan. If use of a trail is found to conflict with the individual Preserve Management Plan, use of that trail will be discontinued until adjustments in the use can be made to reduce or eliminate conflicts. The Implementing Entity will make decisions about discontinuing or modifying use of a trail in consultation with the Preserve Manager or other applicable Preserve management agency or organization.

Condition 6. Avoid and Minimize Impacts When Re-Establishing or Establishing Wetlands

As discussed in Chapter 7, the Plan Permittees anticipate that 389 acres of Vernal Pool habitat will be re-established or established²¹ within the Plan Area as part of the SSHCP Conservation Strategy. Although re-establishment or establishment of vernal pools is a Measurable Objective under this Plan, if not done correctly, the action could have an adverse impact on existing vernal pools.

RE-ESTABLISHMENT/ESTABLISHMENT-1 (Vernal Pool): Re-establish or establish Vernal Pool Wetland according to the following guidelines:

- Re-establishment will always take priority over establishment of vernal pools. Establishment will be permitted only after it has been determined that sites with the potential to re-establish vernal pools no longer exist in the Plan Area or cannot be acquired through a willing seller/buyer agreement.

²¹ In the context of this Plan, “establish” is synonymous with “create.”

Final South Sacramento Habitat Conservation Plan

- When possible, re-established or established sites will be located adjacent to an existing Preserve(s) to maximize connectivity and Preserve area.
- Re-establishment or establishment will not result in direct or indirect adverse impacts to the hydrologic regime of existing vernal pools. Vernal pool re-establishment or establishment actions will not remove more than 10% of any existing vernal pool watershed, as defined by the SSHCP LIDAR analysis (see Section 3.3 and Conservation Action VPI1.2 in Table 7.1).
- Vernal pool re-establishment will attempt to restore the historical density and range of vernal pool sizes to the maximum extent feasible using historical aerial photography of the site, if available. Where aerial photography of the site's historical conditions is not available, vernal pool re-establishment will include a range of pool sizes (area and depth) to accommodate the different habitat needs and life history characteristics of the vernal pool invertebrate Covered Species.
- Established vernal pools must be located on sites with vernal pool soils, defined as any Plan Area soil type where vernal pools currently exist.
- Established vernal pool sites will include a range of pool sizes to accommodate the different habitat needs and life history characteristics of the three vernal pool invertebrate Covered Species.
- The total density of vernal pools will not exceed 10% of the suitable soil areas in any vernal pool re-establishment and/or establishment site, unless it can be shown that the suitable areas of that site historically supported greater densities.
- Re-establishment or establishment may include inoculation when it is likely that no seed or cyst bank of vernal pool species remains at a site. Vernal Pool inocula will come from nearby vernal pools that are on the same geologic formation and soil type.

RE-ESTABLISHMENT/ESTABLISHMENT-2 (Vernal Pool Inocula Bank): Vernal pool re-establishment or establishment may include “soil inoculation” when it is likely that no seed or cyst bank of vernal pool species remains at a re-establishment or establishment site.

- During conversion of Urban Development Area vernal pools to a developed land cover type, project proponents will excavate and retain soil from vernal pools following protocols developed by the SSHCP Technical Advisory Committee (Chapter 9).

Final South Sacramento Habitat Conservation Plan

- Inocula applied in re-established or established vernal pools must be harvested from a vernal pool that is on the same geologic formation and soil type shown on the County General Soil Map as the re-establishment/establishment site. Geologic formations and soil types will follow U.S. Department of Agriculture Soil Conservation Service's 1993 Soil Survey of Sacramento County, California. Proposed off-site inocula sources must be approved by the Wildlife Agencies.

RE-ESTABLISHMENT/ESTABLISHMENT-3 (Re-Establishment/Establishment of Freshwater Marsh or Open Water Near Airports): During review of proposed re-establishment/establishment projects for freshwater marsh or open water on SSHCP Preserves, the Implementing Entity shall consider the potential for the location of the re-establishment/establishment projects to increase the risk of wildlife strikes or generation of ground fog at airports. If a re-establishment/establishment project would result in (1) a net increase in open water or freshwater marsh acreage over baseline conditions²² within 5 miles of Mather Field, Sacramento Executive Airport, or Franklin Field; or (2) replacement of open water/freshwater marsh habitat that is located 2 or more miles from Mather Field or Sacramento Executive Airport with open water/freshwater marsh habitat that is located less than 2 miles from those airports, a qualified biologist shall prepare a concise letter report. The letter report shall summarize the biologist's findings regarding (1) the species likely to use the re-established/established habitat, (2) a rough order of magnitude estimate on the peak number of birds that might use the re-established/established habitat, and (3) potential movement patterns for birds using the re-established/established habitat and whether they might cross through the airport safety zones (e.g., to reach foraging habitat or another wildlife attractant). The letter report will also provide recommendations to the Implementing Entity on how they could reduce any of the identified wildlife hazards if there are any feasible means to do so that would not conflict with the biological goals and measurable objectives of the Conservation Plan.

Condition 7. Avoid and Minimize Impacts to Streams and Creeks

AMMs associated with Condition 7 must be applied to all Covered Activities where a stream or creek is located within a project footprint.

²² For purposes of establishing baseline conditions, Freshwater Marsh and Open Water acreages will be calculated using that version of the SSHCP Land Cover Type Map in existence as of the date that the SSHCP permit was issued to the Plan Permittees by the USFWS.

Final South Sacramento Habitat Conservation Plan

STREAM-1 (Laguna Creek Wildlife Corridor): A 150-foot setback measured from the top of the bank on both sides of the stream will be applied to Laguna Creek within the Urban Development Area (minimum 300-foot corridor width). If trails are located within the Laguna Creek Wildlife Corridor, the nearest edge of the trail will be located at least 80 feet from the top of the bank.

STREAM-2 (UDA Stream Setbacks): A 100-foot setback measured from the top of the bank on both sides of the stream channel will be applied to all streams listed in Table 5-1 (see also Figure 2-4). If a stream reach supports woody riparian vegetation, the setback will be equal to the riparian edge plus 25 feet or will be the setback defined above, whichever is greater. If trails are located within the Stream Setback, the nearest edge of the trail will be located at least 50 feet from the top of the bank.

Table 5-1
Stream Setback Minimum Requirements in the Urban Development Area

Stream	Minimum Setback (from the Top of Bank Measured in Aerial Perspective) on Both Sides of the Stream
Elder Creek	100 feet
Frye Creek	100 feet or as depicted as part of the NewBridge development project hardline Preserve (see Appendix K)
Gerber Creek	100 feet
Morrison Creek	100 feet
Central Paseo	100 feet or as depicted as part of the Cordova Hills development project hardline Preserve (Appendix K)
Sun Creek	100 feet or as depicted as part of the Sun Creek development project hardline Preserve (see Appendix K)

STREAM-3 (Minor Tributaries to UDA Streams): A 25-foot setback measured from the top of the bank on both sides of the stream channel will be applied to all avoided first and second order tributaries to the streams listed in Table 5-1 and Laguna Creek. Refer to Objective W6 in Chapter 7 (Table 7-1) regarding avoided first and second order tributaries. Trails are not permitted within headwater ephemeral Stream Setbacks.

STREAM-4 (Minimize Effects from Temporary Channel Re-Routing): When an Urban Development Covered Activity temporarily re-routes a stream, creek, or drainage, the re-routing will be completed in a manner that minimizes impacts to beneficial uses and habitat. The following measures will be employed to minimize disturbances that will adversely impact water quality:

- No equipment will be operated in areas of flowing or standing water.
- Construction materials and heavy equipment must be stored outside of the active flow of any waters.

Final South Sacramento Habitat Conservation Plan

- When work within waters is necessary, the entire stream flow will be diverted around the work area.
- In the event of rain, the disturbed in-water work area will be temporarily stabilized before water body flow exceeds the capacity of the diversion structure. The disturbed water body will be stabilized so that the disturbed areas will not come in contact with the flow.
- Once construction is complete, all project-introduced material (e.g., pipes, gravel, cofferdam, sandbags) must be removed, leaving the water as it was before construction. Excess materials will be disposed of at an appropriate disposal site.
- All work areas will be effectively isolated from stream flows using suitable control measures before commencement of any in-water work. The diverted stream flow will not be contaminated by construction activities. Structures for isolating the in-water work area and/or diverting the stream flow (e.g., cofferdam, geo-textile silt curtain) will not be removed until all disturbed areas are cleaned and stabilized.
- Any flow diversion used during construction will be designed in a manner to prevent pollution and minimize siltation, and will provide flows to downstream reaches. Flows will be maintained to support existing aquatic life, riparian wetlands, and habitat that may be located upstream and downstream from any temporary diversion.
- All surface waters, including ponded waters, will be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity that may result in a discharge to waters.
- All temporary dewatering methods will be designed to have the minimum necessary impacts to waters to isolate the immediate work area. All dewatering methods will be installed such that natural flow is maintained upstream and downstream of the diversion area. Any temporary dams and diversions will be installed such that the diversion does not cause sedimentation, siltation, or erosion upstream or downstream of the diversion area. All dewatering methods will be removed immediately upon completion of diversion activities.
- A method of containment must be used below any bridge, boardwalk, and/or temporary crossing to prevent debris from falling into the waters through the entire duration of a project.

Final South Sacramento Habitat Conservation Plan

- If temporary surface water diversions and/or dewatering are anticipated, the Third-Party Project Proponent will develop and maintain on site a surface water diversion and/or dewatering plan. The plan(s) must be developed prior to initiation of any water diversions and will include the proposed method and duration of diversion activities. The plan(s) must be made available to Central Valley Water Board staff upon request.
- When work in a flowing stream is unavoidable and any dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will be allowed at all times to pass downstream to maintain beneficial uses of waters below the dam. Construction, dewatering, and removal of temporary cofferdams will not violate the turbidity, settle-able matter, pH, temperature, or dissolved oxygen requirements of any Water Quality Control Plan.
- Any temporary dam or other artificial obstruction will only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation. Stream flow will be temporarily diverted using gravity flow through temporary culverts or pipes, or pumped around the work site with the use of hoses.

STREAM-5 (Design for Stream Channel Re-Routing, Widening, or Deepening): When an Urban Development Covered Activity alters a stream, creek, or drainage by re-routing, widening, or deepening a channel, the project design will include the following:

- The main channel of a re-routed channel will be free to migrate laterally over its active and terrace floodplain.
- Channel geometry (plan, profile, and cross-section) of the site will be appropriate for the watershed location and physical/hydrologic condition.
- Local, native materials will be used as fill material to the extent practicable.
- Bioengineering techniques will be used for construction and maintenance of bank stabilization. Bioengineered bank stabilization structures will use vegetation in combination with bank reshaping; biodegradable geotextile materials; and, in some cases, a minimal amount of rock or wood to the extent practicable to dissipate erosive energy. Third-Party Project Proponents will consult a professional engineer when considering using bioengineering techniques.
- All re-routed, widened, or deepened streams are required to establish Stream Setbacks with minimum widths required under STREAM-1, STREAM-2, or STREAM-3. All re-routed, widened, or deepened streams must re-establish/

Final South Sacramento Habitat Conservation Plan

establish and maintain native Woody Riparian land cover and/or native Grassland Riparian land cover in the entire Stream Setback.

Condition 8. Avoid and Minimize Impacts to Covered Species from Utility and Utility Maintenance Covered Activities

AMMs associated with Condition 8 must be applied to all Covered Activities associated with construction and maintenance of infrastructure projects.

UTILITY-1 (Avian Collision Avoidance): Installation of new, or relocation of existing, utility poles, lines, and cell towers located within the Preserve System or within 1,000 feet of a Preserve boundary will be coordinated with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. The applicant or relevant utility/service provider will install utility poles, lines, and cell towers in conformance with Avian Powerline Interaction Committee (APLIC) standards for collision-reducing techniques, as outlined in Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012), or any superseding document issued by the APLIC.

UTILITY-2 (Utility Maintenance on Preserves): Utility maintenance inside SSHCP Preserves and SSHCP Preserve Setbacks containing vernal pools will occur only when vernal pools have been dry for 30 days, except in emergency situations related to human health and safety.

UTILITY-3 (Trenchless Construction Methods): Where a pipeline or conduit crosses an existing or planned Preserve or will be located between adjacent Preserves (e.g., under a roadway that has a Preserve on both sides), trenchless construction methods will be used to minimize impacts to the existing soil profile (including impacts to a hardpan or duripan) to maintain the perched aquifer in Vernal Pool Grassland land cover type.

UTILITY-4 (Siting of Entry and Exit Location): The entry and exit locations for the trenchless construction method (see Utility-3) will be sited to avoid impacts to vernal pools and Riparian Woodland, and to avoid direct take of SSHCP Covered Species.

Condition 9. Avoid and Minimize Impacts That Might Result From Removing or Breaching Levees to Establish or Re-establish Riparian Habitat

LEVEE-1 (Preparation of Hydrologic Analysis): Prior to approving a draft Preserve Management Plan that includes (1) modifying or breaching an existing levee, or (2) would place a potential impedance to high-water event flood-flows on the water side of an existing levee (including new riparian vegetation plantings or

Final South Sacramento Habitat Conservation Plan

other new Preserve facilities), a hydrologic analysis will be conducted. The Preserve activity will only be implemented if the hydrologic analysis concludes that the activity will not result in a substantial increase in flood stage elevations or flood risk on lands outside the Preserve.

Condition 10. Avoid and Minimize Impacts That Might Result From Potential Residual Contamination of Preserves and Related Exposure of People to Such Hazardous Materials

HAZARDOUS MATERIALS-1 (Preparation of Phase I Environmental Site Assessment):

Prior to the acquisition of a preserve site or implementation of a stream or riparian restoration project, a Phase I Environmental Site Assessment shall be conducted in general accordance with the American Society for Testing and Materials Standard Practice E1527-05. The purpose of this Environmental Site Assessment is to identify, to the extent feasible pursuant to the American Society for Testing and Materials Standard, recognized environmental conditions in connection with the potential site. The term “recognized environmental condition” means the presence or likely presence of hazardous substances or petroleum products on the property under conditions that may indicate an existing release, a past release, or a material threat of release of these substances to the property. If the Phase I Environmental Site Assessment indicates the presence of a recognized environmental condition, the Implementing Entity shall consider the following options.

- Determine that the acquisition/project can proceed on the basis that the Habitat Plan goals and objectives can be met on the site even with the presence of a recognized environmental condition.
- Conduct a Phase II Environmental Site Assessment, including soil and groundwater testing, to further study the potential for contamination to limit the Implementing Entity’s management activities.
- If the results of the Phase I (or Phase II) Environmental Site Assessment indicate that the Habitat Plan goals and objectives cannot be met on the site, the Implementing Entity should not acquire the site.

HAZARDOUS MATERIALS-2 (Contingency Plan): As part of each Preserve Management Plan or site restoration plan, a Contingency Plan shall be prepared to address the actions that would be taken during construction in the event that unexpected contaminated soil or groundwater is discovered. The Contingency Plan shall include health and safety considerations, handling and disposal of wastes, reporting requirements, and emergency procedures. The Contingency Plan shall include a requirement that if evidence of contaminated materials is encountered

Final South Sacramento Habitat Conservation Plan

during construction, construction would cease immediately and applicable requirements of the Comprehensive Environmental Release Compensation and Liability Act and the California Code of Regulations Title 22 regarding the disposal of waste would be implemented.

5.4.2 Covered Species Take Avoidance and Minimization Measures

The following section describes measures to avoid or minimize effects of Covered Activities on specific SSHCP Covered Species. Species-specific AMMs include species surveys, pre-construction surveys, and construction monitoring. Most species-specific AMMs require that species surveys be conducted if Covered Species modeled habitat is within the proposed Covered Activity footprint or within a specified distance of the proposed Covered Activity. Section 3.4 provides maps and descriptions of modeled habitat for each Covered Species. The AMMs described below apply to Covered Activities when Covered Species modeled habitat or a Covered Species occurrence are at a project site. The Implementing Entity and Wildlife Agencies may update specific SSHCP AMMs over the Permit Term to provide the best and most appropriate protective measures for a Covered Species.

General Covered Species Take Avoidance and Minimization Measures

The following AMMs will apply to all Covered Activities that are required to implement Covered Species take AMMs.

SPECIES-1 (Litter Removal Program): A litter control program will be instituted for the entire project site. All workers will ensure that their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. All garbage will be removed from the project site at the end of each work day, and construction personnel will not feed or otherwise attract wildlife to the area where construction activities are taking place.

SPECIES-2 (No Pets in Construction Areas): To avoid harm and harassment of native species, workers and visitors will not bring pets onto a project site.

SPECIES-3 (Take Report): If accidental injury or death of any Covered Species occurs, workers will immediately inform the approved biologist or on-site monitor and site supervisor. The approved biologist or on-site monitor will phone the appropriate contact person at the Implementing Entity. The Implementing Entity will immediately contact the Wildlife Agencies by telephone. A memorandum will be provided to the Implementing Entity and Wildlife Agencies within 1 working day of the incident. The report will provide the date and location of the incident, number of individuals taken,

Final South Sacramento Habitat Conservation Plan

the circumstances resulting in the take, and any corrective measures taken to prevent additional take.

SPECIES-4 (Post-Construction Compliance Report): A post-construction compliance report will be submitted to the SSHCP Implementing Entity within 30 calendar days of completion of construction activities or within 30 calendar days of any break in construction activity that lasts more than 30 days. The report will detail the construction start and completion dates, any information about meeting or failing to meet species take Avoidance and Minimization Measures (AMM), effectiveness of each AMM that was applied at the project site, and any known project effects to Covered Species.

Rare Plants

PLANT-1 (Rare Plant Surveys): If a Covered Activity project site contains modeled habitat for Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), dwarf downingia (*Downingia pusilla*), Legenere (*Legenere limosa*), pincushion navarretia (*Navarretia myersii*), or Sanford's arrowhead (*Sagittaria sanfordii*), the Covered Activity project site will be surveyed for the rare plant by an approved biologist and following the California Department of Fish and Wildlife (CDFW) rare plant survey protocols (CDFG 2009) or the most recent CDFW rare plant survey protocols. An approved biologist will conduct the field surveys and will identify and map plant species occurrences according to the protocols. See Chapter 10 for the process to submit survey information to the Plan Permittee and the Permitting Agencies.

PLANT-2 (Rare Plant Protection): If a rare plant listed in AMM PLANT-1 is detected within an area proposed to be disturbed by a Covered Activity or is detected within 250 feet of the area proposed to be disturbed by a Covered Activity, the Implementing Entity will assure one unprotected occurrence of the species is protected within a SSHCP Preserve before any ground disturbance occurs at the project site.

Sacramento and Slender Orcutt Grass

Sacramento Orcutt grass (*Orcuttia viscida*) is a federally and state endangered species and is ranked by the California Native Plant Society as a California Rare Plant Rank 1B.1 species. Slender Orcutt grass (*Orcuttia tenuis*) is a federally threatened and state endangered species and is ranked by the California Native Plant Society as a California Rare Plant Rank 1B.1 species. Both Orcutt grasses are very rare, and the likelihood of finding new occurrences within the Plan Area is low. Due to their rarity, take of either of these species is not permitted under the SSHCP, with the exception of take related to Preserve management and monitoring (see Section 5.2.7, SSHCP Preserve System Covered Activities).

Final South Sacramento Habitat Conservation Plan

ORCUTT-1 (Orcutt Grass Surveys): If a Covered Activity project site is located within 1 mile of the Mather Core Recovery Area and contains the Vernal Pool land cover type, the project site will be surveyed for Sacramento and slender Orcutt grass by an approved biologist following California Department of Fish and Wildlife (CDFW) rare plant survey protocols (CDFG 2009) or most recent CDFW guidelines to determine if Sacramento and/or slender Orcutt grass is present. An approved biologist will conduct the field investigation to identify and map occurrences. See Chapter 10 for the process to conduct and submit survey information.

ORCUTT-2 (Orcutt Grass Protection): Where known or new Sacramento or slender Orcutt grass occurrences are found, they will be protected within an SSHCP Preserve that is at least 50 acres. The occurrence will be located interior to the Preserve at a distance of no less than 300 feet from the edge of the Preserve boundary. If a Third-Party Project Proponent encounters a previously undiscovered occurrence of Sacramento or slender Orcutt grass on a Covered Activity project site, the Third-Party Project Proponent will contact the Implementing Entity or Land Use Authority Permittee with authority over the project, who will coordinate with the Wildlife Agencies for written concurrence of avoidance to ensure that the project does not cause take of the species.

California Tiger Salamander

To avoid direct and indirect effects of Covered Activities on California tiger salamander (*Ambystoma californiense*), the following AMMs will be implemented.

CTS-1 (California Tiger Salamander Daily Construction Schedule): Ground-disturbing Covered Activities within California tiger salamander modeled habitat (Figure 3-16) will occur outside the breeding and dispersal season (occur after July 31 and before October 15), to the maximum extent practicable. If Covered Activities must be implemented in modeled habitat (Figure 3-16) during the breeding and dispersal season (after October 15 and before July 31), construction activities will not start until 30 minutes after sunrise and must be complete 30 minutes prior to sunset.

CTS-2 (California Tiger Salamander Exclusion Fencing): If a Covered Activity must be implemented in modeled habitat (Figure 3-16) during the breeding and dispersal season (after October 15 and before July 31), exclusion fencing will be installed around the project footprint before October 15. Temporary high-visibility construction fencing will be installed along the edge of work areas, and exclusion fencing will be installed immediately outside of the temporary high-visibility construction fencing to exclude California tiger salamanders from entering the construction area or becoming entangled in the construction fencing. Exclusion fencing will be at least 1 foot tall and be buried

Final South Sacramento Habitat Conservation Plan

at least 6 inches below the ground to prevent salamanders from going under the fencing. Fencing will remain in place until all construction activities within the construction area are complete. No project activities will occur outside the delineated project footprint. An approved biologist must inspect the exclusion fencing and project site every morning before 7:00 a.m. for integrity and for any entrapped California tiger salamanders. If a California tiger salamander is encountered, refer to CTS-5, below. (However, the Implementing Entity may, with approval of the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), determine that it is appropriate for a Covered Activity project to not implement CTS-2 for certain long and linear roadway Covered Activity projects if it appears that the exclusion fencing will likely trap individuals or cause more take of California tiger salamander than it would prevent.)

CTS-3 (California Tiger Salamander Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-16), an approved biologist experienced with California tiger salamander identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place, and will inspect the project site for California tiger salamander every morning before 7:00 a.m., or prior to construction activities. As required by BMP-8 (Training of Construction Staff), the approved biologist will also train construction personnel on the required California tiger salamander avoidance procedures, exclusion fencing, and correct protocols in the event that a California tiger salamander enters an active construction zone. If a California tiger salamander is encountered, refer to CTS-5, below.

CTS-4 (Avoid California Tiger Salamander Entrapment): If Covered Activities must be implemented in modeled habitat, all excavated steep-walled holes or trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes or trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within California tiger salamander modeled habitat will be inspected for California tiger salamanders by the approved biologist prior to being moved. If a California tiger salamander is encountered, refer to CTS-5, below.

CTS-5 (California Tiger Salamander Encounter Protocol): If a California tiger salamander is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately (California Department of Fish and Wildlife (CDFW)

Final South Sacramento Habitat Conservation Plan

and U.S. Fish and Wildlife Service (USFWS)). Construction activities will be suspended in a 100-foot radius of the animal until the animal is relocated by an approved biologist with appropriate handling permits from the Wildlife Agencies. Prior to relocation, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the salamander, within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to USFWS and CDFW immediately. Any worker who inadvertently injures or kills a California tiger salamander or who finds dead, injured, or entrapped California tiger salamander(s) must immediately report the incident to the approved biologist.

CTS-6 (Erosion Control Materials in California Tiger Salamander Habitat): If erosion control (BMP-2) is implemented within California tiger salamander modeled habitat (Figure 3-16), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that salamanders are not trapped (no monofilament). Coconut coir matting and fiber rolls with burlap are examples of acceptable erosion control materials. This limitation will be communicated to the contractor through use of special provisions included in the bid solicitation package.

CTS-7 (Rodent Control): CTS-7 only applies to projects that are within California tiger salamander modeled habitat (Figure 3-16) and on Covered Activities. Rodent control will be allowed only in developed portions of a Covered Activity project site. Where rodent control is allowed, the method of rodent control will comply with the methods of rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service's (2004) final listing rule for tiger salamander.

Western Spadefoot

To avoid direct and indirect effects of Covered Activities on western spadefoot (*Spea hammondi*), the following AMMs will be implemented.

WS-1 (Western Spadefoot Work Window): Ground-disturbing Covered Activities within western spadefoot modeled habitat (Figure 3-17) will occur outside the breeding and dispersal season (after May 15 and before October 15), to the maximum extent practicable.

WS-2 (Western Spadefoot Exclusion Fencing): If Covered Activities must be implemented in modeled habitat (Figure 3-17) after October 15 and before May 15, exclusion fencing

Final South Sacramento Habitat Conservation Plan

will be installed around the project footprint before October 15, and the project site must be monitored by an approved biologist following rain events. Temporary high-visibility construction fencing will be installed along the edge of work areas, and silt fencing will be installed immediately behind the temporary high-visibility construction fencing to exclude western spadefoot from entering the construction area. Fencing will remain in place until all construction activities within the construction area are completed. No project activities will occur outside the delineated project footprint. If a western spadefoot is encountered, refer to WS-6, below.

WS-3 (Western Spadefoot Monitoring): If Covered Activities must be implemented in modeled habitat (Figure 3-17) in the breeding and dispersal season (after October 15 and before May 15), an approved biologist experienced with western spadefoot identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place, and will inspect the project site daily for western spadefoot prior to construction activities. The approved biologist will also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western spadefoot enters an active construction zone (i.e., outside the buffer zone). If a western spadefoot is encountered, refer to WS-6, below.

WS-4 (Avoid Western Spadefoot Entrapment): If a Covered Activity occurs in western spadefoot modeled habitat (Figure 3-17), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western spadefoot modeled habitat will be inspected for western spadefoot by the approved biologist prior to being moved. If a western spadefoot is encountered, refer to WS-6, below.

WS-5 (Erosion Control Materials in Western Spadefoot Habitat): If erosion control (BMP-2) is implemented within western spadefoot modeled habitat (Figure 3-17), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that western spadefoots are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.

Final South Sacramento Habitat Conservation Plan

WS-6 (Western Spadefoot Encounter Protocol): If Covered Activities must be implemented in modeled habitat (Figure 3-17) during the breeding and dispersal season (after October 15 and before May 15), and a western spadefoot is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the western spadefoot within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife immediately. Any worker who inadvertently injures or kills a western spadefoot or who finds dead, injured, or entrapped western spadefoot(s) must immediately report the incident to the approved biologist.

Giant Gartersnake

To avoid direct and indirect effects of Covered Activities on giant gartersnake (*Thamnophis gigas*), the following AMMs will be implemented.

GG-1 (Giant Gartersnake Surveys): If the SSHCP giant gartersnake modeled habitat maps (Figure 3-18) show that modeled habitat for giant gartersnake is present within a Covered Activity's project footprint or within 300 feet of a project footprint, then an approved biologist will conduct a field investigation to delineate giant gartersnake aquatic habitat within the project footprint and adjacent areas within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-18, giant gartersnake aquatic habitat includes, but is not limited to, low-gradient streams and creeks, open water, freshwater marsh, agricultural ditches, and rice fields. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential sites and provide these maps to the Local Land Use Permittees and the Implementing Entity. Locations of delineated giant gartersnake habitat must also be noted on plans that are submitted to a Local Land Use Permittee. The applicant will use this information to finalize project design. Covered Activities may occur throughout the year as long as giant gartersnake habitat is identified and fully avoided. Otherwise, Covered Activities must comply with GG-2 through GG-8, below. See Chapter 10 for the process to conduct and submit survey information.

GG-2 (Giant Gartersnake Work Window): Covered Activities that do not fully avoid giant gartersnake modeled habitat (Figure 3-18) will be conducted during the snake's active

Final South Sacramento Habitat Conservation Plan

season. Construction and ground-disturbing activities will be initiated after May 1 and will end prior to September 15. If it appears that construction activities may go beyond September 15, the Third-Party Project Proponent or Plan Permittee will contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1. The Local Land Use Permittee and the Implementing Entity will discuss with the Wildlife Agencies additional measures necessary to minimize take.

GGGS-3 (Giant Gartersnake Monitoring): If a Covered Activity is occurring in giant gartersnake modeled habitat (Figure 3-18), an approved biologist experienced with giant gartersnake identification and behavior will monitor the project site, including the integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and will inspect the project site daily for giant gartersnake prior to construction activities. If a giant gartersnake is encountered, refer to GGS-7. The approved biologist will also train construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a giant gartersnake enters an active construction zone (i.e., outside the buffer zone).

GGGS-4 (Giant Gartersnake Habitat Dewatering and Exclusion): If construction activities will occur in giant gartersnake aquatic habitat, aquatic habitat will be dewatered and then remain dry and absent of aquatic prey (e.g., fish and tadpoles) for 15 days prior to initiation of construction activities. If complete dewatering is not possible, the Implementing Entity will be contacted to determine what additional measures may be necessary to minimize effects to giant gartersnake. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing will be erected 36 inches above ground and buried at least 6 inches below the ground to prevent snakes from attempting to move under the fence into the construction area. In addition, high-visibility fencing will be erected to identify the construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Giant gartersnake habitat outside construction fencing will be avoided by all construction personnel. The fencing and the work area will be inspected by the approved biologist to ensure that the fencing is intact and that no snakes have entered the work area before the start of each work day. The fencing will be maintained by the contractor until completion of the project. If giant gartersnake is encountered, refer to GGS-7, below.

GGGS-5 (Avoid Giant Gartersnake Entrapment): If a Covered Activity occurs in giant gartersnake modeled habitat (Figure 3-18), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or

Final South Sacramento Habitat Conservation Plan

provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within giant gartersnake modeled habitat will be inspected for giant gartersnake by the approved biologist prior to being moved. If a giant gartersnake is encountered, refer to GGS-7.

GGGS-6 (Erosion Control Materials in Giant Gartersnake Habitat): If erosion control (BMP-2) is implemented within giant gartersnake modeled habitat (Figure 3-18), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure snakes are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.

GGGS-7 (Giant Gartersnake Encounter Protocol): If a giant gartersnake is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the giant gartersnake within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service immediately. Any worker who inadvertently injures or kills a giant gartersnake or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.

GGGS-8 (Giant Gartersnake Post-Construction Restoration): After completion of ground-disturbing Covered Activities, the applicant will remove any temporary fill and construction debris and will restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation. Refer to the U.S. Fish and Wildlife Service's (USFWS) Guidelines for the Restoration and/or Replacement of Giant Gartersnake Habitat (USFWS 1997), or the most current USFWS guidelines at the time of the

Final South Sacramento Habitat Conservation Plan

activity. A photo documentation report showing pre- and post-project conditions will be submitted to the Implementing Entity 1 month after implementation of the restoration.

Western Pond Turtle

To avoid direct and indirect effects of Covered Activities on western pond turtle (*Actinemys marmorata*), the following AMMs will be implemented.

WPT-1 (Western Pond Turtle Surveys): If the SSHCP western pond turtle modeled habitat maps (Figure 3-19) show that modeled habitat for western pond turtle is present within a Covered Activity's project footprint or within 300 feet of a project footprint, then an approved biologist will conduct a field investigation to delineate western pond turtle aquatic habitat within the project footprint and within 300 feet of the project footprint. In addition to the SSHCP land cover types shown in Figure 3-19, western pond turtle aquatic habitat includes, but is not limited to, low-gradient streams and creeks, open water, freshwater marsh, and rice fields. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential sites and provide those maps to the Local Land Use Permittees and the Implementing Entity. Locations of delineated western pond turtle habitat must also be noted on plans that are submitted to a Local Land Use Permittee. The applicant will use this information to finalize project design. Covered Activities may occur throughout the year as long as western pond turtle habitat is identified and fully avoided. Otherwise, Covered Activities must comply with WPT-2 through WPT-9. See Chapter 10 for the process to conduct and submit survey information.

WPT-2 (Western Pond Turtle Work Window): Maintenance and improvements to existing structures may occur throughout the year as long as western pond turtle habitat is identified and avoided, and movement of equipment is confined to existing roads. Otherwise, construction and ground-disturbing Covered Activities must be conducted outside of western pond turtle's active season. Construction and ground-disturbing activities will be initiated after May 1 and will commence prior to September 15. If it appears that construction activities may go beyond September 15, the appropriate Plan Permittee will contact the Local Land Use Permittee and the Implementing Entity as soon as possible, but not later than September 1, to determine if additional measures are necessary to minimize take.

WPT-3 (Western Pond Turtle Monitoring): If a Covered Activity is occurring in western pond turtle modeled habitat (Figure 3-19), an approved biologist experienced with western pond turtle identification and behavior will monitor the project site, including the

Final South Sacramento Habitat Conservation Plan

integrity of any exclusion fencing. The approved biologist will be on site daily while construction-related activities are taking place in aquatic habitat or within 300 feet of aquatic habitat, and will inspect the project site daily for western pond turtle prior to construction activities. The approved biologist will also training construction personnel on the required avoidance procedures, exclusion fencing, and protocols in the event that a western pond turtle enters an active construction zone (i.e., outside the buffer zone).

WPT-4 (Western Pond Turtle Habitat Dewatering and Exclusion): If construction activities will occur in western pond turtle aquatic habitat, aquatic habitat for the turtle will be dewatered and then remain dry and absent of aquatic prey (e.g., crustaceans and other aquatic invertebrates) for 15 days prior to the initiation of construction activities. If complete dewatering is not possible, the Implementing Entity will be contacted to determine what additional measures may be necessary to minimize effects to western pond turtle. After aquatic habitat has been dewatered 15 days prior to construction activities, exclusion fencing will be installed extending a minimum of 300 feet into adjacent uplands to isolate both the aquatic and adjacent upland habitat. Exclusionary fencing will be erected 36 inches above ground and buried at least 6 inches below the ground to prevent turtles from attempting to burrow or move under the fence into the construction area. In addition, high-visibility fencing will be erected to identify construction limits and to protect adjacent habitat from encroachment of personnel and equipment. Western pond turtle habitat outside construction fencing will be avoided by all construction personnel. The fencing and work area will be inspected by the approved biologist to ensure that the fencing is intact and that no turtles have entered the work area before the start of each work day. Fencing will be maintained by the contractor until completion of the project. If, after exclusion fencing and dewatering, western pond turtles are found within the project footprint or within 300 feet of the project footprint, the Third-Party Project Proponent will discuss the next best steps with the Implementing Entity and Wildlife Agencies.

WPT-5 (Avoid Western Pond Turtle Entrapment): If a Covered Activity occurs within western pond turtle modeled habitat (Figure 3-19), all excavated steep-walled holes and trenches more than 6 inches deep will be covered with plywood (or similar material) or provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each work day or 30 minutes prior to sunset, whichever occurs first. All steep-walled holes and trenches will be inspected by the approved biologist each morning to ensure that no wildlife has become entrapped. All construction pipes, culverts, similar structures, construction equipment, and construction debris left overnight within western pond turtle modeled habitat will be inspected for western pond turtle by the approved biologist prior to being moved.

Final South Sacramento Habitat Conservation Plan

WPT-6 (Erosion Control Materials in Western Pond Turtle Habitat): If erosion control (BMP-2) is implemented within western pond turtle modeled habitat (Figure 3-19), non-entangling erosion control material will be used to reduce the potential for entrapment. Tightly woven fiber netting (mesh size less than 0.25 inch) or similar material will be used to ensure that turtles are not trapped (no monofilament). Coconut coir matting and fiber rolls containing burlap are examples of acceptable erosion control materials.

WPT-7 (Western Pond Turtle Modeled Habitat Speed Limit): Covered Activity construction and maintenance vehicles will observe a 20-mile-per-hour speed limit within western pond turtle modeled upland habitat (Figure 3-19).

WPT-8 (Western Pond Turtle Encounter Protocol): If a western pond turtle is encountered during construction activities, the approved biologist will notify the Wildlife Agencies immediately. Construction activities will be suspended in a 100-foot radius of the animal until the animal leaves the project site on its own volition. If necessary, the approved biologist will notify the Wildlife Agencies to determine the appropriate procedures related to relocation. If the animal is handled, a report will be submitted, including date(s), location(s), habitat description, and any corrective measures taken to protect the turtle, within 1 business day to the Wildlife Agencies. The biologist will report any take of listed species to the U.S. Fish and Wildlife Service immediately. Any worker who inadvertently injures or kills a western pond turtle or who finds one dead, injured, or entrapped must immediately report the incident to the approved biologist.

WPT-9 (Western Pond Turtle Post-Construction Restoration): After completion of ground-disturbing Covered Activities, the applicant will remove any temporary fill and construction debris and will restore temporarily disturbed areas to pre-project conditions. Restoration work includes such activities as re-vegetating the banks and active channels with a seed mix similar to pre-project conditions. Appropriate methods and plant species used to re-vegetate such areas will be determined on a site-specific basis in consultation with the Implementing Entity. Restoration work may include replanting emergent aquatic vegetation and placing appropriate artificial or natural basking areas in waterways and wetlands. A photo documentation report showing pre- and post-project conditions will be submitted to the Implementing Entity 1 month after implementation of the restoration.

Tricolored Blackbird

To avoid direct and indirect effects of Covered Activities on tricolored blackbird (*Agelaius tricolor*), the following AMMs will be implemented.

Final South Sacramento Habitat Conservation Plan

TCB-1 (Tricolored Blackbird Surveys): If modeled habitat for tricolored blackbird is present within a Covered Activity's project footprint or within 500 feet of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential nesting or foraging sites are present within the project footprint and adjacent areas within 500 feet of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Within the Plan Area, potential tricolor blackbird nest sites are often associated with freshwater marsh and seasonal wetlands, or in thickets of willow, blackberry, wild rose, thistle, and other thorny vegetation. Tricolored blackbirds are also known to nest in crops associated with dairy farms. Foraging habitat is associated with annual grasslands, wet and dry vernal pools and other seasonal wetlands, agricultural fields (such as large tracts of alfalfa and pastures with continuous haying schedules and recently tilled fields), cattle feedlots, and dairies. The Third-Party Project Proponent will map all existing or potential nesting or foraging sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.

TCB-2 (Tricolored Blackbird Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present within a project footprint or within 500 feet of a project footprint if existing or potential nest sites were found during design surveys and construction activities will occur during the breeding season (March 1 through September 15). An approved biologist will conduct pre-construction surveys within 30 days and within 3 days of ground-disturbing activities, and within the proposed project footprint and 500 feet of the proposed project footprint to determine the presence of nesting tricolored blackbird. Pre-construction surveys will be conducted during the breeding season (March 1 through August 31). Surveys conducted in February (to meet pre-construction survey requirements for work starting in March) must be conducted within 14 days and 3 days in advance of ground-disturbing activities. If a nest is present, then TCB-3 and TCB-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and the Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

TCB-3 (Tricolored Blackbird Nest Buffer): If active nests are found within the project footprint or within 500 feet of any project-related Covered Activity, the Third-Party Project Proponent will establish a 500-foot temporary buffer around the active nest until the young have fledged.

TCB-4 (Tricolored Blackbird Nest Buffer Monitoring): If nesting tricolored blackbirds are present within the project footprint or within 500 feet of any project-related Covered

Final South Sacramento Habitat Conservation Plan

Activity, then an approved biologist experienced with tricolored blackbird behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place near the disturbance buffer. Work within the nest disturbance buffer will not be permitted. If the approved biologist determines that tricolored blackbirds are exhibiting agitated behavior, construction will cease until the buffer size is increased to a distance necessary to result in no harm or harassment to the nesting tricolored blackbirds. If the biologist determines that the colonies are at risk, a meeting with the Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will be held to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a tricolored blackbird flies into an active construction zone (i.e., outside the buffer zone).

TCB-5 (Timing of Pesticide Use and Harvest Timing on Agricultural Preserves): On SSHCP Agricultural Preserves, pesticides (including herbicides) will not be applied from January 1 through July 15.

Swainson's Hawk

To avoid direct and indirect effects of Covered Activities on Swainson's hawk (*Buteo swainsoni*), the following AMMs will be implemented.

SWHA-1 (Swainson's Hawk Surveys): If modeled habitat for Swainson's hawk (Figure 3-25) is present within a Covered Activity's project footprint or within 0.25 mile of a project footprint, then an approved biologist will conduct a survey to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Nest sites are often associated with Riparian land cover, but also include lone trees in fields, trees along roadways, and trees around structures. Nest trees may include, but are not limited to, Fremont's cottonwood (*Populus fremontii*), oaks (*Quercus* spp.), willows (*Salix* spp.), walnuts (*Juglans* spp.), eucalyptus (*Eucalyptus* spp.), pines (*Pinus* spp.), and Deodar cedar (*Cedrus deodara*). The Third-Party Project Proponent will map all existing and potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.

Final South Sacramento Habitat Conservation Plan

SWHA-2 (Swainson's Hawk Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present within a project footprint or within 0.25 mile of a project footprint if existing or potential nest sites were found during initial surveys and construction activities will occur during the breeding season (March 1 through September 15). An approved biologist will conduct pre-construction surveys within 30 days and 3 days of ground-disturbing activities to determine presence of nesting Swainson's hawk. Pre-construction surveys will be conducted during the breeding season (March 1 through September 15). If a nest is present, then SWHA-3 and SWHA-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

SWHA-3 (Swainson's Hawk Nest Buffer): If active nests are found within the project footprint or within 0.25 mile of any project-related Covered Activity, the Third-Party Project Proponent will establish a 0.25 mile disturbance buffer around the active nest until the young have fledged, with concurrence from the Wildlife Agencies.

SWHA-4 (Swainson's Hawk Nest Buffer Monitoring): If nesting Swainson's hawks are present within the project footprint or within 0.25 mile of any project-related Covered Activity, then an approved biologist experienced with Swainson's hawk behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place within the buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting Swainson's hawks begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a Swainson's hawk flies into an active construction zone (i.e., outside the buffer zone).

Greater Sandhill Crane

To avoid direct and indirect effects of Covered Activities on greater sandhill crane (*Grus canadensis*), the following AMMs will be implemented.

Final South Sacramento Habitat Conservation Plan

GSC-1 (Greater Sandhill Crane Surveys): If modeled habitat for greater sandhill crane (Figure 3-22) is present within a Covered Activity's project footprint or within 0.5 mile of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential roosting sites are present within the project footprint and adjacent areas within 0.5 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. Roosting sites within the Plan Area are often associated with flooded fields, seasonal wetlands, and freshwater marsh. The Third-Party Project Proponent will map all existing or potential roosting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Roosting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.

GSC-2 (Greater Sandhill Crane Pre-Construction Surveys): Pre-construction surveys will be required to determine if active roosting sites are present within a project footprint or within 0.5 mile of a project footprint if existing or potential roosting sites were found during initial surveys and construction activities will occur when wintering flocks are present within the Plan Area (September 1 through March 15). An approved biologist will conduct pre-construction surveys within 15 days of ground-disturbing activities, and within 0.5 mile of a project footprint, to determine presence of roosting greater sandhill cranes. Pre-construction surveys will be conducted September 1 through March 15, when wintering flocks are present within the Plan Area. If birds are present, then GSC-3, GSC-4, and GSC-5 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

GSC-3 (Greater Sandhill Crane Roosting Buffer): If active roosting sites are found within the project footprint or within 0.5 mile of any project-related Covered Activity, the Third-Party Project Proponent will establish a 0.5 mile temporary roosting disturbance buffer around the roosting site until the cranes have left.

GSC-4 (Greater Sandhill Crane Visual Barrier): Greater sandhill cranes have low tolerance for human disturbance, and such disturbance has caused cranes to abandon foraging and roosting sites. Repeat disturbance affects their ability to feed and store energy needed for survival. If project-related activities occur within 0.5 mile of a known roosting site as identified by surveys conducted during implementation of GSC-1 or GSC-2, a visual barrier will be constructed.

GSC-5 (Greater Sandhill Crane Roosting Buffer Monitoring): If roosting sites are found within the project footprint or within 0.50 mile of any project-related Covered Activity, an

Final South Sacramento Habitat Conservation Plan

approved biologist experienced with greater sandhill crane behavior will be retained by the Third-Party Project Proponent to monitor the roosting site throughout the roosting season and to determine when the birds have left. The approved biologist will be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary disturbance buffer can only occur with the written permission of the Implementing Entity and Wildlife Agencies. If greater sandhill cranes are abandoning their roosting and/or forage sites, the approved biologist will have the authority to shut down construction activities. If roost abandonment occurs, the approved biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid harm and harassment of individuals. The approved biologist will also train construction personnel on the avoidance procedures, buffer zones, and protocols in the event that greater sandhill cranes move into an active construction zone (i.e., outside the buffer zone).

Western Burrowing Owl

To avoid direct and indirect effects of Covered Activities on western burrowing owl (*Athene cunicularia*), the following AMMs will be implemented.

WBO-1 (Western Burrowing Owl Surveys): Surveys within modeled habitat are required for both the breeding and non-breeding season. If the project site falls within modeled habitat, an approved biologist will survey the project site and map all burrows, noting any burrows that may be occupied. Occupied burrows are often (but not always) indicated by tracks, feathers, egg shell fragments, pellets, prey remains, and/or excrement. Surveying and mapping will be conducted by the approved biologist while walking transects throughout the entire project site plus all accessible areas within a 250-foot radius from the project site. The centerline of these transects will be no more than 50 feet apart and will vary in width to account for changes in terrain and vegetation that can preclude complete visual coverage of the area. For example, in hilly terrain with patches of tall grass, transects will be closer together, and in open areas with little vegetation, they can be 50 feet apart. This methodology is consistent with current survey protocols for this species (California Burrowing Owl Consortium 1993). Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. If suitable habitat is identified during the initial survey, and if the project does not fully avoid the habitat, pre-construction surveys will be required. Burrowing owl habitat is fully avoided if project-related activities do not impinge on a 250-foot buffer established by the approved biologist around suitable burrows. See Chapter 10 for the process to conduct and submit survey information.

Final South Sacramento Habitat Conservation Plan

WBO-2 (Western Burrowing Owl Pre-Construction Surveys): Prior to any Covered Activity ground disturbance, an approved biologist will conduct pre-construction surveys in all areas that were identified as suitable habitat during the initial surveys. The purpose of the pre-construction surveys is to document the presence or absence of burrowing owls on the project site, particularly in areas within 250 feet of construction activities. To maximize the likelihood of detecting owls, the pre-construction survey will last a minimum of 3 hours. The survey will begin 1 hour before sunrise and continue until 2 hours after sunrise (3 hours total), or begin 2 hours before sunset and continue until 1 hour after sunset. Additional time may be required for large project sites. A minimum of two pre-construction surveys will be conducted (if owls are detected on the first survey, a second survey is not needed). All owls observed will be counted and their location will be mapped. Surveys will conclude no more than 2 calendar days prior to construction. Therefore, the Third-Party Project Proponent must begin surveys no more than 4 days prior to construction (2 days of surveying plus up to 2 days between surveys and construction). To avoid last-minute changes in schedule or contracting that may occur if burrowing owls are found, the Third-Party Project Proponent may also conduct a preliminary survey up to 15 days before construction. This preliminary survey may count as the first of the two required surveys as long as the second survey concludes no more than 2 calendar days in advance of construction.

WBO-3 (Burrowing Owl Avoidance): If western burrowing owl or evidence of western burrowing owl is observed on the project site or within 250 feet of the project site during pre-construction surveys, then the following will occur:

During Breeding Season: If the approved biologist finds evidence of western burrowing owls within a project site during the breeding season (February 1 through August 31), all project-related activities will avoid nest sites during the remainder of the breeding season or while the nest remains occupied by adults or young (nest occupation includes individuals or family groups foraging on or near the site following fledging). Avoidance is establishment of a minimum 250-foot buffer zone around nests. Construction and other project-related activities may occur outside of the 250-foot buffer zone. Construction and other project-related activities may be allowed inside of the 250-foot non-disturbance buffer during the breeding season if the nest is not disturbed, and the Third-Party Project Proponent develops an avoidance, minimization, and monitoring plan that is approved by the Implementing Entity and Wildlife Agencies prior to project construction based on the following criteria:

- The Implementing Entity and Wildlife Agencies approve of the avoidance and minimization plan provided by the project applicant.

Final South Sacramento Habitat Conservation Plan

- An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same approved biologist monitors the owls during construction and finds no change in owl nesting and foraging behavior in response to construction activities.

If there is any change in owl nesting and foraging behavior as a result of construction activities, the approved biologist will have authority to shut down activities within the 250-foot buffer. Construction cannot resume within the 250-foot buffer until any owls present are no longer affected by nearby construction activities, and with written concurrence from the Wildlife Agencies.

If monitoring by the approved biologist indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the non-disturbance buffer zone may be removed if approved by the Wildlife Agencies. The approved biologist will excavate the burrow in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl to prevent reoccupation after receiving approval from the Wildlife Agencies.

The Implementing Entity and Wildlife Agencies will respond to a request from the Third-Party Project Proponent to review the proposed construction monitoring plan within 21 days.

During Non-Breeding Season: During the non-breeding season (September 1 through January 31), the approved biologist will establish a minimum 250-foot non-disturbance buffer around occupied burrows. Construction activities outside of this 250-foot buffer will be allowed. Construction activities within the non-disturbance buffer will be allowed if the following criteria are met to prevent owls from abandoning overwintering sites:

- An approved biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same approved biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in owl foraging behavior as a result of construction activities, the approved biologist will have authority to shut down activities within the 250-foot buffer.
- If the owls are gone for at least 1 week, the Third-Party Project Proponent may request approval from the Implementing Entity and Wildlife Agencies that an approved biologist excavate usable burrows and install one-way exclusionary

Final South Sacramento Habitat Conservation Plan

devices to prevent owls from re-occupying the site. After all usable burrows are excavated, the buffer zone will be removed and construction may continue.

Monitoring must continue as described above for the non-breeding season as long as the burrow remains active.

WBO-4 (Burrowing Owl Construction Monitoring): During construction of Covered Activities, 250-foot construction buffer zones will be established and maintained around any occupied burrow. An approved biologist will monitor the site to ensure that buffers are enforced and owls are not disturbed. The approved biologist will also train construction personnel on avoidance procedures, buffer zones, and protocols in the event that a burrowing owl flies into an active construction zone.

WBO-5 (Burrowing Owl Passive Relocation): Passive relocation is not allowed without the express written approval of the Wildlife Agencies. Passive owl relocation may be allowed on a case-by-case basis on project sites during the non-breeding season (September 1 through January 31) with the written approval of the Wildlife Agencies if the other measures described in this condition preclude work from continuing. Passive relocation must be done in accordance with the latest California Department of Fish and Wildlife guidelines for burrowing owl. Passive relocation will only be proposed if the burrow needing to be removed or with the potential to collapse from construction activities is the result of a Covered Activity. If passive relocation is approved by the Wildlife Agencies, an approved biologist can passively exclude birds from their burrows during the non-breeding season by installing one-way doors in burrow entrances. These doors will be in place for 48 hours to ensure that owls have left the burrow, and then the biologist will excavate the burrow to prevent reoccupation. Burrows will be excavated using hand tools only. During excavation, an escape route will be maintained at all times. This may include inserting an artificial structure into the burrow to avoid having materials collapse into the burrow and trap owls inside. Other methods of passive relocation, based on best available science, may be approved by the Wildlife Agencies over the 50-year Permit Term.

WBO-6 (Burrowing Owl Timing of Maintenance Activities): All activities adjacent to existing or planned Preserves, Preserve Setbacks, or Stream Setback areas will be seasonally timed, when safety permits, to avoid or minimize adverse effects on occupied burrows.

WBO-7 (Rodent Control): Rodent control will be allowed only in developed portions of a Covered Activity project site within western burrowing owl modeled habitat. Where rodent control is allowed, the method of rodent control will comply with the methods of

Final South Sacramento Habitat Conservation Plan

rodent control discussed in the 4(d) Rule published in the U.S. Fish and Wildlife Service's (2004) final listing rule for tiger salamander.

Covered Raptor Species

To avoid direct and indirect effects of Covered Activities on covered raptor species, the following AMMs will be implemented. This measure applies to Cooper's hawk (*Accipiter cooperii*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*). The following AMMs do not apply to ferruginous hawk (*Buteo regalis*), as they do not nest in the Plan Area. The following AMMs also do not apply to Swainson's hawk or burrowing owl, as specific AMMs have been developed for these covered raptor species.

RAPTOR-1 (Raptor Surveys): If modeled habitat for a covered raptor species (Figures 3-20, 3-23, 3-24, or 3-28) is present within a Covered Activity's project footprint or within 0.25 mile of a project footprint, then an approved biologist will conduct a field investigation to determine if existing or potential nesting sites are present within the project footprint and adjacent areas within 0.25 mile of the project footprint. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. The Third-Party Project Proponent will map all existing or potential nesting sites and provide these maps to the Local Land Use Permittees and Implementing Entity. Nesting sites must also be noted on plans that are submitted to a Local Land Use Permittee. See Chapter 10 for the process to conduct and submit survey information.

RAPTOR-2 (Raptor Pre-Construction Surveys): Pre-construction surveys will be required to determine if active nests are present with a project footprint or within 0.25 mile of a project footprint if existing or potential nest sites are found during initial surveys and construction activities will occur during the raptor breeding season. An approved biologist will conduct pre-construction surveys within 30 days and 3 days of ground-disturbing activities within the proposed project footprint and within 0.25 mile of the proposed project footprint to determine presence of nesting covered raptor species. Pre-construction surveys will be conducted during the raptor breeding season. If a nest is present, then RAPTOR-3 and RAPTOR-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

RAPTOR-3 (Raptor Nest/Roost Buffer): If active nests are found within the project footprint or within 0.25 mile of any project-related Covered Activity, the Third-Party Project

Final South Sacramento Habitat Conservation Plan

Proponent will establish a 0.25 mile temporary nest disturbance buffer around the active nest until the young have fledged.

RAPTOR-4 (Raptor Nest/Roost Buffer Monitoring): If project-related Covered Activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then an approved biologist experienced with raptor behavior will be retained by the Third-Party Project Proponent to monitor the nest throughout the nesting season and to determine when the young have fledged. The approved biologist will be on site daily while construction-related activities are taking place within the disturbance buffer. Work within the temporary nest disturbance buffer can occur with the written permission of the Implementing Entity and Wildlife Agencies. If nesting raptors begin to exhibit agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, the approved biologist/monitor will have the authority to shut down construction activities. If agitated behavior is exhibited, the biologist, Third-Party Project Proponent, Implementing Entity, and Wildlife Agencies will meet to determine the best course of action to avoid nest abandonment or take of individuals. The approved biologist will also train construction personnel on the required avoidance procedures, buffer zones, and protocols in the event that a covered raptor species flies into an active construction zone (i.e., outside the buffer zone).

Western Red Bat

To avoid direct and indirect effects of Covered Activities on western red bat (*Lasiurus blossevillii*), the following AMMs will be implemented.

BAT-1 (Winter Hibernaculum Surveys): If modeled habitat (Figure 3-30) for western red bat is present within 300 feet of a Covered Activity's project footprint, then an approved biologist will conduct a field investigation of the project footprint and adjacent areas within 300 feet of a project footprint to determine if a potential winter hibernaculum is present, and to identify and map potential hibernaculum sites. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas. If potential hibernaculum sites are found, the Third-Party Project Proponent will note their locations on project designs and will design the project to avoid all areas within a 300-foot buffer around the potential hibernaculum sites. Winter hibernaculum habitat is fully avoided if project-related activities do not impinge on a 300-foot buffer established by the approved biologist around an existing or potential winter hibernaculum site. See Chapter 10 for the process to conduct and submit survey information.

Final South Sacramento Habitat Conservation Plan

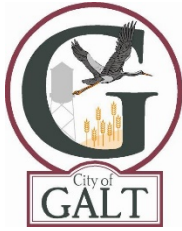
BAT-2 (Winter Hibernaculum Pre-Construction Surveys): If the Third-Party Project Proponent elects not to avoid potential winter hibernaculum sites within the project footprint plus a 300-foot buffer, additional surveys are required. Prior to any ground disturbance related to Covered Activities, an approved biologist will conduct a pre-construction survey within 3 days of ground-disturbing activities within the project footprint and 300 feet of the project footprint to determine the presence of winter hibernaculum sites. Pre-construction surveys will be conducted during the winter hibernaculum season (November 1 through March 31). If a winter hibernaculum is present, then BAT-3 and BAT-4 will be implemented. The approved biologist will inform the Land Use Authority Permittee and Implementing Entity of species locations, and they in turn will notify the Wildlife Agencies.

BAT-3 (Winter Hibernaculum Buffer): If active winter hibernaculum sites are found within the project footprint or within 300 feet of the project footprint, the Third-Party Project Proponent will establish a 300-foot temporary disturbance buffer around the active winter hibernaculum site until bats have vacated the hibernaculum and the Implementing Entity and Wildlife Agencies concur.

BAT-4 (Bat Eviction Methods): An approved biologist will determine if non-maternity and non-hibernaculum day and night roosts are present on the project site. If necessary, an approved biologist will use safe eviction methods to remove bats if direct impacts to non-maternity and non-hibernaculum day and night roosts cannot be avoided. If a winter hibernaculum site is present, Covered Activities will not occur until the hibernaculum is vacated, or, if necessary, safely evicted using methods acceptable to the Wildlife Agencies.

5.5 How Conditions on Covered Activities are Applied to Various Urban Development Permit Types Approved by the Land Use Authority Permittees

Covered Activities can be approved by Land Use Authority Permittees at different scales. For example, master plans (including specific plans, comprehensive plans, and special planning areas) generally include large areas of land, and other permit types (conditional use permits, grading permits, and building permits) can apply over a range of project footprints. The process that Land Use Authority Permittees will use to approve Covered Activities in these planning documents is described in Chapter 10. See Table 5-2 for a list of projects and activities that are considered Covered Activities.



CITY OF GALT

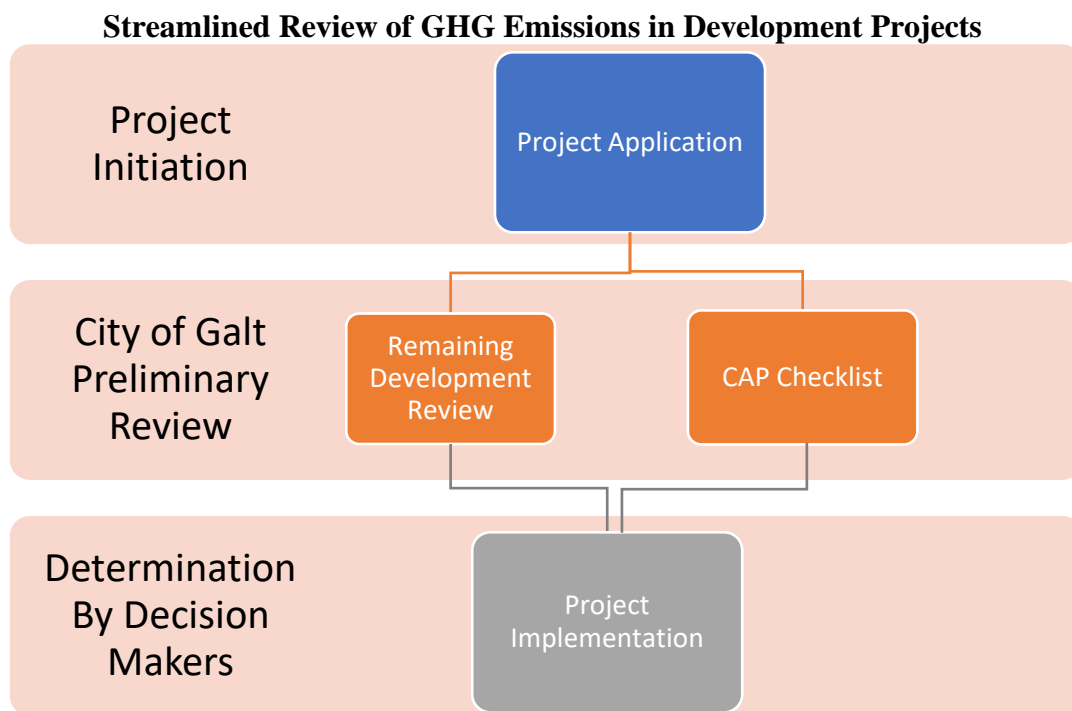
380 Civic Drive
Galt, California 95632
TELEPHONE (209) 366-7130

CLIMATE ACTION PLAN- DRAFT CONSISTENCY REVIEW CHECKLIST

The City of Galt's Climate Action Plan (CAP) establishes greenhouse gas (GHG) emission reduction targets for the City of Galt that are consistent with the State of California's. The purpose of the Draft CAP Consistency Review Checklist is to streamline the review process for new development projects which are subject to environmental review pursuant to the California Environmental Quality Act (CEQA). The Draft CAP Consistency Review Checklist will help the City and developers establish a project's compliance with the CAP and CEQA guidelines.

CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of a project, and avoid or mitigate those impacts if feasible. The City of Galt's CAP qualifies under section 15183.5 of the CEQA Guidelines as a plan to reduce GHG emissions that may be used to analyze and mitigate significant impacts of the proposed project.

The diagram below shows the review process a project would follow under the checklist.



CLIMATE ACTION PLAN- DRAFT CONSISTENCY REVIEW CHECKLIST

Application Submittal Requirements

1. The CAP Consistency Review Checklist is required for all proposed new development.
2. The CAP Consistency Review Checklist must be submitted in addition to the basic set of requirements for project proposal.
3. All items listed to show that proposed project meets the requirements of the Checklist should also be listed in project description and shown on the submitted plans.

Application Information

Name of Applicant: Sheldon Business Park LTD

Address: 8940 Elder Creek Road, Sacramento, CA 95829

Phone: (916) 705-4451 E-mail: _____

Address of Property: Twin Cities Road, Between Waldo Road and Hauschildt Road Galt, CA 95632

APN of Property: 148-1100-006

Applicant is owner of subject property: ☒ Yes ☐ No. If no, complete the following information and attach a letter of agency.

Name of Owner: _____

Address: _____

Phone: _____ E-mail: _____

Section 1- Sustainability Checklist Requirements

Instructions for answering the following questions can be found on page 10

Checklist Item (Check the appropriate box, and provide explanation for your answer)	Yes	No	N/A
1. Does the project include bicycle, pedestrian, and/or transit infrastructure? (Transportation Measure 1 & 2)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>Pedestrian access would be provided by two access points. One would be a pedestrian gate located alongside the vehicle entrance point, and another would be a pedestrian only access gate to the west of the vehicle entrance. An eight-foot-wide sidewalk would be constructed on each side of the internal private streets for circulation throughout the development. Additionally, a future six-foot bike lane is proposed on the north side of Twin Cities Road, and the proposed project would include connection to the bike lane at the project driveway. Furthermore, increased connectivity to the nearby neighborhoods would allow future residents access to the existing pedestrian, bicycle, and transit facilities available within the City of Galt. The Commuter Express is a form of public transportation which operates within South Sacramento County. The Commuter express includes two bus stop locations within the City of Galt; one stop located at City Hall, and another stop located at the Twin Cities Road Park and Ride. Additionally, the Highway 99 Express makes scheduled stops throughout the County, including one located in the City of Galt at City Hall. Access to multiple forms of public transportation would ultimately encourage residents to use alternative means of transportation to and from the project site. Furthermore, the proposed bus turnout at the project site frontage could be used to expand bus routes in the future.</p>			
2. Are at least 50 percent of all proposed roadways and intersections within the project site designed with traffic calming and congestion management measures? (Transportation Measure 7)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>Refer to Mitigation Measure III-1 of the Initial Study, which includes the required traffic calming measures.</p>			
3. Does the project include Electric Vehicle charging infrastructure and parking spaces as require by State or City standards? (Transportation Measure 5)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>Section 4.1106.4 of the 2019 CALGreen Code requires new residential developments to have EV charging-compatible electrical infrastructure. The proposed project would be required to comply with all parts of the CBSC, including the CALGreen Code, and, thus, the project would include EV charging infrastructure.</p>			

Checklist Item (Check the appropriate box, and provide explanation for your answer)	Yes	No	N/A
4. If the project is located within a designated safe route to school, does the project include infrastructure supporting alternative transportation to school? Such infrastructure may include bicycle infrastructure (i.e. bicycle parking, bicycle lanes, bicycle paths) sidewalks, raised or signalized cross-walks, or areas for school busses to stop. (Transportation Measure 3)			X
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>The project site is not currently within Galt City limits. However, the project would include bicycle and pedestrian infrastructure, which would ultimately encourage alternative transportation for school trips, including trips to the nearby Liberty Ranch High School and Estrellita High School.</p>			
5. If the project includes construction activity, will a sufficient proportion of project equipment meet the City’s mobile source emissions reductions requirements? Please refer to directions attached to this checklist to determine the mobile source emissions reduction requirements for your project. (Transportation Measure 9)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>The City’s timeline for implementation of Tier 4 engines requires that 10 percent of construction fleets operating within the City in the year 2025 meet the U.S. EPA’s Tier 4 standard. Because project construction would be completed prior to the year 2025, the proposed project would most likely satisfy this requirement. However, the possibility exists for construction to be extended or delayed for various reasons. As such, please refer to Mitigation Measure VIII-3 of the Initial Study, which requires construction equipment to meet the City’s mobile source emissions reductions requirements, should construction activities occur during 2025.</p>			
6. Does the project meet the City or State requirements for zero net energy (ZNE) structures and on-site renewable energy generation? (Building Efficiency Measure 2)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>In compliance with the 2019 CBSC, all new residential developments must include solar panels and produce all electricity on-site. Therefore, because electricity would be produced on-site, the proposed project would meet the State requirements for zero net energy structures and on-site renewable energy generation.</p>			

Checklist Item (Check the appropriate box, and provide explanation for your answer)	Yes	No	N/A
7. If the project includes the use of large amounts of high global warming potential gases (e.g. refrigerants, aerosol products such as paint, spray foam insulation, etc.) has the project been designed to minimize or offset the release of such gases? (Building Efficiency Measure 3)			X
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>The use of such products is not typical for residential land uses. While the proposed project could include the use of paint or aerosol products during construction, construction activities would be temporary in nature. Additionally, the project could include the use of such products during operation; however, the products would be used in small quantities and in compliance with the label instructions.</p>			
8. Does the project include provision of adequate recycling and green waste facilities? (Waste Measure 1 & 2)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>The City of Galt has a comprehensive recycling program which provides single-family residences with a standard 64-gallon co-mingled recycling cart and a 64-gallon yard waste cart at no cost. Additional recycling and yard waste carts are also available to residents if needed. As such, the proposed project would provide adequate recycling and green waste facilities to residents of the development.</p>			
9. Does the project include urban tree planting in compliance with the City’s requirements? (Land Use Measure 3)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>The project applicant has submitted a conceptual landscape plan that complies with the requirements within Chapter 18.52.040, Landscape Development Standards, of the Galt Municipal Code. As noted therein, at least 25 percent of the trees planted must be 24-inch box trees. Additionally, at least 75 percent of the shrubs planted must be five gallons. As indicated on the landscape plan, the proposed project would include the planting of 24-inch box trees, five-gallon shrubs, and five-gallon ground covers. As such, the proposed project would include urban tree planting in compliance with the City’s requirements.</p>			

Checklist Item (Check the appropriate box, and provide explanation for your answer)	Yes	No	N/A
10. Does the project include the provision of outdoor electrical outlets or infrastructure to support all electric landscaping equipment? Furthermore, if the project would include loading docks, does the project include electrical infrastructure sufficient to provide power to any transportation refrigeration units that may be used as part of project operations? (Transportation Measure 9)	X		
<p>Please explain how proposed project meets this requirement, or how it does not. If “not applicable,” please explain why.</p> <p>Refer to Mitigation Measure VIII-2 of the Initial Study, which requires all project plans to include and note the location of outdoor electrical outlets sufficient to power electrical landscaping equipment.</p>			

Section 2- Sustainable Design Options

In addition to the foregoing questions, new development shall also meet at least two of the following requirements:

- ☐ Does the project include reuse or redevelopment of an existing building or previously developed parcel?
- ☐ Does the project constitute an infill project?
Projects considered infill must be located in an urban area on a site that has either been previously developed or adjoins existing development on at least 75 percent of the site's perimeter.
- ☐ Does the project include a mix of land uses?
A mix of land uses includes any combination of at least two of the following: residential, commercial, institutional (e.g., elementary school, middle school, etc.), public park, or industrial. Uses may be mixed vertically or horizontally.
- ☒ Does the project include sustainable design practices (e.g. south facing windows, sustainable or local building materials, water efficient landscaping, natural ventilation, etc.)?
- ☐ Does the project include permanent protection of high-quality farmland through the use of conservation easements, or rezoning or general plan amendments to remove low-density residential development as a potential use of the farmland to be conserved?
- ☒ Does the project include the use of all electric appliances, or otherwise reduce the amount of natural gas consumed on-site (e.g. by installing electric or solar powered water heating systems)?
- ☐ Will the project participate in a Transportation Management Association established by the City or other agencies, which encompass the City?
- ☐ Does the project include the purchase of carbon off-set credits or implementation of a carbon sequestration program sufficient to off-set 15 percent or more of the project's anticipated greenhouse gas emissions?
- ☐ Does the project exceed the on-site renewable energy standards required by the applicable California Building Standards Code?

Certification

I hereby certify that the answers to the questions above and the information in the attached exhibits present the data and information required for this initial evaluation to the best of my ability and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Signature: _____ Date: _____

Directions for filling out the Draft CAP Consistency Review Checklist

Question 1: Does the project include bicycle, pedestrian, and/or transit infrastructure?

Explanation: The applicant must demonstrate how the proposed project would support alternative means of transportation through the incorporation of bicycle, pedestrian and/or transit infrastructure. Examples of bicycle infrastructure include bicycle lanes on new/existing roads, designated bicycle/pedestrian paths, construction of sidewalks along the project frontage that connect to pedestrian features within the project site or to existing or planned off-site pedestrian infrastructure, installation of bicycle parking spots, provision of space for bus turnouts or transit shelters. Some pieces of infrastructure complying with this question may also satisfy the requirements of Question 2 of this document, such as intersection bulb outs, raised cross-walks, rumble strips, and chicanes may also support alternative transportation by calming traffic speeds.

Question 2: Are at least 50 percent of all proposed roadways and intersections designed with traffic calming and congestion management measures?

Explanation: At least 50 percent of the proposed roadway segments and/or intersections shall be designed with traffic calming or congestion management measures. Such measures may include intersection bulb outs, raised cross-walks, rumble strips, chicanes, roundabouts, and one-way roads. Should the City's Public Works Department determine that incorporation of such measures infeasible at a proposed development, the City's Public Works Department, or other qualified City entity, shall prepare a written statement explaining why such measures would not be feasible, and the statement shall be appended to this checklist.

Question 3: Does the project include Electric Vehicle charging infrastructure and parking spaces as required by State or City standards?

Explanation: The project shall provide for Electric Vehicle charging stations and preferential parking areas for such vehicles in compliance with City and State requirements. Electric Vehicle charging must be fully installed and operational prior to occupancy of proposed structures.

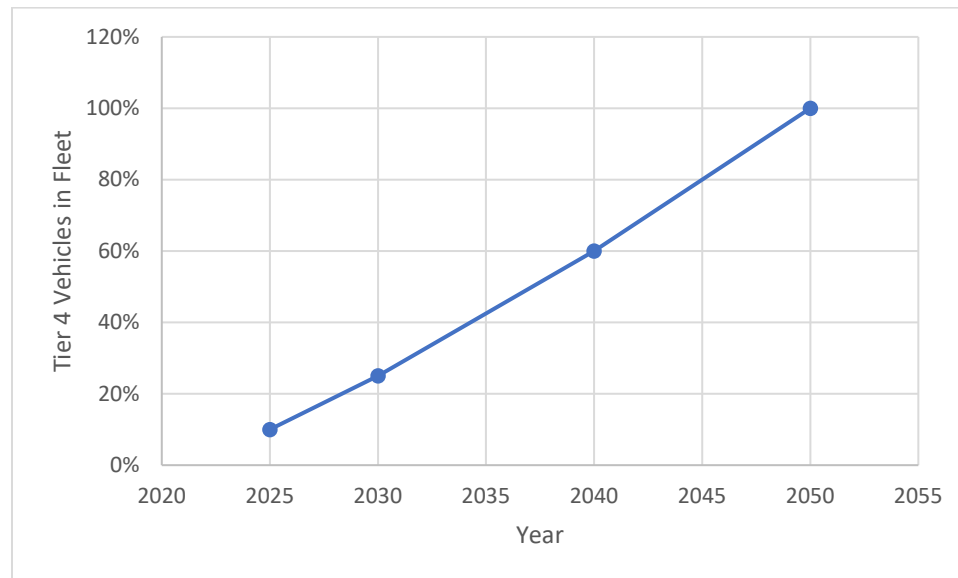
Question 4: If the project is located within a designated safe route to school, does the project include infrastructure supporting alternative transportation to school? Such infrastructure may include bicycle infrastructure (i.e. bicycle parking, bicycle lanes, bicycle paths) sidewalks, raised or signalized cross-walks, or areas for school busses to stop.

Explanation: If existing or planned transportation infrastructure adjacent to or within the project site has been designated for use as a safe route to school, the proposed project shall include pedestrian, bicycle, or school bus infrastructure. Such infrastructure shall comply with the City's Bikeway Master Plan, and may be used to meet the requirements of Questions 1 or 2 of this section.

Question 5: If the project includes construction activity, will a sufficient proportion of project equipment meet the City's mobile source emissions reductions requirements?

Explanation: The City's CAP establishes a timeline for the use of U.S. EPA Tier 4 engines. Engines meeting the U.S. EPA Tier 4 engine requirements consume less fuel than non-tier engines, and emit fewer pollutants such as particulate matter and ozone pre-cursors. The City's

timeline for implementation of Tier 4 engines requires that 10 percent of construction fleets operating within the City in the year 2025 to meet the U.S. EPA’s Tier 4 standard, with the proportion of vehicles in the fleet meeting such standards increasing to 30 percent in 2030, 60 percent in 2040 and 100 percent in 2050. The implementation schedule is depicted in the following graph



Project applicants may submit a construction equipment inventory to the City demonstrating compliance with the proposed measures. The City acknowledges that the use of alternatively fueled construction equipment, such as hybrid electric or natural gas powered equipment, could provide similar emissions reductions to Tier 4. As such, project applicants may meet the requirement of this measure through the use of alternatively fueled equipment, or increased use of grid powered equipment, to the satisfaction of the City.

Question 6: Does the project meet the City or State requirements for zero net energy (ZNE) structures and on-site renewable energy generation?

Explanation: Per the 2019 California Building Standards Code, all new residential buildings constructed within the State, which are three-stories tall or less, must include sufficient on-site renewable energy systems to meet 100 percent of the building’s anticipated electricity demand. For the purposes of this analysis, such standards represent ZNE for residential buildings, as all electricity consumed on-site would be provided or off-set by electricity created on-site. Non-residential structured developed within the City must be demonstrated to meet similar ZNE standards by the year 2030, or as required to meet the intervening California Building Standards Code.

Question 7: If the project includes the use of large amounts of high global warming potential gases (e.g. refrigerants, aerosol products such as paint, spray foam insulation, etc.) has the project been designed to minimize or off-set the release of such gases?

Explanation: If operation of the project includes the use of large amounts of high global warming potential gases, the project applicant shall provide the City with a comprehensive plan that demonstrates how releases of high global warming potential gases will be minimized to

the extent practicable. Such plans may include demonstration of the efficiency measures incorporated into refrigeration systems, the use of air filtration devices, the substitution of non-high global warming potential gases where practicable, or other means to reduce or eliminate the release of such gases. If the reduction in releases of such gases cannot be demonstrated the project applicant shall demonstrate an alternative means of complying with this measure, for instance by entering into agreements to reduce the release of high global warming potential gases from other existing sources, or the purchase of greenhouse gas off-set credits equivalent to the level of emissions anticipated from project operations.

Question 8: Does the project include provision of adequate recycling and green waste facilities?

Explanation: Project plans shall show that new developments would include the provision of recycling and green waste collection services, unless the proposed development is itself a waste management-oriented development.

Question 9: Does the project include urban tree planting in compliance with the City's requirements?

Explanation: Project plans shall show that new developments would include planting of trees sufficient to meet the City's tree planting requirements in place at the time of project proposal.

Question 10: Does the project include the provision of outdoor electrical outlets or infrastructure to support all electric landscaping equipment? Furthermore, if the project would include loading docks, does the project include electrical infrastructure sufficient to provide power to any transportation refrigeration units that may be used as part of project operations?

Explanation: Project plans shall show that new developments include outdoor electrical outlets sufficient to power electric landscaping equipment. Should the project include loading docks, electrical infrastructure sufficient to provide supplemental power to any docked vehicles must be provided.

Appendix F

Environmental Noise Assessment



Environmental Noise Assessment

Summerfield Residential

City of Galt, California

December 19, 2019

Project # 190602

Prepared for:



Raney Planning and Management, Inc.

1501 Sports Drive
Sacramento, CA 95834

Prepared by:

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Table of Contents

INTRODUCTION	1
ENVIRONMENTAL SETTING	1
<i>BACKGROUND INFORMATION ON NOISE</i>	<i>1</i>
EXISTING NOISE AND VIBRATION ENVIRONMENTS	6
<i>EXISTING NOISE RECEPTORS.....</i>	<i>6</i>
<i>EXISTING GENERAL AMBIENT NOISE LEVELS</i>	<i>6</i>
FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS.....	7
<i>Off-Site Traffic Noise Impact Assessment Methodology.....</i>	<i>7</i>
<i>Predicted Exterior Traffic Noise Levels.....</i>	<i>8</i>
EVALUATION OF TRANSPORTATION NOISE ON PROJECT SITE.....	8
CONSTRUCTION NOISE ENVIRONMENT.....	10
CONSTRUCTION VIBRATION ENVIRONMENT.....	11
REGULATORY CONTEXT	11
<i>FEDERAL.....</i>	<i>11</i>
<i>STATE</i>	<i>11</i>
<i>LOCAL.....</i>	<i>11</i>
IMPACTS AND MITIGATION MEASURES	16
<i>THRESHOLDS OF SIGNIFICANCE</i>	<i>16</i>
<i>PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES</i>	<i>17</i>
REFERENCES	22

Appendices

Appendix A: Acoustical Terminology
Appendix B: Field Noise Measurement Data
Appendix C: Traffic Noise Calculations

List of Figures

Figure 1: Site Plan.....	2
Figure 2: Noise Measurement Sites and Receptor Locations	3
Figure 3: Future Traffic Noise Levels (L_{dn})	9
Figure 4: Land Use Compatibility Chart	13
Figure 5: Traffic Noise Levels on Project Site with 8-foot Tall Barriers.....	18

List of Tables

Table 1: Typical Noise Levels.....	4
Table 2: Summary of Existing Background Noise Measurement Data	7
Table 3: Predicted Traffic Noise Level and Project-Related Traffic Noise Level Increases	8
Table 4: Construction Equipment Noise	10
Table 5: Vibration Levels for Various Construction Equipment.....	11
Table 6: Effects of Vibration on People and Buildings	15



INTRODUCTION

The Summerfield at Twin Cities project consists of the development of a 211-lot single-family subdivision on a vacant parcel. The project is located north of the intersection of Twin Cities Road and Marengo Road in the City of Galt, California.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment.

Project Site Plan





Summerfield Residential

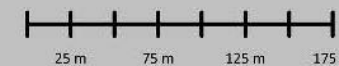
City of Galt, California

Figure 2

Noise Measurement Locations

Legend

-  Project Site
-  Noise Measurement - Long Term



Projection: State Plane (California Zone 2) / NAD83 / feet
Rev. Date: 07/02/2019



The decibel scale is logarithmic, not linear. In other words, two sound levels 10-dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10-dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The day/night average level (DNL or L_{dn}) is based upon the average noise level over a 24-hour day, with a +10-decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. **Appendix A** provides a summary of acoustical terms used in this report.

TABLE 1: TYPICAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft.)	--100--	
Gas Lawn Mower at 1 m (3 ft.)	--90--	
Diesel Truck at 15 m (50 ft.), at 80 km/hr. (50 mph)	--80--	Food Blender at 1 m (3 ft.) Garbage Disposal at 1 m (3 ft.)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft.)	--70--	Vacuum Cleaner at 3 m (10 ft.)
Commercial Area Heavy Traffic at 90 m (300 ft.)	--60--	Normal Speech at 1 m (3 ft.)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. September, 2013.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6-dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include existing single-family residential uses located north, south, east, and west of the project site.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project area is primarily defined traffic on Twin Cities Road directly north of the project site.

To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted continuous (24-hr.) noise level measurements at two locations on the project.

Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max} , represents the highest noise level measured. The average value, denoted L_{eq} , represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L_{50} , represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 812 and 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a B&K Model 4230 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

Site	Date	Average Measured Hourly Noise Levels, dBA						
		CNEL/L _{dn}	Daytime (7:00 am - 10:00 pm)			Nighttime (10:00 pm – 7:00 am)		
			L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{max}
LT-1	06/19/19 – 06/20/19	55	51	48	65	48	44	59
LT-2	06/19/19 – 06/20/19	71	67	61	89	64	86	48

Source: Saxelby Acoustics – 2019

FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

Off-Site Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and future, project and no-project conditions.

Existing, Short-Term, and Cumulative noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer (GHD December 2019), truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing, Short-Term, and Cumulative conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance.

Predicted Exterior Traffic Noise Levels

Operation of the proposed project would result in an increase in ADT volumes on the local roadway network and consequently, an increase in noise levels from traffic sources along affected segments.

To examine the effect of project-generated traffic increases, traffic noise levels associated with the proposed project were calculated for roadway segments in the project study area using the FHWA model. Traffic noise levels were modeled under Existing and Background conditions with and without the proposed project.

Table 3 summarizes the modeled traffic noise levels at the nearest sensitive receptors along each roadway segment in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

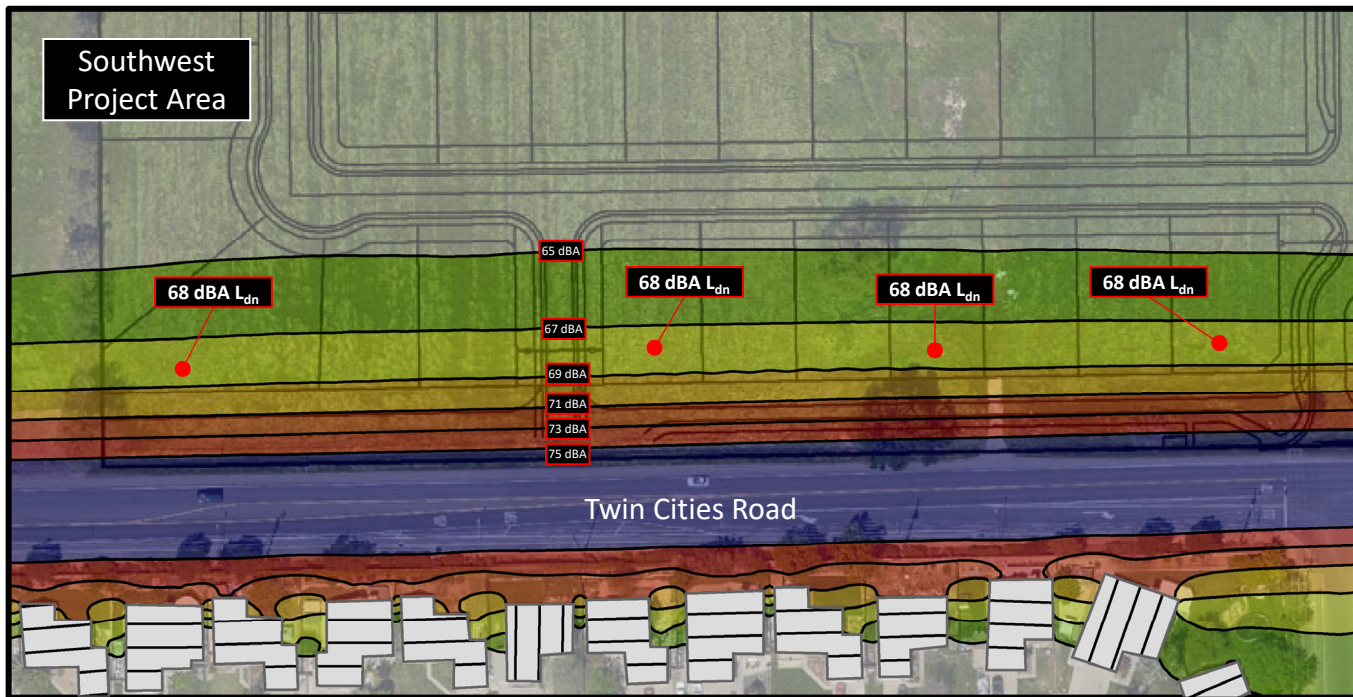
TABLE 3: PREDICTED TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA L _{dn}) at Closest Sensitive Receptors					
		Existing No Project	Existing + Project	Change	2040 No Project	2040 + Project	Change
Twin Cities Road	West of Fermoy Way	65.1	65.4	0.3	67.1	67.3	0.2
	Fermoy Way to McKenzie Rd.	62.8	63.2	0.3	64.5	64.7	0.2
	McKenzie Rd. to Carillion Blvd.	64.7	65.1	0.4	67.1	67.3	0.2
	Carillion Blvd. to Park Terrace Dr.	62.1	62.7	0.6	65.2	65.6	0.3
	Park Terrace Dr. to Marengo Rd.	63.4	64.2	0.8	67.3	67.6	0.3
	Marengo Rd. to Cherokee Ln.	68.0	68.1	0.1	72.2	72.3	0.0
Marengo Road	Twin Cities Rd. to Lake Park Ave.	54.8	56.1	1.4	60.7	61.1	0.4
	Lake Park Ave. to Walnut Ave.	54.0	55.2	1.2	60.7	61.0	0.3
	South of Walnut Ave.	55.8	56.4	0.6	64.0	64.1	0.1

Based upon the **Table 3** data, the proposed project is predicted to result in an increase in a maximum traffic noise level increase of 1.4 dBA.

Evaluation of Transportation Noise on Project site

Saxelby Acoustics used the SoundPLAN noise model to calculate traffic noise levels at the proposed single-family uses due to traffic on Twin Cities Road. Traffic noise levels were predicted for future 2040 plus project conditions. The results of this analysis are shown graphically on **Figure 3**.



Summerfield Residential

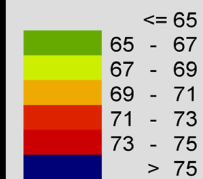
City of Galt, California

Figure 3

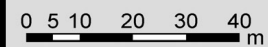
Future (2040) Traffic Noise Contours
(dBA L_{dn})

Signs and symbols

Levels in dB(A)



1 : 1465



Construction Noise Environment

During the construction of the proposed project, including roads, water and sewer lines, and related infrastructure, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in **Table 4**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 4: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Auger Drill Rig	84
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: *Roadway Construction Noise Model User's Guide*. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

Construction Vibration Environment

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 5** shows the typical vibration levels produced by construction equipment.

TABLE 5: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210 (Less than 0.20 at 26 feet)	0.074	0.026

Source: *Transit Noise and Vibration Impact Assessment Guidelines*. Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

There are no state regulations related to noise that apply to the Proposed Project.

LOCAL

City of Galt General Plan

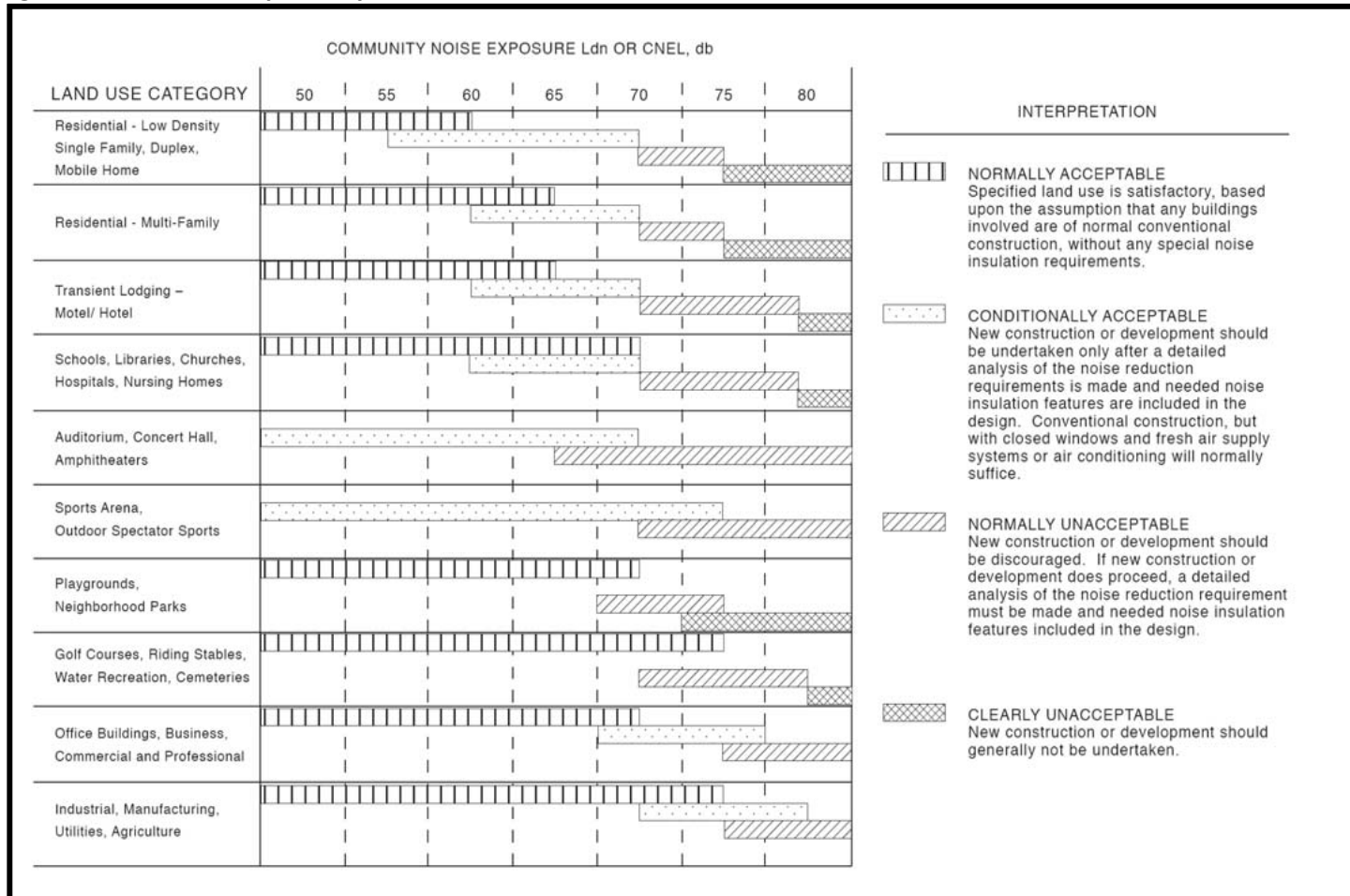
The 2030 Galt General Plan Noise Element outlines criteria to “non-transportation” or “locally regulated” noise sources. The noise level performance standards for non-transportation noise in Galt are shown in **Table 6**.

TABLE 6: NOISE LEVEL PERFORMANCE STANDARDS FOR RESIDENTIAL AREAS AFFECTED BY NON-TRANSPORTATION NOISE

Noise Level Descriptor	Exterior Noise Level Standards, dBA	
	Daytime (7 AM-10 PM)	Nighttime (10 PM-7 AM)
Hourly Leq, dB	50	45
Maximum Level, dB	70	65
<p>Note: These standards apply to new or existing residential areas affected by new or existing non-transportation sources.</p> <p>Each of the noise level standards specified above shall be reduced by five dBA for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.</p> <p>Source: 2030 Galt General Plan EIR, March 2009.</p>		

The 2030 Galt General Plan Noise Element utilizes the State Office of Noise Control (ONC) *Guidelines for the Preparation and Content of Noise Elements of the General Plan*. The ONC guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The ONC guidelines contain a land use compatibility table that describes the compatibility of different land uses with a range of environmental noise levels in terms of L_{dn} . These guidelines are shown in **Figure 4**.

Figure 4: Land Use Compatibility Chart



Sources: State of California General Plan Guidelines, Office of Planning and Research, 1998; and ESA, 2008.

Based upon **Figure 4**, residential uses are considered normally acceptable in ambient noise environments up to 60 dBA L_{dn} , and conditionally acceptable in noise environments up to 70 dBA L_{dn} . The City of Galt maintains an interior noise level criterion of 45 dBA L_{dn} for residential uses. The intent of this standard is to provide a suitable environment for indoor communication and sleep.

Criteria for Acceptable Vibration

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. **Table 6**, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 6 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.2 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 7: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of “architectural” damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of “architectural” damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize “architectural” damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause “architectural” damage and possibly minor structural damage

Source: *Transportation Related Earthborne Vibrations*. Caltrans. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-f]).

Would the project:

- a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- b. Generate excessive groundborne vibration or groundborne noise levels?
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The 2030 Galt General Plan considers the following significance criteria for noise impacts:

- If the noise level resulting from project operations would exceed the “normally acceptable” range (as shown in **Figure 4**) for a given land use where the existing noise level exceeds the normally acceptable range, a 3 dBA or greater increase due to a project is considered significant;
- If the noise level resulting from project operations would exceed the “normally acceptable” range (as shown in **Figure 4**) for a given land use where the existing noise level is within the normally acceptable range, a 5 dBA or greater increase due to a project is considered significant; or
- If the noise level resulting from project operations would be within the “normally acceptable” range (as shown in **Figure 4**) for a given land use, a 10 dBA or greater increase due to the project is considered significant.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

IMPACT 1: WOULD THE PROJECT GENERATE A SUBSTANTIAL TEMPORARY OR PERMANENT INCREASE IN AMBIENT NOISE LEVELS IN THE VICINITY OF THE PROJECT IN EXCESS OF STANDARDS ESTABLISHED IN THE LOCAL GENERAL PLAN OR NOISE ORDINANCE, OR APPLICABLE STANDARDS OF OTHER AGENCIES?

Traffic Noise Increases

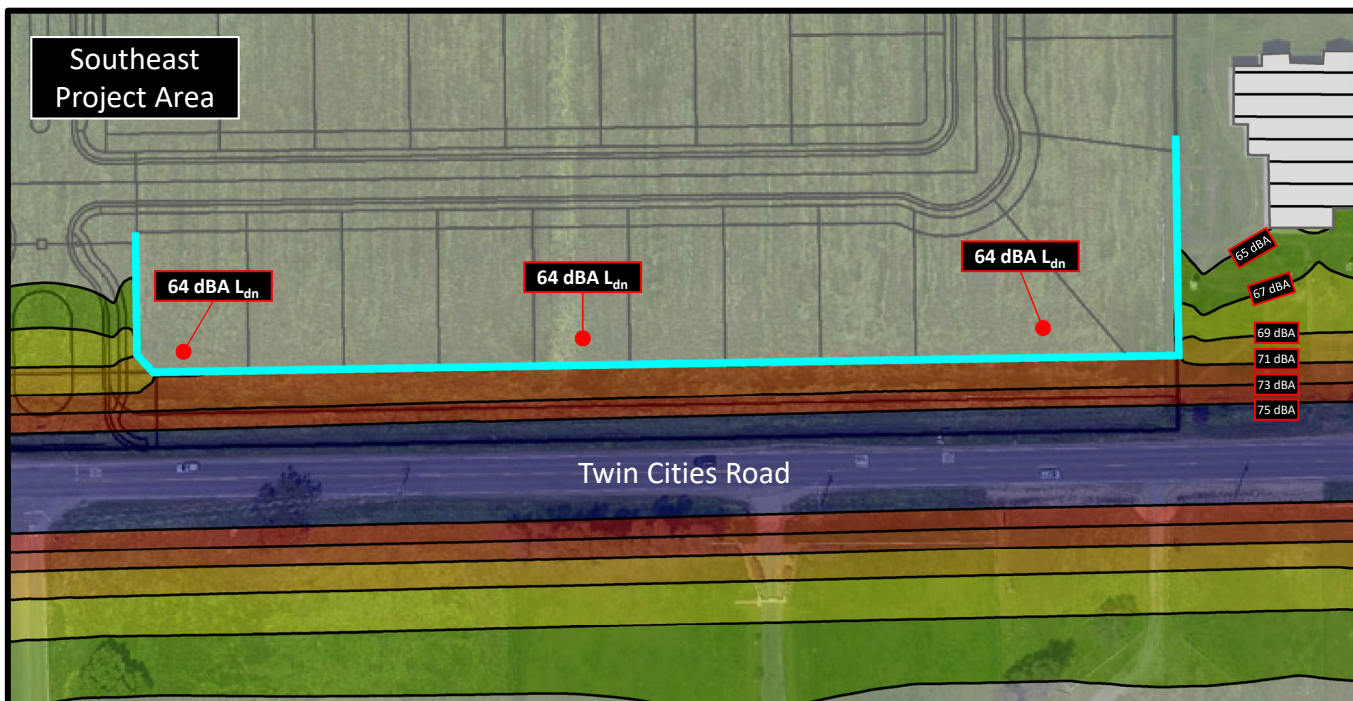
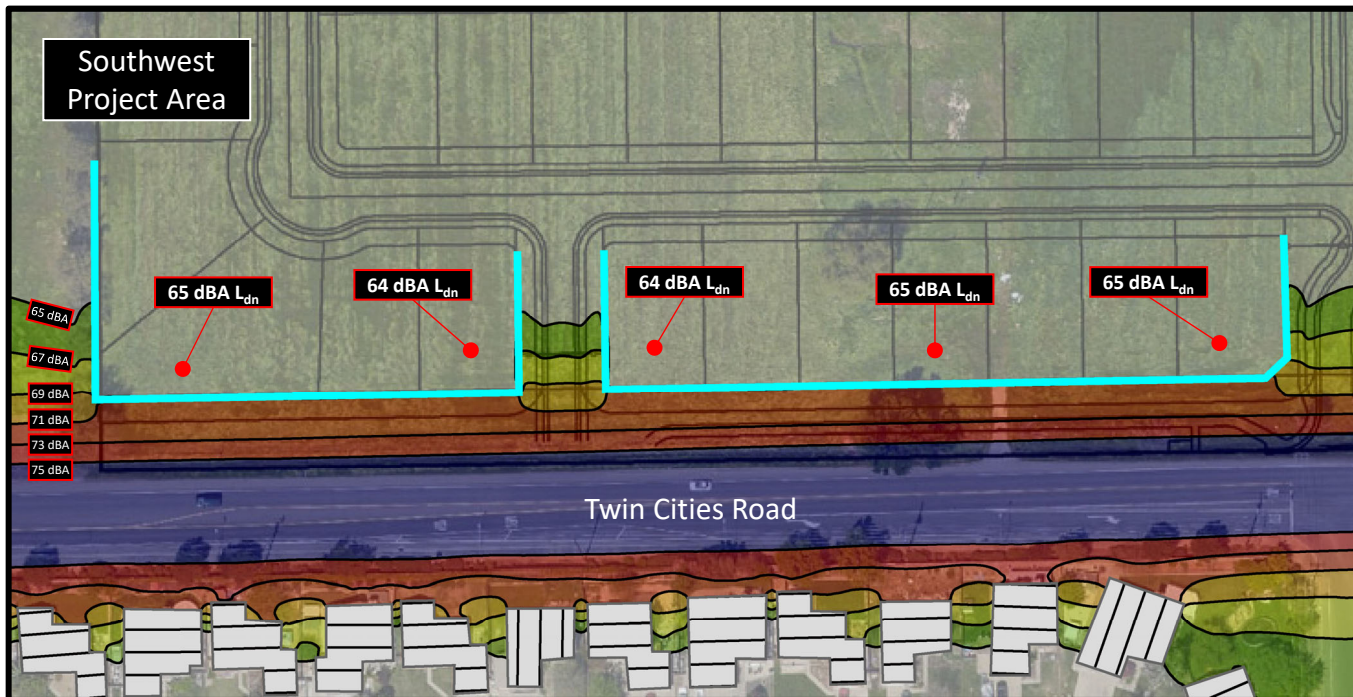
As shown in **Table 3**, traffic from the proposed project is not predicted to cause a significant change in exterior noise levels, as the greatest change is only +1.4 dBA. This is a **less-than-significant** impact and no mitigation is required.

Operational Noise Increases

The proposed project would include typical residential noise which would be compatible with the adjacent existing residential uses.

Traffic Noise at New Sensitive Receptors – Exterior Areas

As shown on **Figure 3**, the project site is predicted to be exposed to exterior noise levels up to approximately 69 dBA L_{dn} . This would exceed the 60 dB limit for “normally acceptable” land use and falls under “conditionally acceptable.” Therefore, exterior noise control measures would be required to ensure that future residents are not exposed to exterior noise levels exceeding City standards. Specifically, 8-foot tall sound walls were analyzed at the location shown on **Figure 5**. Based upon the noise predictions shown on **Figure 5**, exterior noise levels would be reduced to 65 dBA L_{dn} , or less with use of these barriers.




Summerfield Residential

City of Galt, California

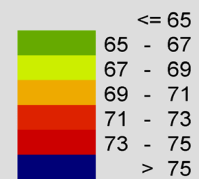
Figure 5

Future (2040) Traffic Noise Contours
(dBA L_{dn})

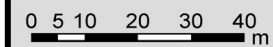
Legend

 : Recommended 8 ft. Sound Wall

Levels in dB(A)



1 : 1465



Traffic Noise at New Sensitive Receptors – Interior Areas

Based upon **Figure 5**, the proposed project would be exposed to exterior noise levels of up to 65 dBA L_{dn} at the ground floor building facades closest to Twin Cities Road. Second floor locations would not receive substantial shielding from the 8-foot tall sound wall and would be expected to be exposed to exterior noise levels of up to 70 dBA L_{dn} .

Modern building construction typically yields an exterior-to-interior noise level reduction of 25 dBA. Therefore, where exterior noise levels are 70 dBA L_{dn} , or less, no additional interior noise control measures are typically required. For this project, exterior noise levels are predicted to be up to 70 dBA L_{dn} , resulting in an interior noise level of 45 dBA L_{dn} based on typical building construction. This would meet the City's 45 dBA L_{dn} interior noise level standard.

Impacts resulting from exterior and interior noise levels exceeding the threshold of significance due to interior traffic noise would be considered ***less-than-significant***.

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in **Table 4**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Most of the building construction would occur at distances of 50 feet or greater from the nearest residences. Construction noise associated with streets would be similar to noise that would be associated with public works projects, such as a roadway widening or paving projects.

Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Construction activities are conditionally exempt from the Noise Ordinance during certain hours. Construction activities are exempt from the noise standard from 6 AM to 8 PM Monday through Friday, and from 7 AM to 8 PM on Saturdays and Sundays.

Although construction activities are temporary in nature and would likely occur during normal daytime working hours, construction-related noise could result in sleep interference at existing noise-sensitive land uses in the vicinity of the construction if construction activities were to occur outside the normal daytime hours. Therefore, impacts resulting from noise levels temporarily exceeding the threshold of

significance due to construction would be considered ***potentially significant***.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

1(a) *Prior to approval of project improvement plans, the improvement plans for the proposed project shall show that the first-row lots shall be shielded from Twin Cities Road through the use of eight-foot tall masonry sound walls per the approval of the City Engineer. The approximate locations of these barriers are shown on **Figure 5**. Other types of barrier may be employed but shall be reviewed by an acoustical engineer prior to being constructed.*

1(b) *Construction activities shall comply with the City of Galt Noise Ordinance and shall be limited to the hours set forth below:*

<i>Monday-Friday</i>	<i>6:00 AM to 8:00 PM</i>
<i>Saturday and Sunday</i>	<i>7:00 AM to 8:00 PM</i>

These criteria shall be included in the grading plan submitted by the applicant/developer for review and approval of the Public Works Department prior to issuance of grading permits. Exceptions to allow expanded construction activities shall be reviewed on a case-by-case basis as determined by the Chief Building Official and/or City Engineer.

1(c) *Construction activities shall adhere to the requirements of the City of Galt with respect to hours of operation, muffling of internal combustion engines, and other factors that affect construction noise generation and its effects on noise-sensitive land uses. Prior to issuance of grading permits, these criteria shall be included in the grading plan submitted by the applicant/developer for the review and approval of the Public Works Department.*

1(d) *During construction, the applicant/developer shall designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances and will be responsible for determining the cause of the complaint, and implement feasible measures to be taken to alleviate the problem. The disturbance coordinator shall report all complaints and corrective measures taken to the Community Development Director.*

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

IMPACT 2: WOULD THE PROJECT GENERATE EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural.

With the exception of vibratory compactors, the **Table 5** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distance of 26 feet. The proposed project construction would occur at distances greater than 26 feet from the adjacent single-family residential uses. Therefore, this is a ***less-than-significant*** impact.

IMPACT 3: 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?

There are no airports in the project vicinity. Therefore, this impact is not applicable to the proposed project.

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Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B: Continuous and Short-Term Ambient Noise Measurement Results



Appendix B1: Continuous Noise Monitoring Results

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₅₀	L ₉₀
Wednesday, June 19, 2019	14:00	46	58	44	41
Wednesday, June 19, 2019	15:00	47	60	46	42
Wednesday, June 19, 2019	16:00	48	60	47	43
Wednesday, June 19, 2019	17:00	50	59	48	44
Wednesday, June 19, 2019	18:00	51	73	49	45
Wednesday, June 19, 2019	19:00	52	65	50	47
Wednesday, June 19, 2019	20:00	51	65	49	46
Wednesday, June 19, 2019	21:00	49	61	48	45
Wednesday, June 19, 2019	22:00	47	59	46	44
Wednesday, June 19, 2019	23:00	48	68	45	43
Thursday, June 20, 2019	0:00	44	52	44	41
Thursday, June 20, 2019	1:00	43	53	41	40
Thursday, June 20, 2019	2:00	40	49	39	37
Thursday, June 20, 2019	3:00	44	58	41	38
Thursday, June 20, 2019	4:00	45	55	43	41
Thursday, June 20, 2019	5:00	50	66	49	47
Thursday, June 20, 2019	6:00	53	69	50	47
Thursday, June 20, 2019	7:00	54	68	52	48
Thursday, June 20, 2019	8:00	54	72	52	48
Thursday, June 20, 2019	9:00	52	66	50	46
Thursday, June 20, 2019	10:00	49	64	48	44
Thursday, June 20, 2019	11:00	48	59	46	42
Thursday, June 20, 2019	12:00	50	67	47	42
Thursday, June 20, 2019	13:00	50	70	47	43

Statistics	Leq	Lmax	L50	L90
Day Average	51	65	48	44
Night Average	48	59	44	42
Day Low	46	58	44	41
Day High	54	73	52	48
Night Low	40	49	39	37
Night High	53	69	50	47
Ldn	55	Day %		77
CNEL	55	Night %		23

Site: LT-1

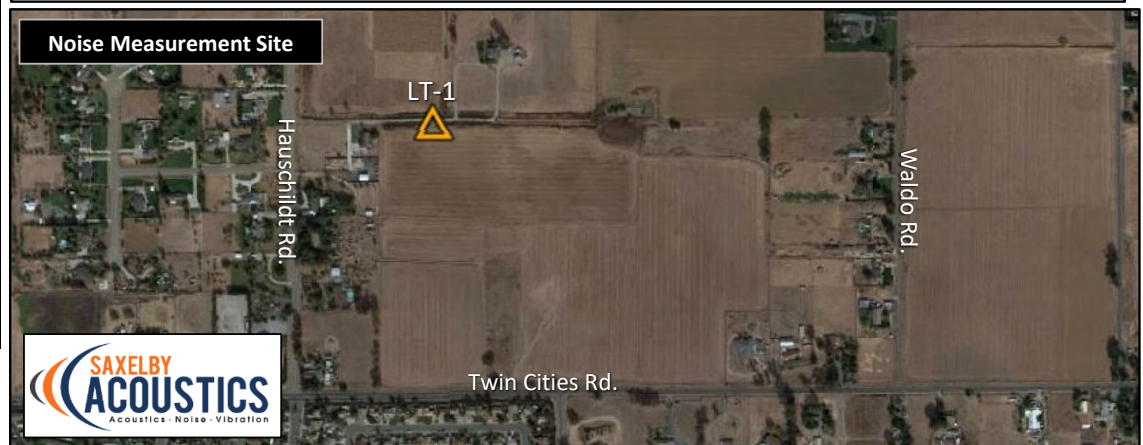
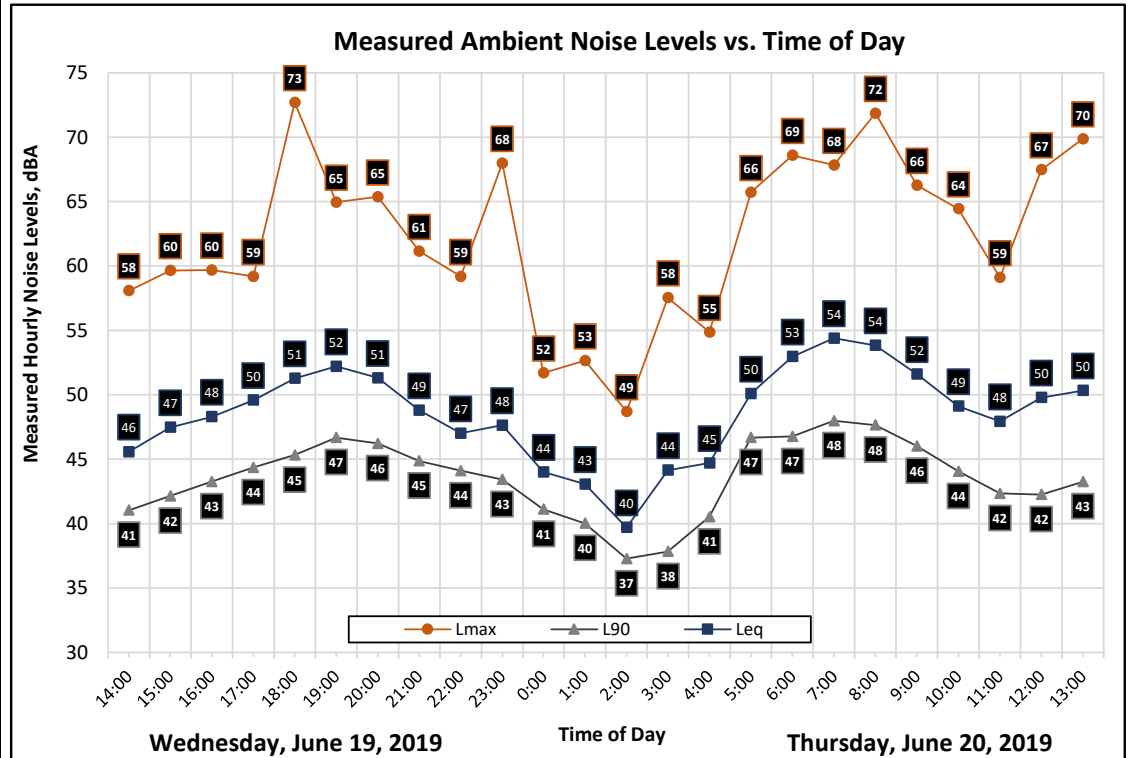
Project: Summerfield Residential

Location: Northern Boundary

Coordinates: 38.2952324°, -121.2849832°

Meter: LDL 820-1

Calibrator: B&K 4230



Appendix B2: Continuous Noise Monitoring Results

Date	Time	Measured Level, dBA			
		L _{eq}	L _{max}	L ₅₀	L ₉₀
Wednesday, June 19, 2019	14:00	69	93	63	51
Wednesday, June 19, 2019	15:00	68	88	62	50
Wednesday, June 19, 2019	16:00	66	86	61	52
Wednesday, June 19, 2019	17:00	69	96	62	54
Wednesday, June 19, 2019	18:00	67	86	62	53
Wednesday, June 19, 2019	19:00	66	87	61	50
Wednesday, June 19, 2019	20:00	67	96	59	48
Wednesday, June 19, 2019	21:00	63	84	56	47
Wednesday, June 19, 2019	22:00	62	82	54	43
Wednesday, June 19, 2019	23:00	63	88	48	42
Thursday, June 20, 2019	0:00	61	93	43	39
Thursday, June 20, 2019	1:00	54	75	40	37
Thursday, June 20, 2019	2:00	59	88	38	34
Thursday, June 20, 2019	3:00	53	75	41	36
Thursday, June 20, 2019	4:00	62	87	49	41
Thursday, June 20, 2019	5:00	69	95	60	50
Thursday, June 20, 2019	6:00	67	91	62	50
Thursday, June 20, 2019	7:00	68	87	63	54
Thursday, June 20, 2019	8:00	69	89	63	51
Thursday, June 20, 2019	9:00	67	88	62	50
Thursday, June 20, 2019	10:00	66	84	61	49
Thursday, June 20, 2019	11:00	68	90	61	49
Thursday, June 20, 2019	12:00	68	93	61	50
Thursday, June 20, 2019	13:00	68	86	63	53

Statistics	Leq	Lmax	L50	L90
Day Average	67	89	61	51
Night Average	64	86	48	41
Day Low	63	84	56	47
Day High	69	96	63	54
Night Low	53	75	38	34
Night High	69	95	62	50
Ldn	71	Day %		80
CNEL	71	Night %		20

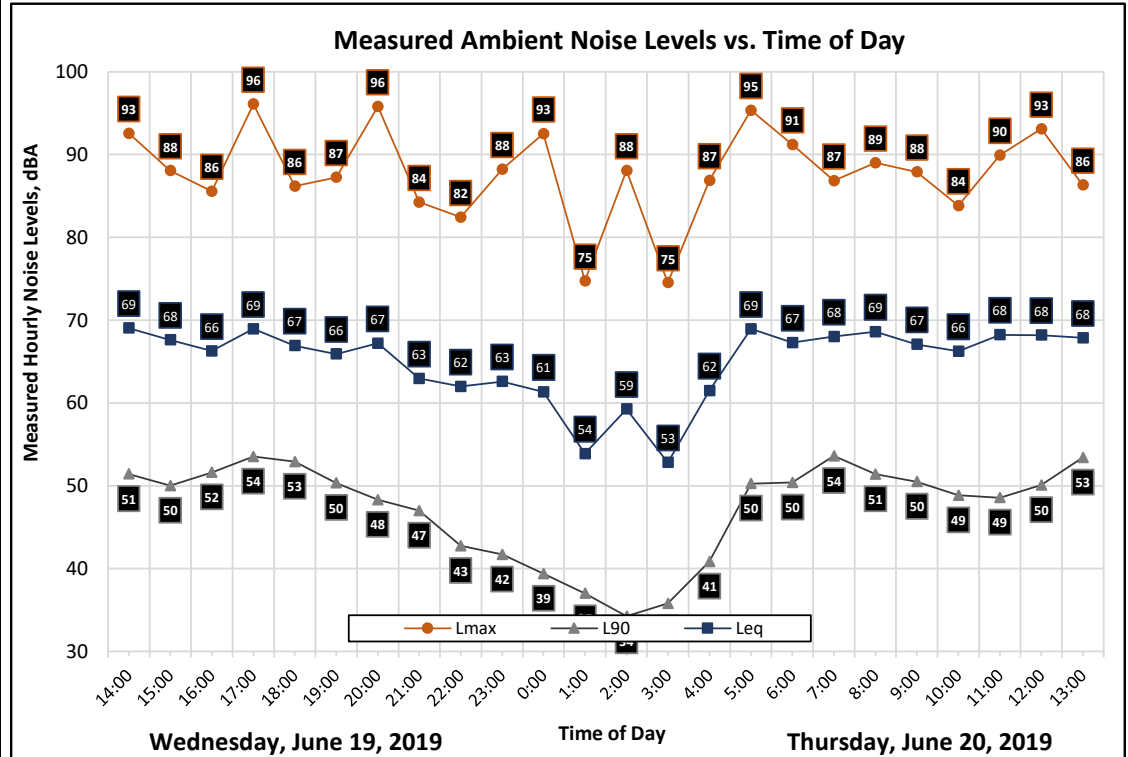
Site: LT-2

Project: Summerfield Residential

Meter: LDL 820-2

Location: Southern Boundary Adjacent to Twin Cities Rd. Calibrator: B&K 4230

Coordinates: 38.291406°, -121.283065°



Appendix C: Traffic Noise Calculation Inputs and Results



Appendix C-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 190602

Description: Summerfield Residential

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
											60 dBA	65 dBA	70 dBA	
1	Twin Cities Road	14,760	79	0	21	1.0%	1.0%	45	100	0	219	102	47	65.1
2	Twin Cities Road	14,450	79	0	21	1.0%	1.0%	45	65	-5	216	100	47	62.8
3	Twin Cities Road	12,500	79	0	21	1.0%	1.0%	45	95	0	196	91	42	64.7
4	Twin Cities Road	8,110	79	0	21	1.0%	1.0%	55	70	-5	207	96	45	62.1
5	Twin Cities Road	6,630	79	0	21	1.0%	1.0%	55	50	-5	181	84	39	63.4
6	Twin Cities Road	6,090	79	0	21	1.0%	1.0%	55	50	0	171	79	37	68.0
7	Marengo Road	1,750	79	0	21	1.0%	1.0%	45	55	-5	53	25	11	54.8
8	Marengo Road	1,900	79	0	21	1.0%	1.0%	45	65	-5	56	26	12	54.0
9	Marengo Road	2,230	79	0	21	1.0%	1.0%	45	55	-5	62	29	13	55.8

Appendix C-2

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 190602

Description: Summerfield Residential

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
											60 dBA	65 dBA	70 dBA	
1	Twin Cities Road	15,660	79	0	21	1.0%	1.0%	45	100	0	228	106	49	65.4
2	Twin Cities Road	15,600	79	0	21	1.0%	1.0%	45	65	-5	228	106	49	63.2
3	Twin Cities Road	13,690	79	0	21	1.0%	1.0%	45	95	0	209	97	45	65.1
4	Twin Cities Road	9,340	79	0	21	1.0%	1.0%	55	70	-5	228	106	49	62.7
5	Twin Cities Road	7,900	79	0	21	1.0%	1.0%	55	50	-5	204	95	44	64.2
6	Twin Cities Road	6,260	79	0	21	1.0%	1.0%	55	50	0	174	81	38	68.1
7	Marengo Road	2,410	79	0	21	1.0%	1.0%	45	55	-5	66	30	14	56.1
8	Marengo Road	2,510	79	0	21	1.0%	1.0%	45	65	-5	67	31	15	55.2
9	Marengo Road	2,560	79	0	21	1.0%	1.0%	45	55	-5	68	32	15	56.4

Appendix C-3

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 190602

Description: Summerfield Residential

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
											60 dBA	65 dBA	70 dBA	
1	Twin Cities Road	23,500	79	0	21	1.0%	1.0%	45	100	0	299	139	64	67.1
2	Twin Cities Road	21,200	79	0	21	1.0%	1.0%	45	65	-5	279	130	60	64.5
3	Twin Cities Road	21,430	79	0	21	1.0%	1.0%	45	95	0	281	131	61	67.1
4	Twin Cities Road	16,850	79	0	21	1.0%	1.0%	55	70	-5	338	157	73	65.2
5	Twin Cities Road	16,400	79	0	21	1.0%	1.0%	55	50	-5	331	154	71	67.3
6	Twin Cities Road	16,000	79	0	21	1.0%	1.0%	55	50	0	326	151	70	72.2
7	Marengo Road	6,850	79	0	21	1.0%	1.0%	45	55	-5	132	61	28	60.7
8	Marengo Road	8,800	79	0	21	1.0%	1.0%	45	65	-5	155	72	33	60.7
9	Marengo Road	14,700	79	0	21	1.0%	1.0%	45	55	-5	219	102	47	64.0

Appendix C-4

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 190602

Description: Summerfield Residential

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset			Level, dBA
											60 dBA	65 dBA	70 dBA	
1	Twin Cities Road	24,400	79	0	21	1.0%	1.0%	45	100	0	307	142	66	67.3
2	Twin Cities Road	22,350	79	0	21	1.0%	1.0%	45	65	-5	289	134	62	64.7
3	Twin Cities Road	22,620	79	0	21	1.0%	1.0%	45	95	0	292	135	63	67.3
4	Twin Cities Road	18,080	79	0	21	1.0%	1.0%	55	70	-5	354	164	76	65.6
5	Twin Cities Road	17,680	79	0	21	1.0%	1.0%	55	50	-5	349	162	75	67.6
6	Twin Cities Road	16,140	79	0	21	1.0%	1.0%	55	50	0	328	152	71	72.3
7	Marengo Road	7,520	79	0	21	1.0%	1.0%	45	55	-5	140	65	30	61.1
8	Marengo Road	9,430	79	0	21	1.0%	1.0%	45	65	-5	163	76	35	61.0
9	Marengo Road	14,950	79	0	21	1.0%	1.0%	45	55	-5	221	103	48	64.1

Appendix G
Traffic Impact Study



Summerfield Traffic Impact Study

Final Report

Raney Planning and
Management





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Table of Contents

1.	Introduction.....	1
1.1	Existing Roadway System	3
1.2	Study Locations and Data Collection.....	4
2.	Technical Analysis Methodologies and Parameters	8
2.1	Vehicle Miles Traveled (VMT).....	8
2.2	Level of Service Methodologies	8
2.2.1	Intersection Operations	8
2.2.2	Traffic Signal Warrants Analysis.....	10
2.2.3	Ramp Merge & Diverge Operations	10
2.2.4	Technical Analysis Parameters	11
2.2.5	Level of Service Policies.....	12
3.	Existing Conditions.....	13
3.1	Existing Conditions Intersection Operations	13
3.1.1	School Peak Hour Factor	13
3.2	Existing Conditions Traffic Signal Warrant Analyses.....	14
3.2.1	Warrant 3, Peak Hour	14
3.2.2	Warrant 7, Crash Experience	15
3.3	Existing Conditions Ramp Operations	15
4.	Project Description	17
4.1	Project Site Access and Circulation.....	19
4.1.1	Multimodal Facilities	19
4.2	Project Trip Generation	20
4.3	Trip Distribution & Assignment	20
5.	Existing Plus Project Conditions	28
5.1	Existing Plus Project Intersection Operations.....	30
5.2	Existing Plus Project Traffic Signal Warrant Analyses	31
5.2.1	Warrant 3, Peak Hour	31
5.2.2	Warrant 5, School Crossing.....	31



5.3	Existing Plus Project Ramp Operations.....	32
6.	Cumulative No Project Conditions	33
6.1	20-Year Development Forecast.....	33
6.1.1	Carillion Boulevard Complete Street Corridor Study.....	33
6.1.2	SR 99 Forecasts	33
6.2	Cumulative Improvements	35
6.2.1	Cumulative No Project Peak Hour Forecasts.....	35
6.3	Cumulative No Project Intersection Operations.....	37
6.4	Cumulative No Project Traffic Signal Warrant Analysis.....	38
6.4.1	Warrant 3, Peak Hour	38
6.5	Cumulative No Project Ramp Operations.....	38
7.	Cumulative Plus Project Conditions	39
7.1	Cumulative Plus Project Intersection Operations	41
7.2	Cumulative Plus Project Traffic Signal Warrant Analysis	42
7.2.1	Warrant 3, Peak Hour	42
7.3	Cumulative Plus Project Ramp Operations	42
8.	Cumulative Plus Project with Road Diet Conditions	43
8.1	Cumulative Plus Project with Road Diet Intersection Operations.....	45
8.2	Cumulative Plus Project with Road Diet Traffic Signal Warrant Analysis.....	46
8.2.1	Warrant 3, Peak Hour	46
8.3	Cumulative Plus Project with Road Diet Ramp Operations.....	46
9.	Vehicle Miles Traveled (VMT) Analysis.....	48
9.1	Model Selection	48
9.2	Project Characteristics	48
9.3	Methodology	49
9.4	Trip Types and Distribution.....	49
9.5	Trip Length and Purpose	49
9.6	VMT Results	50
9.6.1	SACOG Regional VMT	50
10.	Project Impacts and Mitigation Measures	51
10.1	Significance Thresholds.....	51



10.2	Existing Plus Project Impacts & Mitigation Measures.....	52
10.3	Cumulative Plus Project Impacts & Mitigation Measures	55
10.4	Cumulative Plus Project with Road Diet Impacts & Mitigation Measures.....	57
10.5	Fair Share of Improvement Cost Calculations.....	59
11.	Summary	62
11.1	Project Impacts and Mitigations to Site Access	62
11.2	Project Impacts and Mitigations for Intersection and Ramp Operations	62

Figure Index

Figure 1.1	Study Area Map	2
Figure 1.2	Existing Lane Geometrics and Control	6
Figure 1.3	Existing Peak Hour Traffic Volumes	7
Figure 4.1	Project Site Plan	18
Figure 4.2	Existing AM Peak Hour Conditions Project Trip Distribution	22
Figure 4.3	Existing PM Peak Hour Conditions Project Trip Distribution	23
Figure 4.4	2040 AM Peak Hour Conditions Project Trip Distribution	24
Figure 4.5	2040 PM Peak Hour Conditions Project Trip Distribution	25
Figure 4.6	Existing Project-Only Peak Hour Volumes	26
Figure 4.7	Cumulative (2040) Project-Only Peak Hour Volumes	27
Figure 5.1	Existing Plus Project Peak Hour Traffic Volumes.....	29
Figure 6.1	Cumulative (2040 No Project) Peak Hour Traffic Volumes	36
Figure 7.1	Cumulative Plus Project Peak Hour Traffic Volumes	40
Figure 8.1	Cumulative Plus Project with Road Diet Peak Hour Traffic Volumes.....	44

Table Index

Table 2.1	Level of Service (LOS) Criteria for Intersections	9
Table 2.2	Highway, Ramp, & Weave Level of Service Criteria	11
Table 2.3	Technical Analysis Parameters	11
Table 3.1	Existing Conditions Intersection Operations.....	14
Table 3.2	Collisions Data for Study Locations (2014-2018)	15
Table 3.3	Existing Conditions Ramp Operations.....	16



Table 5.1	Existing Plus Project Conditions Intersection Operations	30
Table 5.2	Existing Plus Project Conditions Ramp Operations	32
Table 6.1	Cumulative No Project Conditions Intersection Operations	37
Table 6.2	Cumulative No Project Conditions Ramp Operations	38
Table 7.1	Cumulative Plus Project Conditions Intersection Operations	41
Table 7.2	Cumulative Plus Project Conditions Ramp Operations	42
Table 8.1	Cumulative Plus Project with Road Diet Conditions Intersection Operations	45
Table 8.2	Cumulative Plus Project with Road Diet Conditions Ramp Operations	46
Table 9.1	CalEEMod Model Project Land Uses and Trip Generation Rates	49
Table 9.2	Operational Vehicle Miles Travelled – Existing Plus Project Trip Generation	50
Table 10.1	Project Impact Determination at Deficient Study Intersections under Existing Plus Project Conditions	53
Table 10.2	Project Impact Determination on Deficient Ramp Segments under Existing Plus Project Conditions	55
Table 10.3	Project Impact Determination at Deficient Study Intersections under Cumulative Plus Project Conditions	56
Table 10.4	Project Impacts on Deficient Ramp Segments under Cumulative Plus Project Conditions	57
Table 10.5	Project Impact Determination at Deficient Study Intersections under Cumulative Plus Project with Road Diet Conditions	58
Table 10.6	Project Impact Determination on Deficient Ramp Segments under Cumulative Plus Project with Road Diet Conditions	59
Table 10.7	Fair Share Calculations – Cumulative Plus Project Conditions	60
Table 10.8	Fair Share Calculations – Cumulative Plus Project with Road Diet Conditions	61

Appendix Index

Appendix A	Traffic Counts
Appendix B	Synchro / Sim-Traffic LOS Reports
Appendix C	SIDRA Reports
Appendix D	HCS Reports
Appendix E	Signal Warrant Analysis Worksheets
Appendix F	VMT – CalEEMod Outputs



1. Introduction

This report has been prepared to present the results of the Transportation Impact Analysis performed by GHD, Inc., sub-consultant to Raney Planning & Management, Inc. to evaluate the potential change in transportation impacts created by the proposed Summerfield development in Galt, California. The term "Project" as used in this study refers to the proposed residential development located just north of the Galt city limit, approximately 1.5 miles east of State Route 99 (SR 99), with Twin Cities Road (SR 104) to the south, and single family residence properties to the east and west on Waldo Road and Hauschildt Road respectively. The proposed project is located within the City of Galt's Sphere of Influence, and proposes to annex the area north of Twin Cities Road at Marengo Road into the City Limits. The proposed project consists of 212 single family dwelling units, and includes a local-serving park.

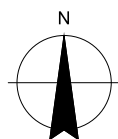
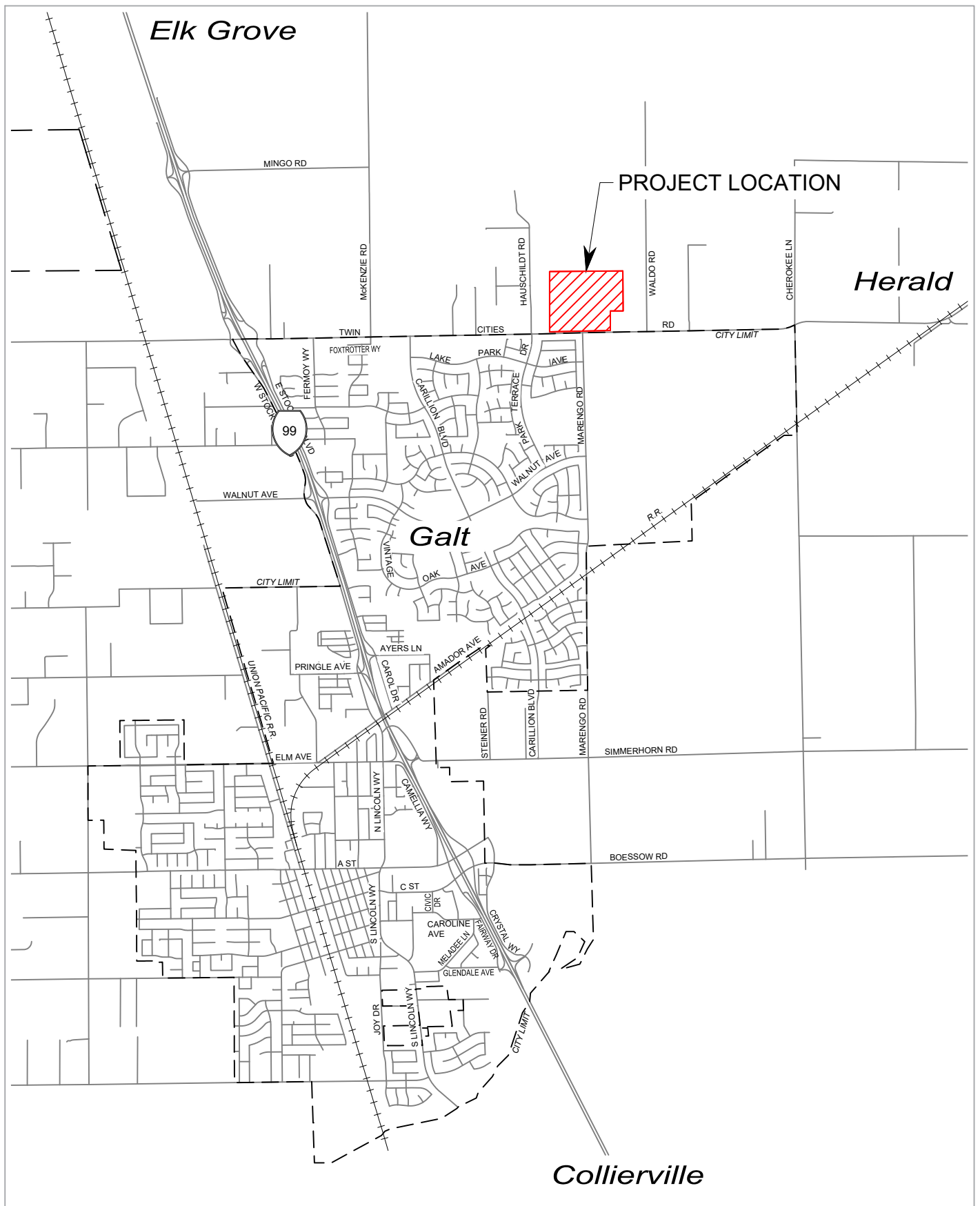
Figure 1.1 presents the project location and project vicinity map. Under the direction of City Staff the following traffic scenarios were analyzed as part of this Traffic Impact Analysis Report (TIAR):

- Existing conditions
- Existing Plus Project conditions
- Cumulative No Project conditions
- Cumulative Plus Project conditions
- Cumulative Plus Project with Road Diet conditions

Existing conditions analyze the existing traffic operations at the study locations using Year 2019 peak hour traffic counts and intersection configurations. Existing Plus Project analyze the current conditions with the trips generated by the proposed project superimposed on existing traffic counts. Under these conditions, existing intersection configurations remain the same.

Cumulative No Project conditions analyze the scenario that considers the projected local and regional growth in approximately 20 years, but without the proposed project. Cumulative Plus Project conditions analyze the scenario in which traffic impacts associated with the project are investigated in comparison to the Cumulative No Project conditions. Cumulative Plus Project with Road Diet conditions analyze the scenario in which traffic impacts associated with the project are investigated in comparison to the Cumulative No Project conditions. This scenario utilizes roadway geometry proposed by the *Carillion Boulevard Complete Street Corridor Study*, referred to as "Road Diet" in this study.

Adverse project impacts and improvements identified to mitigate project impacts will be detailed in the final section of this report.



Raney Planning & Management
SUMMERFIELD TIAR
STUDY AREA MAP

Project No. 11199678
 Report No. 001
 Date AUGUST 2019

FIGURE 1.1



1.1 Existing Roadway System

State Route 99 (SR 99)

State Route 99 (SR 99) is a major state freeway facility that traverses in the north-south direction through central and northern California. Regionally, SR 99 serves as the primary interregional auto and truck travel route that connects the Central Valley cities of Stockton, Modesto, Merced, and Fresno with the Sacramento urban area to the north and the Los Angeles/ Bakersfield urban basin to the south. Within the City of Galt, SR 99 bisects the City, and is a major north-south commuter route between the Cities of Sacramento and Stockton. Within the City of Galt planning area, SR 99 is a four-lane divided freeway with a posted speed limit of 65 mph.

Twin Cities Road (SR 104)

Twin Cities Road (SR 104) is an east-west state highway that originates at the SR 99 Interchange and extends east, connecting the City of Galt to Lone and Sutter Creek. Twin Cities Road continues west from SR 99 as County Route E13, terminating at River Road adjacent to the Sacramento River. Within Galt, Twin Cities Road is a four-lane arterial facility that tapers to two lanes east of Fermoy Way, and lies on the northern boundary of the City Limits. Per the City's current General Plan Circulation Element, Twin Cities Road is planned to be widened to four lanes from Fermoy Way to Marengo Road.

Marengo Road

Marengo Road is a two-lane, north-south arterial facility that represents a parallel route to Carillion Boulevard, and connects northeast Galt with the Simmerhorn Road and Boessow Road corridors. Marengo Road forms a T-intersection with Twin Cities Road to the north (Project driveway location), and ends in a T-intersection with Boessow Road to the south. Per the City's current General Plan Circulation Element, Marengo Road is planned to be widened to four lanes along its entire length.

Park Terrace Drive

Park Terrace Drive is a north-south residential street facility that connects with Twin Cities Road to the north and Walnut Avenue to the south, providing a parallel route to Marengo Road. Park Terrace Drive contains the school zone for Robert L. McCaffrey Middle School.

Carillion Boulevard

Carillion Boulevard is a divided, north-south arterial facility that generally serves northeast Galt. Currently, Carillion Boulevard traverses between Twin Cities Road in the north and Simmerhorn Road to the south. The segment of Carillion Boulevard between Twin Cities Road and Vauxhall Avenue is a four-lane arterial, and south of Vauxhall Avenue, Carillion Boulevard currently tapers to a two-lane section to its terminus at Simmerhorn Road.

West Stockton Boulevard

West Stockton Boulevard is a two-lane north-south arterial facility that generally serves northeast Galt. West Stockton Boulevard continues as Lincoln Way south of Live Oak Avenue, and is the frontage road west of SR 99. West Stockton Boulevard provides access to/from SR 99 southbound via three hook ramps (one off ramp and two on ramps) at the Twin Cities Road Interchange.



East Stockton Boulevard

East Stockton Boulevard is a two-lane north-south arterial facility that generally serves northeast Galt. East Stockton Boulevard continues as Carol Drive south of Ayers Lane, and is the frontage road west of SR 99. East Stockton Boulevard provides access to/from SR 99 northbound via hook ramps at the Twin Cities Road Interchange, and at the intersection of Ayers Lane.

Walnut Avenue

Walnut Avenue is an east-west four-lane arterial with a continuous center turn lane, except for a three-lane section immediately east of East Stockton Boulevard. Walnut Avenue connects to SR 99 via hook ramps, but does not currently provide cross-freeway access. Walnut Avenue intersects with Carillion Boulevard with all-way stop control, and ends at Marengo Road. Walnut Avenue has a posted speed limit of 45 mph. Under Cumulative conditions (20 years), Walnut Avenue is projected to extend east to Cherokee Lane, through the Eastview Specific Plan area, and provide access across SR 99 with a full interchange.

Cherokee Lane

Cherokee Lane is a north-south two-lane arterial that connects Twin Cities Road to Boessow Road in eastern Galt's Sphere of Influence. Cherokee Lane provides access to rural areas east of Galt, and will provide access to the development of the Eastview Specific Plan area.

1.2 Study Locations and Data Collection

For this study, fifteen (15) study intersections were identified for study under AM and PM peak hour traffic conditions. The AM peak hour is defined as the one continuous hour of peak traffic flow counted between 7:00 AM and 9:00 AM, and the PM peak hour is defined as the one continuous hour of peak traffic flow counted between 4:00 PM and 6:00 PM under typical weekday conditions. Bicycle and pedestrian counts were also collected at the study intersections. The study intersections are listed below with the date of the traffic count for each intersection in parenthesis:

1. SR 99 Southbound On and Off-ramp / West Stockton Boulevard (Thursday, August 29, 2019)
2. SR 99 Southbound On-ramp / West Stockton Boulevard (Thursday, August 29, 2019)
3. SR 99 Northbound Off-ramp / East Stockton Boulevard (Thursday, August 29, 2019)
4. SR 99 Northbound On-ramp / East Stockton Boulevard (Thursday, August 29, 2019)
5. Twin Cities Road (SR 104) / West Stockton Boulevard (Thursday, August 29, 2019)
6. Twin Cities Road (SR 104) / East Stockton Boulevard (Thursday, August 29, 2019)
7. Twin Cities Road (SR 104) / Fermoy Way (Thursday, August 29, 2019)
8. Twin Cities Road (SR 104) / Foxtrotter Way/ McKenzie Road (Thursday, September 5, 2019)
9. Twin Cities Road (SR 104) / Carillion Boulevard (Thursday, August 29, 2019)
10. Twin Cities Road (SR 104) / Park Terrace Drive / Hauschildt Road (Thursday, August 29, 2019)
11. Twin Cities Road (SR 104) / Marengo Road (Thursday, August 29, 2019).¹
12. Twin Cities Road (SR 104) / Cherokee Lane (Thursday, August 29, 2019)
13. Marengo Road / Lake Park Avenue (Wednesday February 14, 2018)

¹ Under Project conditions, Study Intersection #11 will include Street A, the Project Driveway (see Figure 4.1 Project Site Plan).



14. Marengo Road / Walnut Avenue (Wednesday October 25, 2017)
15. Lake Park Avenue / Park Terrace Drive (Wednesday, October 16, 2019)

Figure 1.2 presents the existing lane geometrics and intersection control types that are currently in place at the study intersections. Figure 1.3 presents the existing weekday AM and PM peak hour volumes at the study intersections.

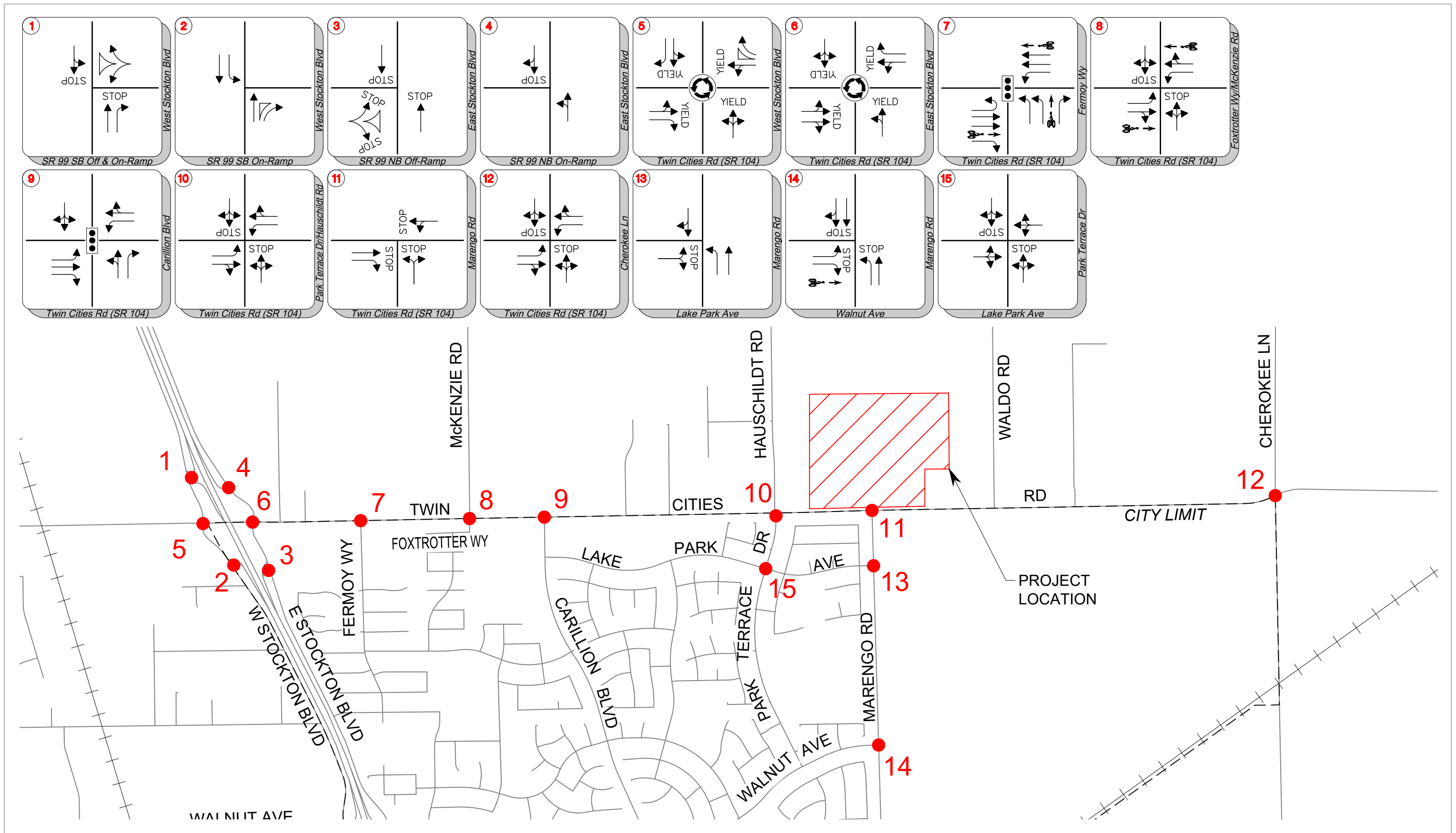
As indicated among these above intersections, four (4) intersections are at ramp termini with SR 99. These intersections were included to meet the requirement of the Caltrans Traffic Impact Study Guidelines. In addition, and based on Caltrans request in a comment letter dated July 8, 2019, SR 99 ramp merge and diverge operations were evaluated in terms of density and LOS for the analysis scenarios at the following locations:

1. SR 99 Southbound Off-ramp/West Stockton Boulevard
2. SR 99 Southbound On-ramp/West Stockton Boulevard (North of Twin Cities Road)
3. SR 99 Southbound On-ramp/West Stockton Boulevard (South of Twin Cities Road)
4. SR 99 Northbound Off-ramp/East Stockton Boulevard
5. SR 99 Northbound On-ramp/East Stockton Boulevard

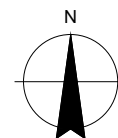
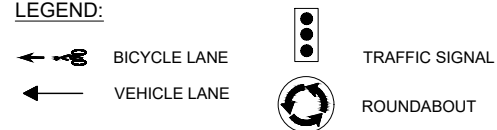
Mainline daily and peak hour volumes were obtained from the Caltrans Traffic Census Program count data, for 2017 north of Twin Cities Road (SR 104). Table 1.1 below presents the SR 99 mainline volumes utilized in this study under Existing conditions, north of Twin Cities Road, as well as the K and D factors. Caltrans Traffic Census Program data was also utilized to obtain Heavy Vehicle data, which is 14.37% (based on 2016 data, which is the most recent available). Ramp volumes were based on the intersection traffic counts. The intersection counts and SR 99 data collected, as described above, form the basis for the Existing conditions for the ramp analyses.

Table 1.1 SR 99 Existing 2017 Peak Hour Volumes north of SR 104

Direction	Northbound	Southbound	Total
AADT	49,400	30,900	80,300
AM Peak Hour Volume	3,220	2,024	5,244
K Factor	6.53		
D Factor	61.4% Northbound		
PM Peak Hour Volume	3,118	3,322	6,440
K Factor	8.02		
D Factor	51.6% Northbound		



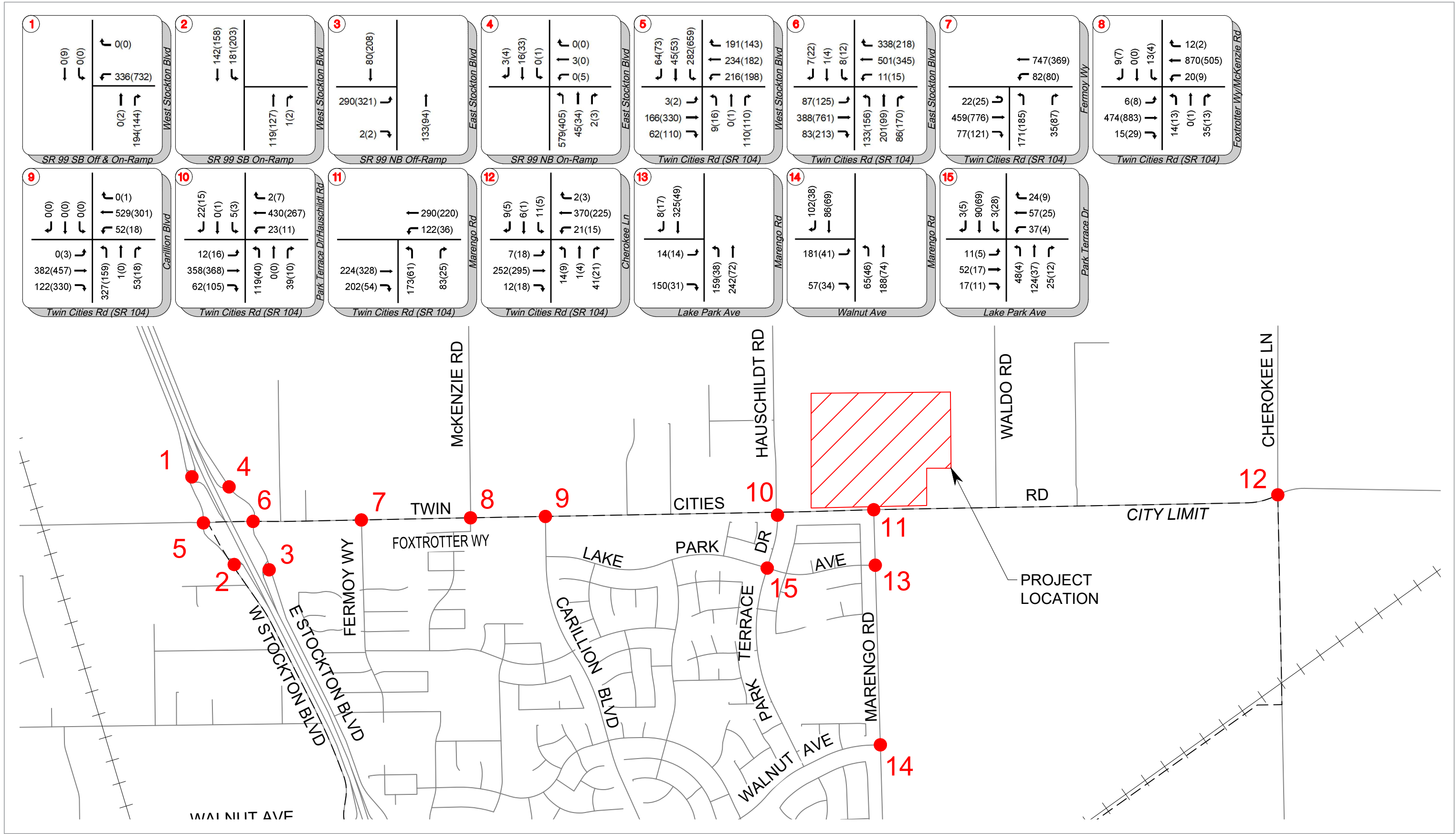
LEGEND:



Raney Planning & Management
 SUMMERFIELD TIAR
 EXISTING LANE GEOMETRICS
 AND CONTROL

Project No. 11199678
 Report No. 001
 Date OCTOBER 2019

FIGURE 1.2





2. Technical Analysis Methodologies and Parameters

The following section outlines the analysis parameters and methodologies that were used in the transportation impact study to quantify the measures of effectiveness for the analysis scenarios.

2.1 Vehicle Miles Traveled (VMT)

Trip-based VMT for the project was also estimated using the California Emissions Estimator Model (CalEEMod). Sources of methodologies and default vehicle activity data in CalEEMod include California Air Resources Board (CARB) vehicle emission model EMFAC. In addition, some local air districts provide customized values for their default data and existing regulation methodologies for use for projects located in their jurisdictions. When no customized information is provided, and no regional differences are defined for local air districts, then statewide default values are utilized. For the Galt area, the CalEEMod uses customized values from the Sacramento Metropolitan Air Quality Management District. VMT was not used to determine CEQA impacts, lacking any operative baseline or impact thresholds under the lead agency, the City of Galt. Published regional VMT figures were compared to the resulting VMT estimates, per service population.

2.2 Level of Service Methodologies

Traffic operations were quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an intersection, or roadway segment, representing progressively worsening traffic conditions. LOS "A" represents free-flow operating conditions and LOS "F" represents over-capacity conditions. Levels of Service was calculated for all intersection control types, and freeway ramp merge and diverge sections using the methods documented in the Transportation Research Board Publication *Highway Capacity Manual, Sixth Edition, A Guide for Multimodal Mobility Analysis, 2016* (HCM 6).

2.2.1 Intersection Operations

The Synchro 10 (Trafficware) software program was used to implement the HCM 6 analysis methodologies for signalized and stop-controlled intersections. Sidra version 8 software program was used to implement HCM 6 analysis methodologies for roundabout intersections. Intersection Level of Service (LOS) was calculated for all control types using the methods documented in HCM 6. For signalized or all-way stop-controlled (AWSC) intersections, an LOS determination is based on the calculated averaged delay for all approaches and movements. For two-way or side-street stop controlled (TWSC) intersections, an LOS determination is based upon the calculated average delay for all movements of the worst performing approach. The vehicular-based LOS criteria for different types of intersection controls are presented in Table 2.1.



Table 2.1 Level of Service (LOS) Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle	
				Signalized	Unsignalized
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	≤10.0	≤10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and ≤20.0	>10.0 and ≤15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and ≤35.0	>15.0 and ≤25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and ≤55.0	>25.0 and ≤35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and ≤80.0	>35.0 and ≤50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

Source: *Highway Capacity Manual Sixth Edition, A Guide for Multimodal Mobility Analysis*, 2016 (HCM 6)



2.2.2 Traffic Signal Warrants Analysis

To determine whether “significance” should be associated with unsignalized intersection operations, a supplemental traffic signal “warrant” analysis was completed. The term “signal warrants” refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the need for installation of a traffic signal at an otherwise unsignalized intersection. This study employed the signal warrant criteria presented in the latest edition of the Federal Highway Administration’s (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)*, as amended by the *MUTCD 2014 California Supplement*. The signal warrant criteria are based upon several factors including volume of vehicular and pedestrian traffic, frequency of accidents, location of school areas etc. Both the FHWA’s *MUTCD* and the *MUTCD 2014 California Supplement* indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. The ultimate decision to signalize an intersection should be determined after careful analysis of all intersection and area characteristics.

This traffic operations analysis specifically utilized the Peak-Hour-Volume based Warrant 3 as one representative type of traffic signal warrant analysis. Warrant 3 criteria are basically identical for both the FHWA’s *MUTCD* and the *MUTCD 2014 California Supplement*. The Signal Warrant analysis worksheets are provided in Appendix D. Since Warrant 3 provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating at or above 40 mph), study intersections that use this specialized criteria are clearly identified within the Appendix. Signal warrant analyses were conducted for intersections which are projected to operate beyond the LOS thresholds, or at locations which assume traffic signals or roundabouts in the Cumulative conditions analysis scenario. This study will also analyze Warrant 5, School Crossing and Warrant 7, Crash Experience to supplement the Peak-Hour Warrant. The School Crossing signal warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason to consider installing a traffic control signal. The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

2.2.3 Ramp Merge & Diverge Operations

In addition to the study intersections, this study evaluated ramp merge and diverge operations for SR 99 ramps at the Twin Cities Road (SR 104) Interchange for each analysis scenario. Peak hour vehicular LOS for the ramp merge and diverge operations was determined using HCS 7 software program, which implements the HCM 6 methodologies. Table 2.2 presents the LOS thresholds for the freeway and ramp segments.



Table 2.2 Highway, Ramp, & Weave Level of Service Criteria

Segment Type	Density (pc/mi/ln)					
	A	B	C	D	E	F
Basic Freeway & Multilane Highway	≤11	≤18	≤26	≤35	>35	Demand Exceeds Capacity
Merge	≤10	≤20	≤28	≤35	≤43	>43
Diverge	≤10	≤20	≤28	≤35	≤43	>43
Weave	≤10	≤20	≤28	≤35	≤43	>43

Source: *Highway Capacity Manual Sixth Edition, A Guide for Multimodal Mobility Analysis*, 2016 (HCM 6)

2.2.4 Technical Analysis Parameters

This traffic study focuses on a “planning level” evaluation of traffic operating conditions, which is considered sufficient for CEQA purposes. The planning level evaluation incorporates appropriate heavy vehicle adjustment factors, peak hour factors, and signal lost time factors and reports the resulting operational analysis as estimated using the HCM 6 based analysis methodologies. Assessments of “design level” parameters (including queuing on intersection lane groups, stacking length requirements, etc.) are not included in this study.

Table 2.3 presents the technical parameters that were utilized for the evaluation of the study intersections and ramp segments for the analysis scenarios. All parameters not listed should be assumed as default values or calculated based on parameters listed.

Table 2.3 Technical Analysis Parameters

	Technical Parameter	Assumption
1	Intersection Peak Hour Factor	Based on counts for Existing and Existing Plus Project conditions. Under Cumulative Conditions, 0.92 or higher if the existing PHF is higher than 0.70, and if the existing PHF is very low (<0.70), then the projected PHF is calculated based on the added volume growth.
2	Intersection Heavy Vehicle %	Based on counts, intersection overall, minimum 2%
3	Pedestrian & Bicycle Volumes	Based on counts
4	Freeway/Ramp Peak Hour Factor	Freeway: 0.92 Ramps: Based on counts for Existing and Existing Plus Project conditions; and 0.92 or higher under Cumulative Conditions, based on current conditions.
5	Grades	2% or less, level terrain
6	Freeway/Ramp Heavy Vehicle %	14.37% Based on Caltrans published data on SR 99.
7	Mainline volumes (SR 99)	Based on Caltrans Traffic Census Program 2017 AADT north of Twin Cities Road.
8	Freeway Free-flow speed	65 mph based on posted speed limit
9	Ramp Free-flow speed	25 mph for hook-ramps, otherwise 35 mph (default)
10	Signal Timings	Based on Caltrans signal timing plans



Table 2.3 Technical Analysis Parameters

	Technical Parameter	Assumption
11	Right Turn on Red at Signals	Intersection counts (collected with new counts).

2.2.5 Level of Service Policies

Caltrans

Caltrans' Guide for the Preparation of Traffic Impact Studies contains the following policy pertaining to the LOS standards within Caltrans jurisdiction:

Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS.

City of Galt

The City of Galt 2030 General Plan Circulation Element (April 2009) specifies the following minimum Level of Service standards for all streets and intersections within the City's jurisdiction:

Policy C-1.3: Level of Services

The City should develop and manage its roadway system to maintain LOS "E" on all streets and intersections within a quarter-mile of State Routes, along A Street and C Street between State Route 99 to the railroad tracks, and along Lincoln Way between Pringle Avenue to Meladee Lane. The City should develop a LOS "D" or better on all other streets and intersections."

Sacramento County

The County's LOS policy is generally consistent with the policy set for the City. The following LOS policy is from Sacramento County's General Plan Circulation Element (Amended December 14, 2017).

C 1-9. Plan and design the roadway system in a manner that meets Level of Service (LOS) D on rural roadways and LOS E on urban roadways, unless it is infeasible to implement project alternatives or mitigation measures that would achieve LOS D on rural roadways or LOS E on urban roadways. The urban areas are those areas within the Urban Service Boundary as shown in the Land Use Element of the Sacramento County General Plan. The areas outside the Urban Service Boundary are considered rural.



3. Existing Conditions

The Existing conditions describe the existing transportation facilities serving the project site, and establish the traffic conditions which currently exist for those facilities. Existing conditions is the analysis scenario in which current operations at study locations are analyzed and establishes the baseline traffic operations for the proposed project impact analysis.

3.1 Existing Conditions Intersection Operations

Existing weekday AM and PM peak hour intersection traffic operations were quantified using existing traffic volumes, lane geometrics, and intersection controls. Table 3.1 presents a summary of the LOS and delay (in sec/veh) at each study intersection during the Existing conditions. In calculating the delay and resulting LOS, the proximity and influence of school-related traffic has been included in the analysis.

3.1.1 School Peak Hour Factor

Trips to and from schools are typically concentrated within relatively short periods of time, often between 15 and 30 minutes, coinciding with student drop-off and pick-up times. This concentration of inbound and outbound travel affects the “peaking” characteristics of traffic volumes at nearby intersections and streets. These peaking characteristics are more pronounced than typical morning and evening commute patterns, which tend to generate increased travel over a 1 to 2 hour period. This variability in traffic levels within a 1-hour period can be expressed in terms of a peak hour factor (PHF). A PHF of 1 indicates that traffic volumes are consistent throughout the peak hour. The lower the PHF, the more traffic volumes vary and spike within the peak hour. A lower PHF is typically observed near schools during the drop-off/pick-up period, where motorists will often note brief periods of increased congestion on nearby streets.

Within the study area, the intersections near Liberty High School, McCaffrey Middle School, and Marengo Ranch Elementary School experience relatively high peaking characteristics within the morning peak hour, with a peak hour factor ranging from 0.47 to 0.69. This is particularly true along Marengo Road, where background commute traffic is low, and concentrated inbound and outbound school trips significantly increase travel for short periods of time. Although industry standard practice is to base traffic studies on “peak hour” conditions, traffic operational analyses use the PHF to simulate “worst case” vehicular delay and queuing conditions during the highest peak 15 minutes of the peak hour.

Intersections in this study where the PHF is particularly low report high levels of vehicular delay, representing those peak 15 to 30 minutes of school traffic. It is important to note that outside of these 15 to 30 minute peaks, these intersections may experience very little delay, and that conditions reported in this analysis do not therefore indicate congestion over an extended hour-long period.



Table 3.1 Existing Conditions Intersection Operations

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak		PM Peak		Warrant 3 Met?
				Delay	LOS	Delay	LOS	
1	SR 99 SB On/Off Ramps & W Stockton Blvd ⁵	TWSC	D	9.1	A	9.1	A	
2	SR 99 SB On Ramp & W Stockton Blvd	None	D	-	-	-	-	
3	SR99 NB Off Ramp & E Stockton Blvd	AWSC	D	11.8	B	16.2	C	
4	SR99 NB On Ramp & E Stockton Blvd ⁵	TWSC	D	15.3	C	12.6	B	
5	Twin Cities Rd & W Stockton Blvd	RNDBT	D	7.7	A	11.5	B	
6	Twin Cities Rd & E Stockton Blvd	RNDBT	D	7.1	A	6.2	A	
7	Twin Cities Rd & Fermoy Way	Signal	D	10.5	B	11.3	B	
8	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	TWSC	D	45.4	E	36.3	E	No
9	Twin Cities Rd & Carillion Blvd / Private Driveway	Signal	D	17.1	B	10.8	B	
10	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	TWSC	D	192.3	F	18.3	C	Yes
11	Twin Cities Rd & Marengo Rd	AWSC	D	47.4	E	10.9	B	Yes
12	Twin Cities Rd & Cherokee Ln	TWSC	D	17.4	C	12.7	B	
13	Marengo Rd & Lake Park Ave	TWSC	E	OVR	F	9.5	A	Yes
14	Marengo Rd & Walnut Ave	AWSC	D	14.0	B	8.1	A	
15	Lake Park Ave & Park Terrace Dr	TWSC	E	18.0	C	10.6	B	

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout
2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT
3. Warrants based on California MUTCD Warrant 3 (Peak Hour), Warrant 5 (School Crossing), Warrant 7 (Crash Experience)
4. Intersection #2 does not feature intersection control; assumed no delay.
5. Major approaches modeled as opposing free movements and minor approaches modeled as stop-controlled for compatibility with HCM 6 TWSC methodology.
6. **Bold** = Unacceptable Conditions - For Int. #8, side street left turn delay was greater than acceptable LOS, but side street volume was below Warrant 3 minimum threshold.
7. OVR = Delay over 300 seconds

As presented in Table 3.1, the following intersections operate at an unacceptable LOS under Existing conditions in the AM or PM peak hours:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 11 – Twin Cities Road & Marengo Road
- 13 – Marengo Road & Lake Park Avenue

3.2 Existing Conditions Traffic Signal Warrant Analyses

3.2.1 Warrant 3, Peak Hour

The unsignalized study intersections which operate beyond the LOS thresholds were analyzed to check if they meet the peak hour volume thresholds to satisfy the traffic signal Warrant 3, Peak Hour (based on California MUTCD criteria). Traffic Signal Warrant worksheets are included in the appendix for all study intersections operating or forecasted to operate at unacceptable conditions.



Of the locations listed above that currently operate beyond the LOS threshold, the following currently-unsignalized intersections meet the criteria for California MUTCD Warrant 3, Peak Hour:

- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 11 – Twin Cities Road & Marengo Road
- 13 – Marengo Road & Lake Park Avenue

Improvements to intersection control on State Highways are within Caltrans jurisdiction, and therefore must go through the Caltrans Intersection Control Evaluation (ICE) process.

3.2.2 Warrant 7, Crash Experience

The study intersections were evaluated for traffic signal Warrant 7, Crash Experience. Collision data were collected for the City of Galt and for County of Sacramento Unincorporated Areas from the Statewide Integrated Traffic Records System (SWITRS) for a 5-year period between January 1, 2014 and December 31, 2018. One of the criteria for Warrant 7 includes the threshold of 5 collisions occurring within a 12-month period that are susceptible to correction by a traffic signal (broadside collision types). Table 3.2 presents the collision history for the study locations, showing the maximum number of collisions over a 12-month period, based on the 5-year collision history.

Table 3.2 Collisions Data for Study Locations (2014-2018)

Intersection			Broadside Collisions					Total
#	Road 1	Road 2	2014	2015	2016	2017	2018	
8	TWIN CITIES RD	FOXTROTTER WY			1			1
10	TWIN CITIES RD	PARK TERRACE DR						0
11	TWIN CITIES RD	MARENGO RD						0
12	TWIN CITIES RD	CHEROKEE LN			1			1
13	MARENGO RD	LAKE PARK AV					1	1
15	LAKE PARK AV	PARK TERRACE DR		1				1

As presented in Table 3.2, none of the study intersections that operate beyond LOS thresholds under any analysis conditions meet the collision history criteria for Warrant 7, Crash Experience.

3.3 Existing Conditions Ramp Operations

Existing weekday AM and PM peak hour ramp segment operations were quantified using existing traffic volumes from ramp-adjacent intersections as well as PeMS and Caltrans data. Table 3.3 presents a summary of the LOS and density (in pc/mi/ln) at each analysis location during the Existing conditions.



Table 3.3 Existing Conditions Ramp Operations

#	Location	Segment Type	No. of Lanes	Target LOS	AM Peak Hour			PM Peak Hour		
					Ramp Volume	Density (pc/mi/ln)	LOS	Ramp Volume	Density (pc/mi/ln)	LOS
1	SR 99 SB Off Ramp at West Stockton Blvd	Diverge	1	D	336	23.0	C	732	36.9	E
2	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities Rd	Merge	1	D	194	20.7	C	144	28.9	D
3	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities Rd	Merge	1	D	182	23.4	C	205	31.7	D
4	SR 99 NB Off Ramp at East Stockton Blvd	Diverge	1	D	292	33.0	D	323	34.2	D
5	SR 99 NB On Ramp at East Stockton Blvd	Merge	1	D	585	34.4	D	409	33.8	D

Notes:

1. Ramp volumes based on traffic counts collected August 29, 2019.
2. **Bold** = Unacceptable Conditions

As presented in Table 3.3, the following ramp operates at unacceptable LOS during Existing conditions in the PM peak hour:

- 1 – SR 99 Southbound Off Ramp at West Stockton Boulevard



4. Project Description

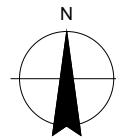
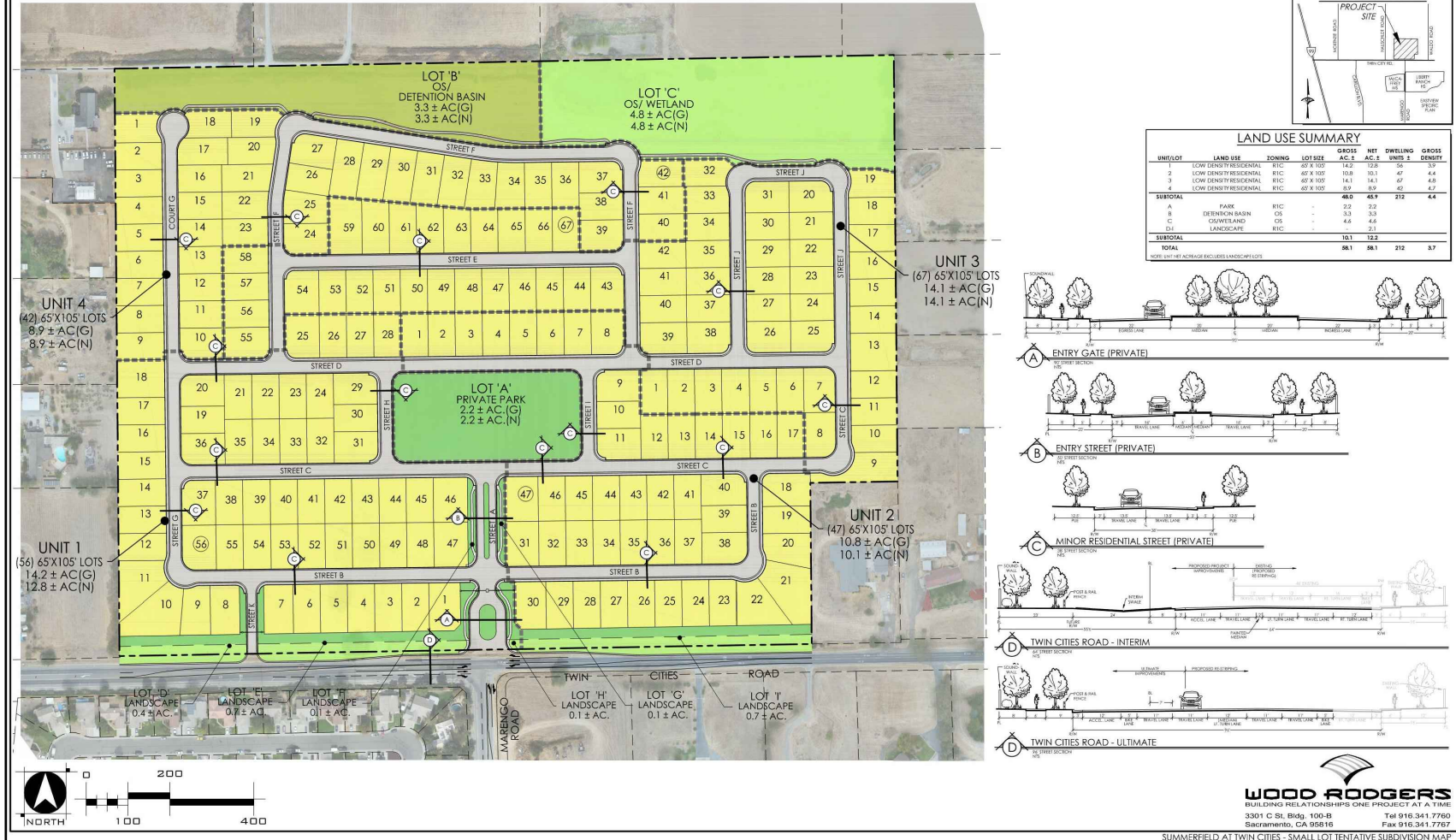
The term "Project" as used in this study will refer to the proposed residential development located north of Twin Cities Road, east of Hauschildt Road, and west of Waldo Road. The proposed Project is located north of the Galt City Limits, within the City's sphere of influence. The proposed 58.1-acre development is a gated community comprised of 212 single family dwelling units, a 2.2-acre private park, a 3.3-acre detention basin, and 4.8 acres of open space/wetland. The Project will pursue a General Plan Amendment from Commercial on the south half and Rural Residential on the north half, to Low Density Residential (1-6 du/ac) for the entire property, which will also require annexation into the City of Galt. The Project proposes to annex the 58.1-acre property into the City of Galt. Provided below is a description of the small-lot vesting tentative subdivision for the Project.

- **Lot A:** Private Park (2.2 ± gross acres)
 - Located at the center of the development site east of Unit 1 and west of Unit 2
- **Lot B:** Open Space/Detention Basin (3.3 ± gross acres)
 - Located at the northwest corner of the development site, north of Unit 4
- **Lot C:** Open Space/Wetland (4.8 ± gross acres)
 - Located at the northwest corner of the development site, north of Unit 3 and east of Lot B
- **Unit/Lot 1:** Low-Density Residential (14.2 ± gross acres)
 - 56 single family dwelling units
 - Located at the southwest section of the development site, with Twin Cities Road to the south
- **Unit/Lot 2:** Low-Density Residential (10.8 ± gross acres)
 - 47 single family dwelling units
 - Located at the southeast section of the development site, north of Twin Cities Road, east of Unit 1
- **Unit/Lot 3:** Low-Density Residential (14.1 ± gross acres)
 - 67 single family dwelling units
 - Located north of Unit 1 and Unit 2
- **Unit/Lot 4:** Low-Density Residential (8.9 ± gross acres)
 - 42 single family dwelling units
 - Located north of Unit 1 and Unit 3, south of Lot B

Figure 4.1 presents the site plan for the proposed project.

ILLUSTRATIVE EXHIBIT SUMMERFIELD AT TWIN CITIES

CITY OF GALT, CALIFORNIA
MAY 13, 2019



Raney Planning & Management
SUMMERFIELD TIAR

PROJECT SITE PLAN

Project No. 11199678
Report No. 001
Date AUGUST 2019

FIGURE 4.1



4.1 Project Site Access and Circulation

The proposed site will provide one access point along the exterior of the development, located at the Twin Cities Road/Marengo Road intersection. A roadway named “Street K” will be for emergency vehicles only, and is located approximately 540 feet west of the main access, on Twin Cities Road. In addition to the study locations analyzed, this study will analyze queuing constraints at the main gated entrance.

The intersection at Twin Cities Road and Marengo Road operates beyond Caltrans’ Level of Service threshold under Existing conditions, and will require improvement when this Project is constructed. Modification to Caltrans intersections are required to go through the Caltrans Intersection Control Evaluation (ICE) process. Pending an ICE process, it may be determined that the intersection requires conversion from the current all-way stop control to either a signalized intersection or a modern roundabout. Additionally, with either intersection improvement, the Project driveway does not appear to provide sufficient space for queueing of vehicles. The Project site plan will require modification to provide adequate space for queueing of vehicles inbound and outbound, so that spillback does not occur onto Twin Cities Road (SR 104), or from Twin Cities Road back to the gated entrance.

For the purpose of this analysis, the study intersection of Twin Cities Road at Marengo Road (#11) was analyzed as a signalized intersection under Cumulative conditions to identify potential Project impacts, and provide a conservative analysis. This improvement is included in the City’s Traffic Capital Improvement Program (TCIP).

4.1.1 Multimodal Facilities

The Project must be consistent with the City of Galt’s 2030 General Plan Circulation Element Policy for Complete Streets, the 2011 City of Galt Bicycle Transportation Plan, and, upon approval, the *Carillion Boulevard Complete Street Corridor Study*.

As specified in Sacramento County’s Traffic Impact Analysis Guidelines (July 2004):

“Bicycle and Pedestrian Facilities: A project is considered to have a significant effect if it would:

- Eliminate or adversely affect an existing bikeway or pedestrian facility in a way that would discourage its use;
- Interfere with the implementation of a planned bikeway as shown in the Bicycle Master Plan, or be in conflict with the Pedestrian Master Plan; or
- Result in unsafe conditions for bicyclists or pedestrians, including unsafe bicycle/pedestrian, bicycle/motor vehicle, or pedestrian/motor vehicle conflict.”

The project proposes a park within the development, which should provide safe and convenient multimodal facilities between the different land uses within the project site, and connect with existing multimodal infrastructure outside of the project site. The Project should provide sidewalks and crosswalks at the intersection of Twin Cities Road and Marengo Road, to facilitate access for all modes of travel across Twin Cities Road to other areas of Galt including the nearby schools.



4.2 Project Trip Generation

Project site trip generation has been estimated for the total number of dwelling units, all assumed to be single family dwelling units. These estimations were achieved by utilizing the Institute of Transportation Engineers (ITE) Publication *Trip Generation Manual (10th Ed.)* Trip rates for the 212 dwelling units used the land use code 210 for single family detached housing units. Trip generation rates were not estimated for the park site, as it is expected to be local-serving.

Table 4.1 presents the project trip generation for Existing and Cumulative Plus Project conditions. As shown, the net new project trip generation is 2,076 daily trips, 155 trips for the AM peak hour, and 209 trips for the PM peak hour under Existing and Cumulative Plus Project conditions.

Table 4.1 Project Trip Generation

Land Use Category (ITE Code)	Unit ¹	Daily Trip Rate/Unit ²	AM Peak Hour Trip Rate/Unit			PM Peak Hour Trip Rate/Unit		
			Total	In %	Out %	Total	In %	Out %
Single Family Detached (210)	DU	9.79	0.73	25%	75%	0.96	63%	37%
Project Name	Quantity (Units)	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Summerfield	212	2,076	155	39	116	209	132	77
Net New Project Trips		2,076	155	39	116	209	132	77

Notes:

1. GKSF = 1,000 Sq. Ft. Gross Floor Area DU = dwelling unit

2. Trip rates based on fitted curve equations or average rates within ITE Trip Generation Manual, 10th Edition, 2017.

4.3 Trip Distribution & Assignment

Trip distribution for the project-generated residential trips was estimated utilizing the select zone analysis tool within the City's Travel Demand Model, under Existing conditions and Cumulative conditions.

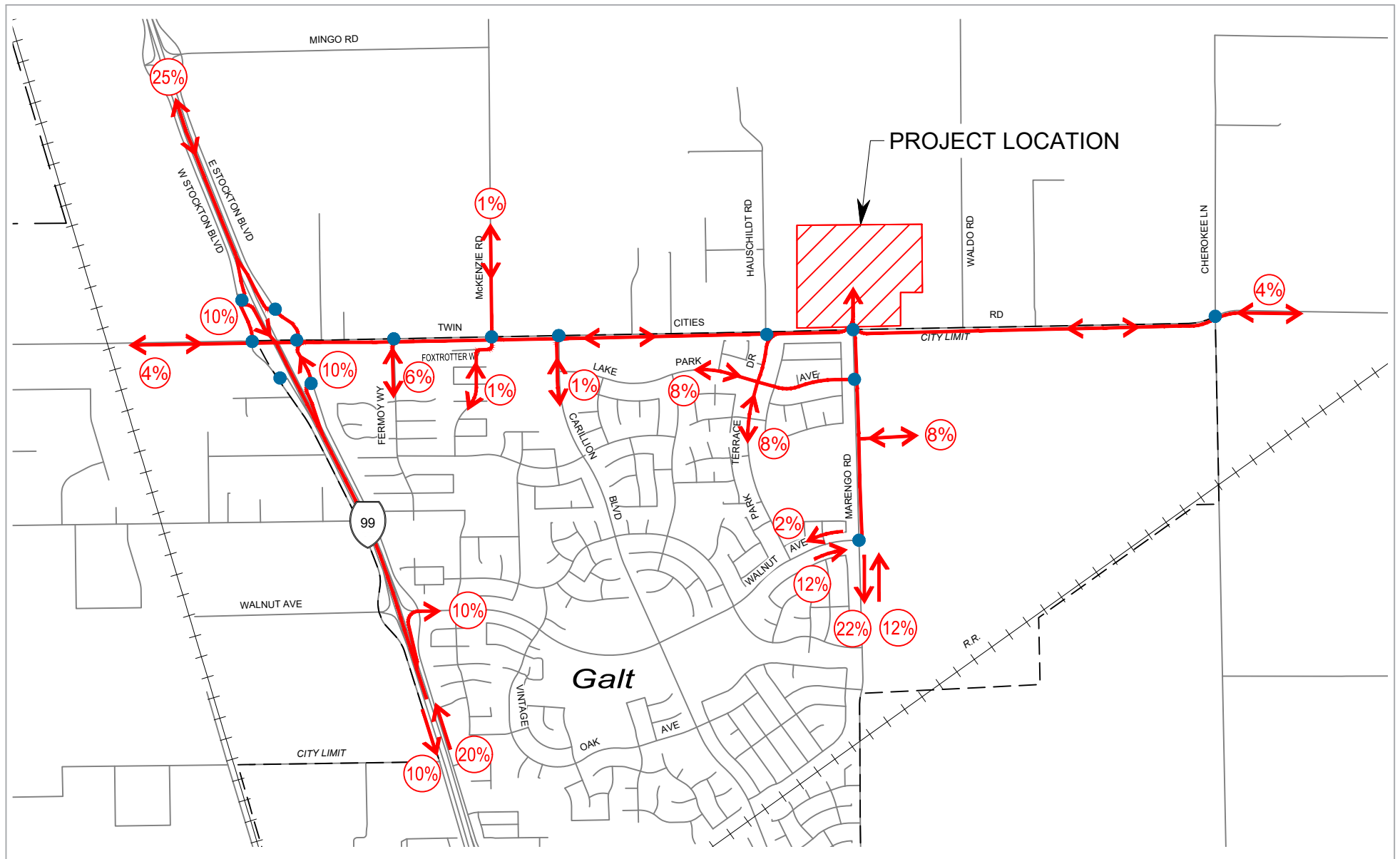
In the AM peak hour, an estimated 24% of Project-generated trips will go to/from the three nearby schools. In the PM peak hour, an estimated 9% of Project-generated trips will go to/from the three nearby schools. During both AM and PM peak hours, 25% of Project-generated trips will go to/come from the north on SR 99. For inbound trips coming from the south along SR 99, an estimated 5% of trips will utilize C Street/Boessow Road and Marengo Road, 10% of drivers will use the Walnut Avenue Interchange Off Ramp, and 10% will use the East Stockton Blvd Off Ramp south of Twin Cities Road. In summary, 25% of project-generated trips will go to/come from the south, travelling along SR 99. The remaining percentages will travel to central/downtown Galt, Twin Cities Road commercial, or nearby uses.

Under Cumulative conditions, the Walnut Avenue Interchange is assumed to be constructed, providing access across SR 99. 10% of project-generated trips are projected to utilize the Walnut Avenue Interchange to access SR 99 to the south.

The project-generated trips were assigned to the study locations based on the trip distribution. Figure 4.6 presents the Project-only peak hour Volumes under Existing conditions. Figure 4.2 and Figure 4.3 present the trip distribution for the Project-generated trips under Existing Plus Project

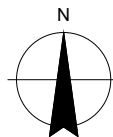


conditions during the AM and PM peak hours. Figure 4.4 and Figure 4.5 present the trip distribution under Cumulative (Year 2040) Plus Project conditions for the AM and PM peak hours. Figure 4.7 presents the Project-only peak hour Volumes under Cumulative conditions.



LEGEND:

- STUDY INTERSECTION
- ↔ TRIP DISTRIBUTION PATH

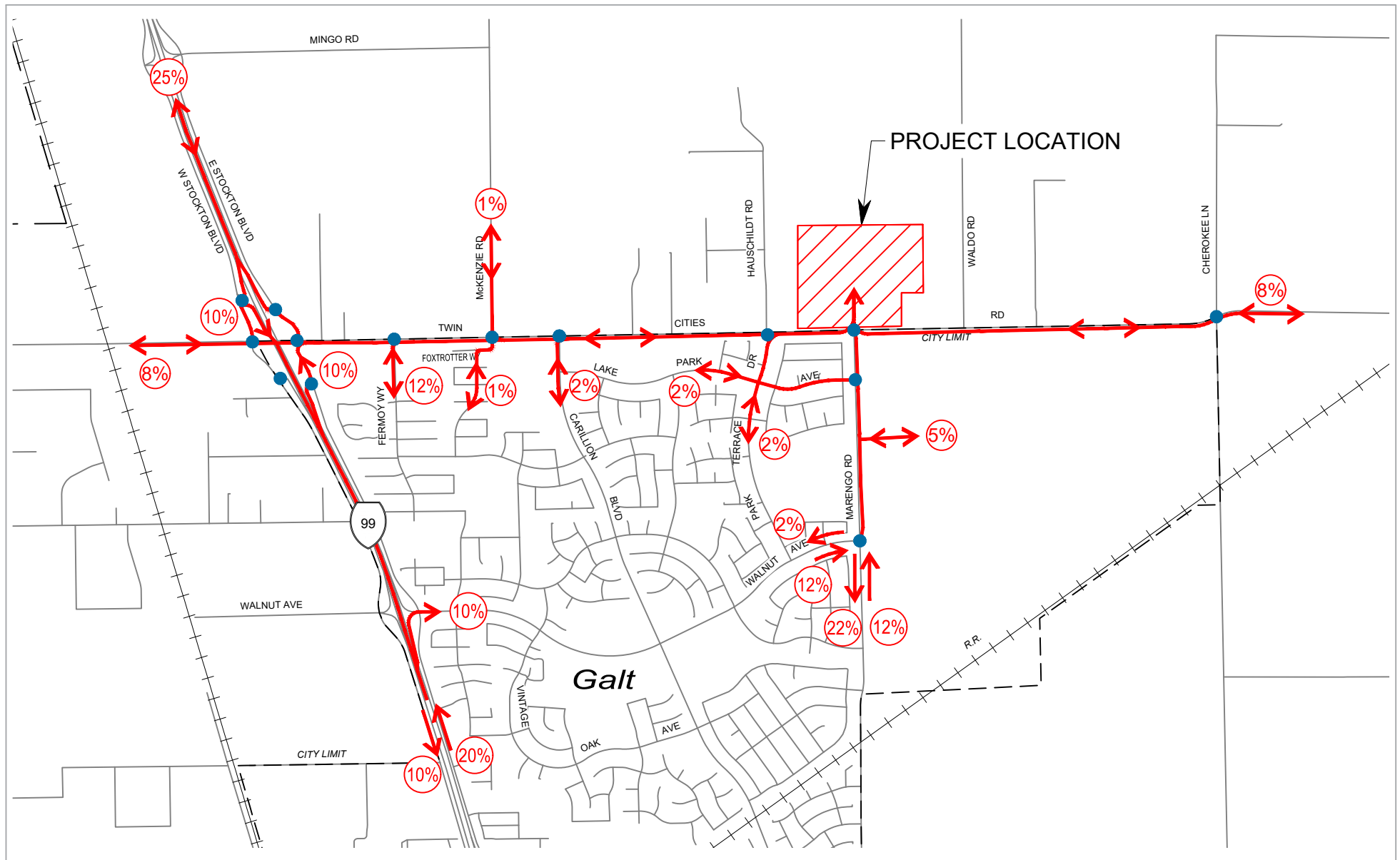


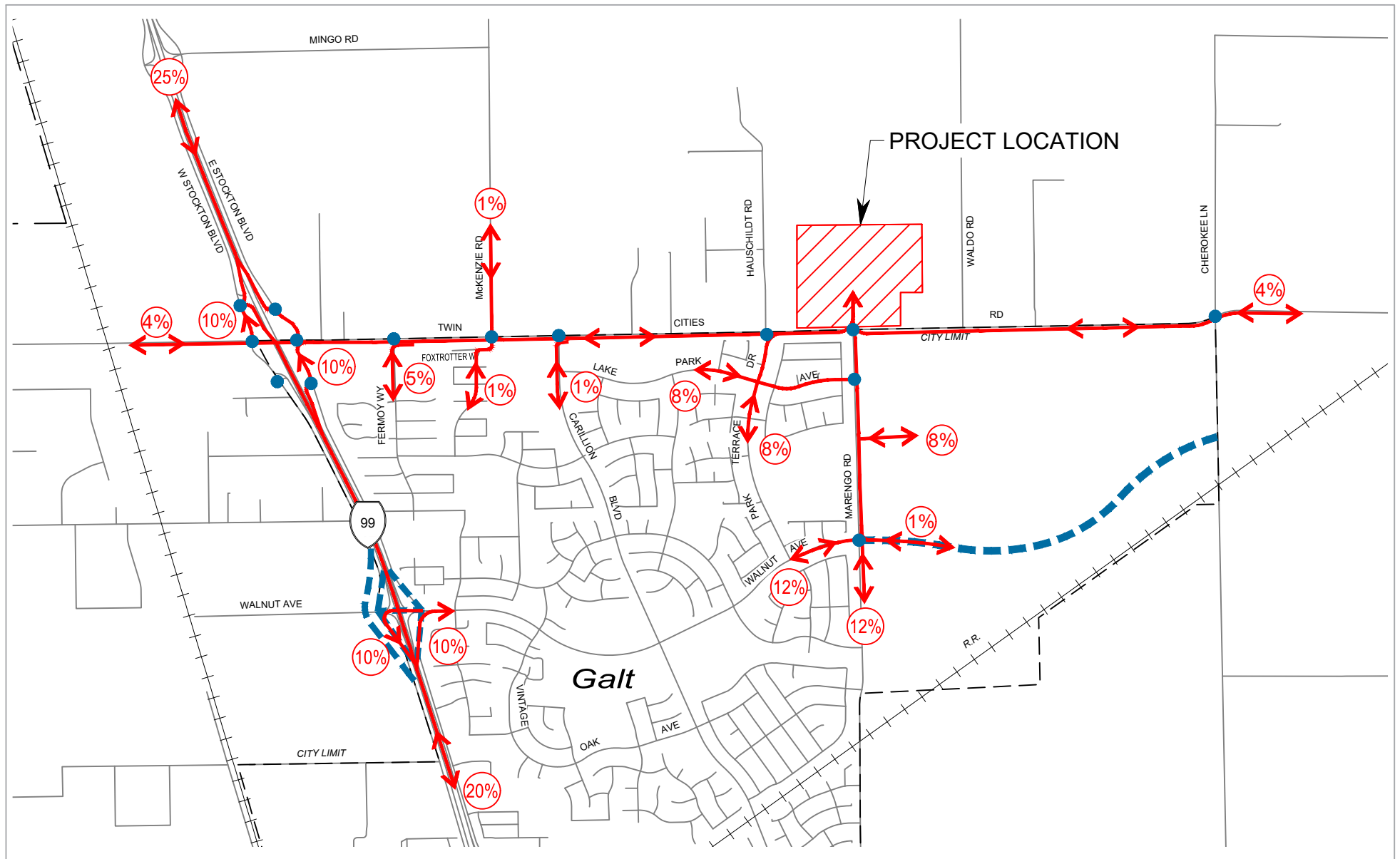
Raney Planning & Management
SUMMERFIELD TIAR

**EXISTING AM PEAK HOUR
TRIP DISTRIBUTION**

Project No. 11199678
Report No. 001
Date SEPT. 2019

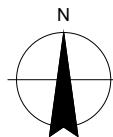
FIGURE 4.2





LEGEND:

- STUDY INTERSECTION
- ↔ TRIP DISTRIBUTION PATH
- FUTURE ROADWAY

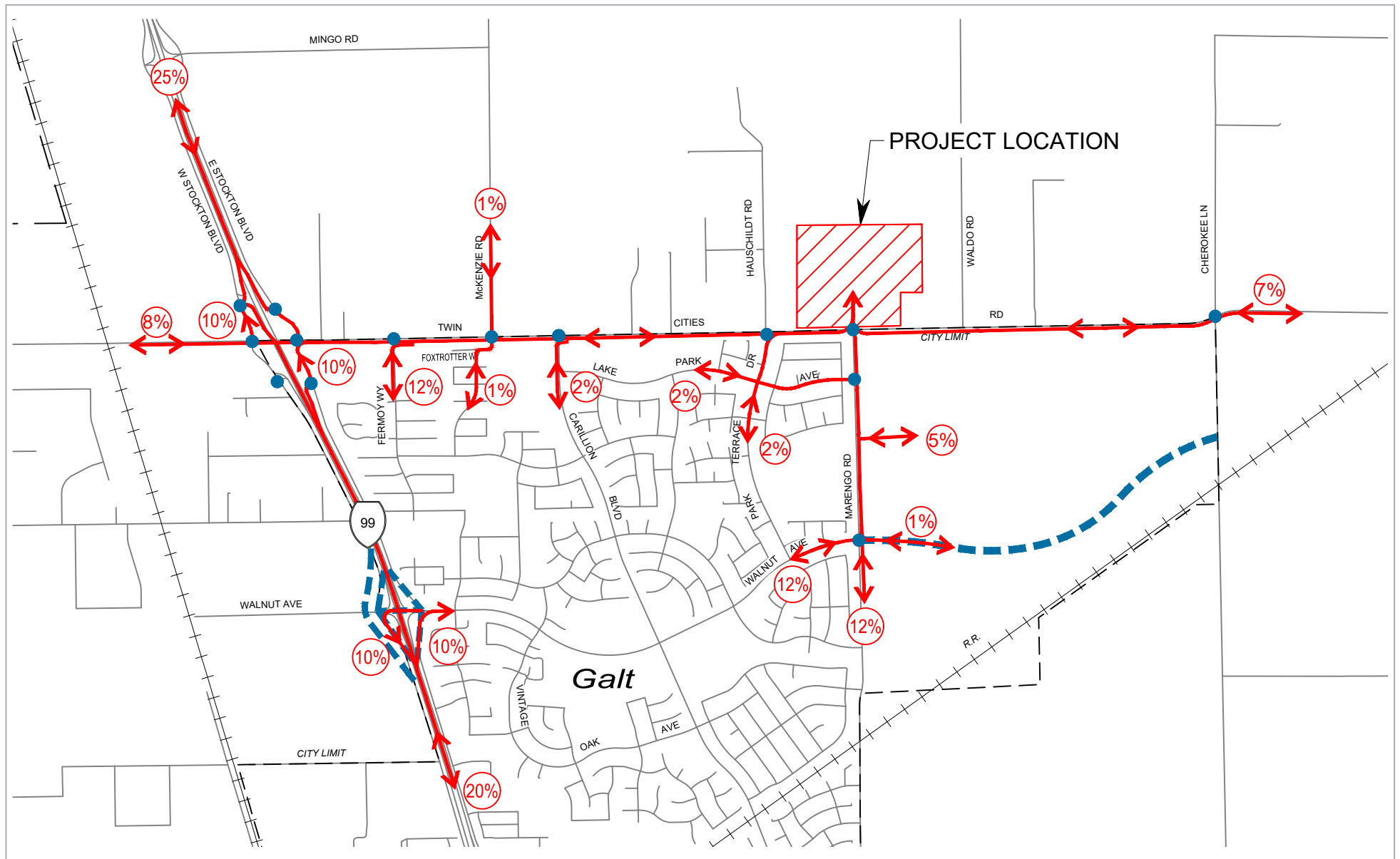


Raney Planning & Management
SUMMERFIELD TIAR

YEAR 2040 AM PEAK HOUR
TRIP DISTRIBUTION

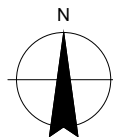
Project No. 11199678
Report No. 001
Date NOV. 2019

FIGURE 4.4



LEGEND:

- STUDY INTERSECTION
- ↔ TRIP DISTRIBUTION PATH
- FUTURE ROADWAY

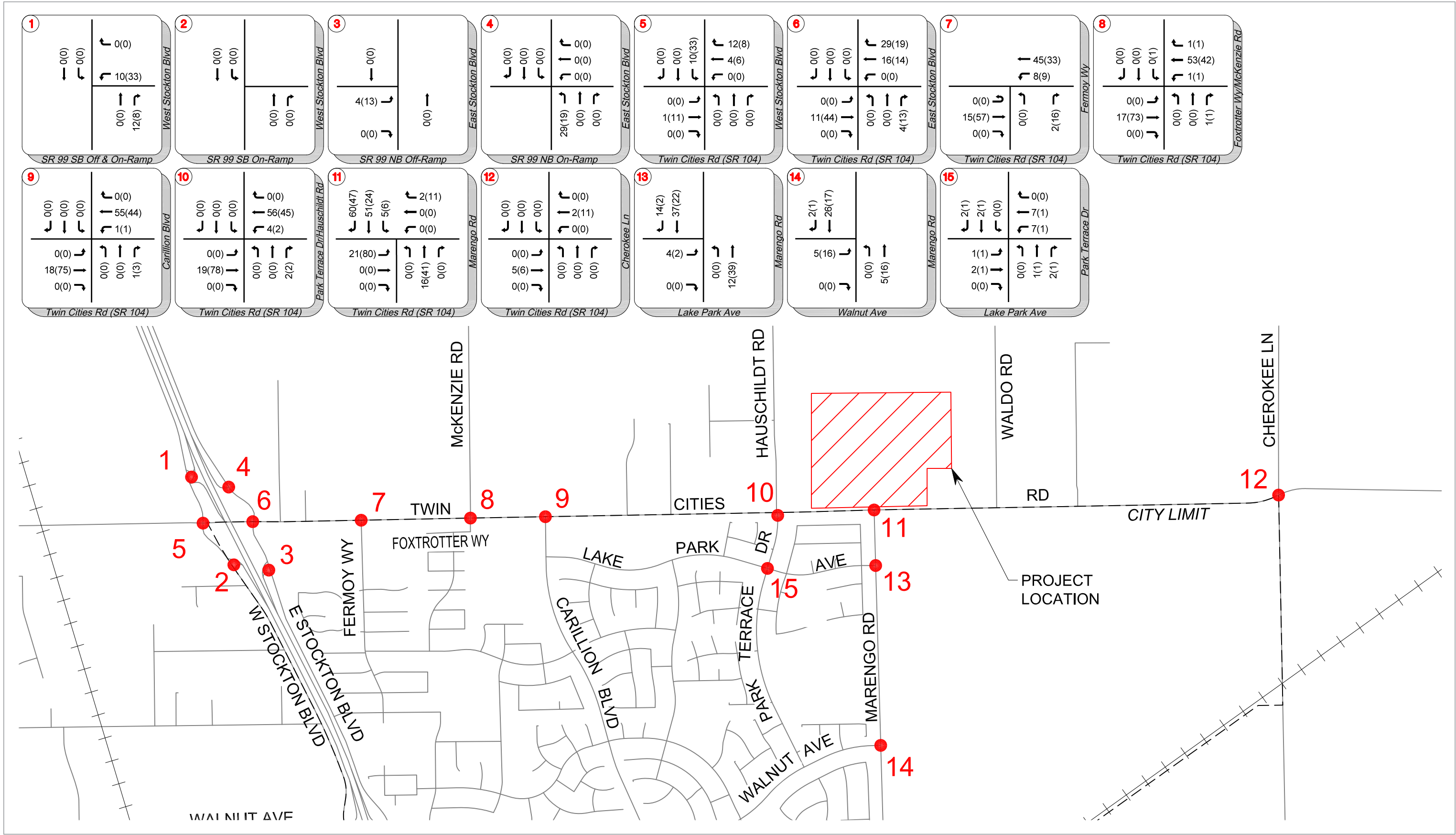


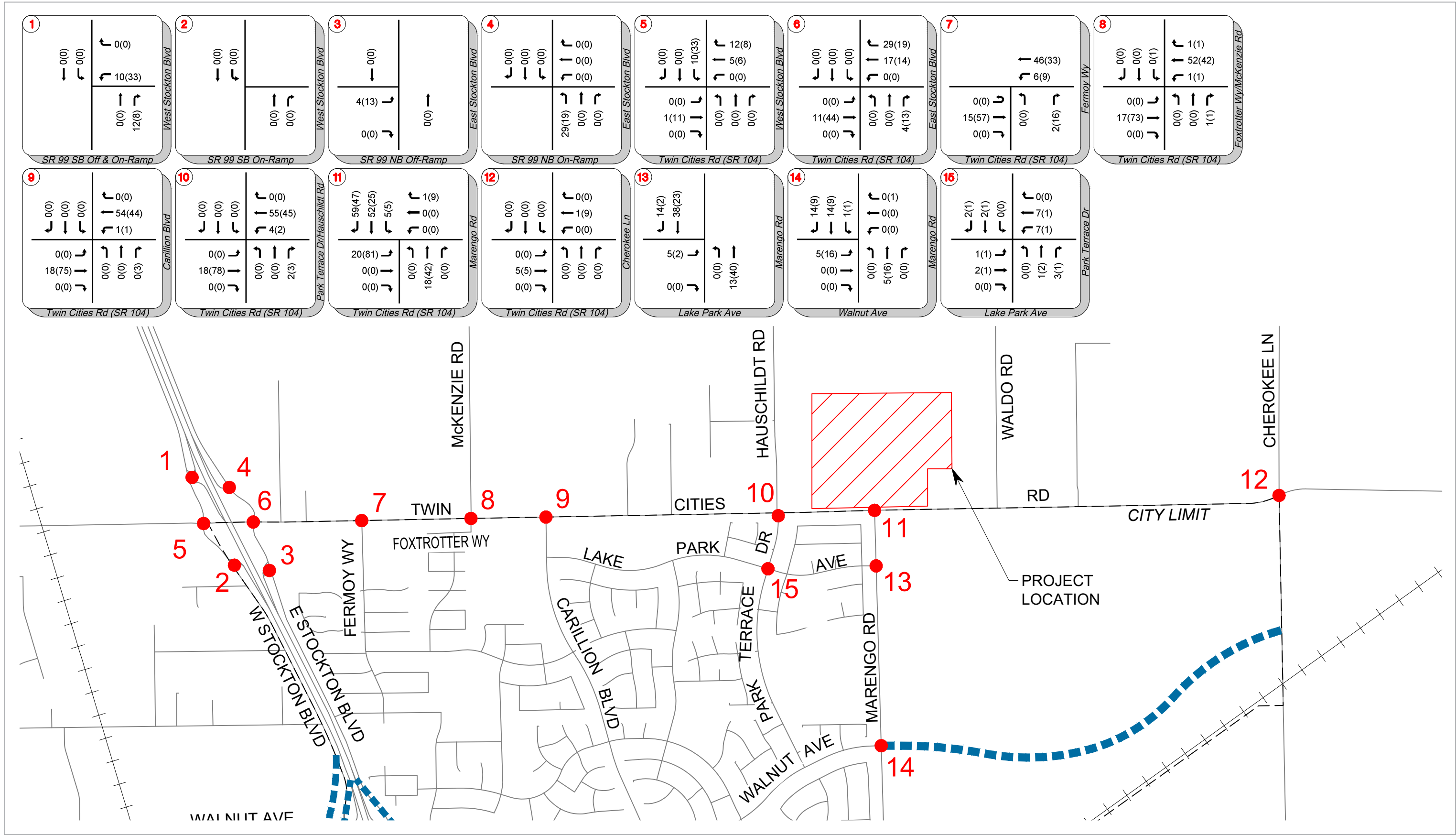
Raney Planning & Management
SUMMERFIELD TIAR

YEAR 2040 PM PEAK HOUR
TRIP DISTRIBUTION

Project No. 11199678
Report No. 001
Date SEPT. 2019

FIGURE 4.5



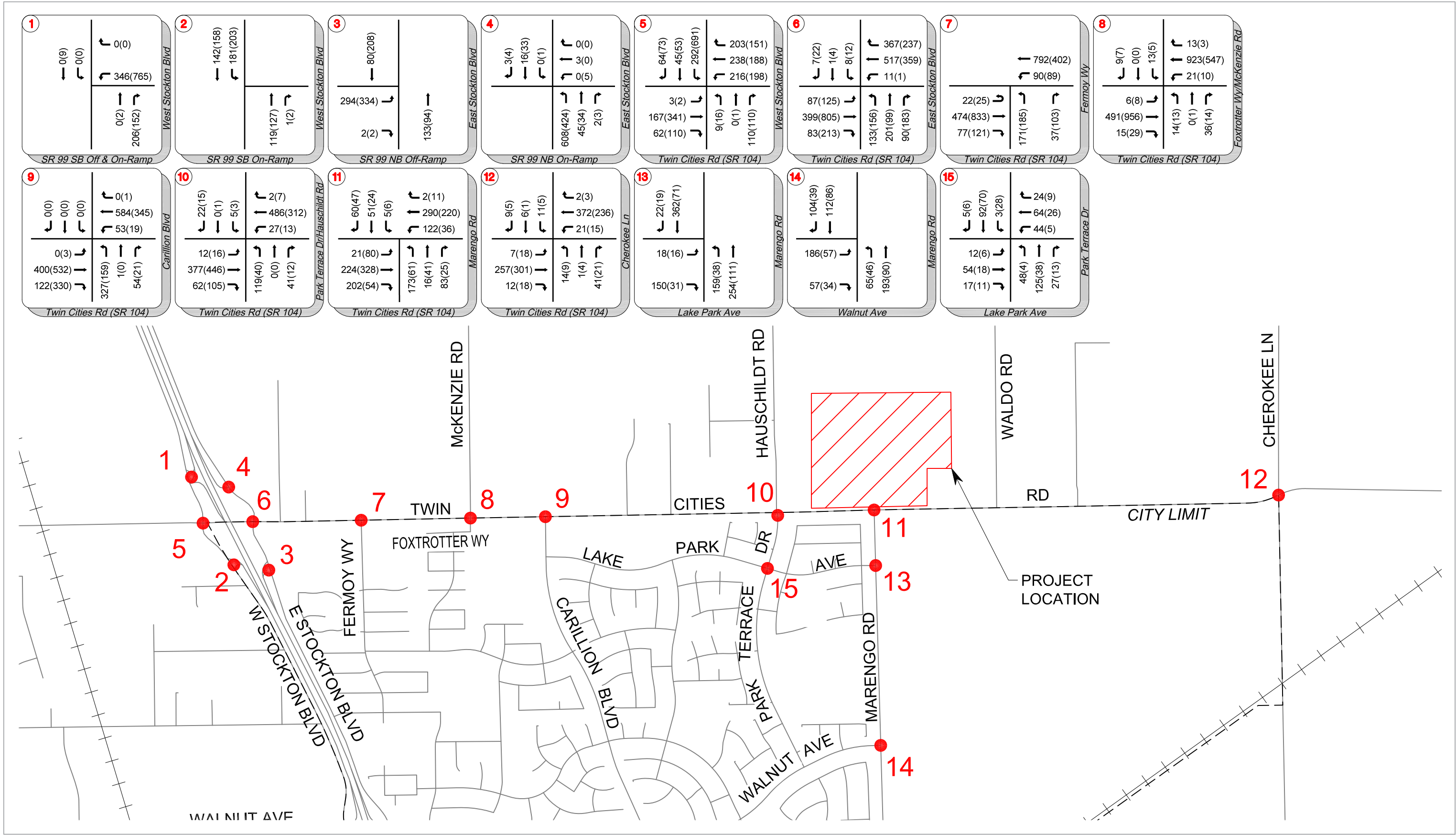




5. Existing Plus Project Conditions

Existing Plus Project conditions refers to the analysis scenario in which projected trips generated by the proposed project are superimposed onto the existing “background” traffic volumes. Traffic impacts associated with the proposed Summerfield development are investigated in comparison to the Existing Conditions.

Figure 5.1 presents the Existing Plus Project peak hour traffic volumes.





5.1 Existing Plus Project Intersection Operations

Table 5.1 presents a summary of the LOS and delay (in sec/veh) at each study intersection during the Existing Plus Project conditions.

Table 5.1 Existing Plus Project Conditions Intersection Operations

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak		PM Peak		Warrant 3 Met?
				Delay	LOS	Delay	LOS	
1	SR 99 SB On/Off Ramps & W Stockton Blvd ⁵	TWSC	D	9.2	A	9.1	A	
2	SR 99 SB On Ramp & W Stockton Blvd	None	D	-	-	-	-	
3	SR99 NB Off Ramp & E Stockton Blvd	AWSC	D	12.0	B	17.2	C	
4	SR99 NB On Ramp & E Stockton Blvd ⁵	TWSC	D	15.9	C	12.9	B	
5	Twin Cities Rd & W Stockton Blvd	RNDBT	D	7.8	A	12.4	B	
6	Twin Cities Rd & E Stockton Blvd	RNDBT	D	7.2	A	6.2	A	
7	Twin Cities Rd & Fermoy Way	Signal	D	10.6	B	11.8	B	
8	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	TWSC	D	52.9	F	43.3	E	No
9	Twin Cities Rd & Carillion Blvd / Private Driveway	Signal	D	17.6	B	11.0	B	
10	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	TWSC	D	292.2	F	21.8	C	Yes
11	Twin Cities Rd & Marengo Rd	AWSC	D	51.4	F	13.4	B	Yes
12	Twin Cities Rd & Cherokee Ln	TWSC	D	17.6	C	12.9	B	
13	Marengo Rd & Lake Park Ave	TWSC	E	OVR	F	9.8	A	Yes
14	Marengo Rd & Walnut Ave	AWSC	D	14.7	B	8.3	A	
15	Lake Park Ave & Park Terrace Dr	TWSC	E	19.7	C	10.7	B	

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT

3. Warrants based on California MUTCD Warrant 3 (Peak Hour), Warrant 5 (School Crossing), Warrant 7 (Crash Experience)

4. Intersection #2 does not feature intersection control; assumed no delay.

5. Major approaches modeled as opposing free movements and minor approaches modeled as stop-controlled for compatibility with HCM 6 TWSC methodology.

6. **Bold** = Unacceptable Conditions - For Int. #8, side street left turn delay was greater than acceptable LOS, but side street volume was below Warrant 3 minimum threshold.

7. OVR = Delay over 300 seconds

As presented in Table 5.1, the following intersections operate at an unacceptable LOS under Existing Plus Project conditions in the AM or PM peak hours:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 11 – Twin Cities Road & Marengo Road
- 13 – Marengo Road & Lake Park Avenue



5.2 Existing Plus Project Traffic Signal Warrant Analyses

5.2.1 Warrant 3, Peak Hour

The unsignalized study intersections which operate beyond the LOS thresholds were analyzed to check if they meet the peak hour volume thresholds to satisfy traffic signal Warrant 3, Peak Hour (based on California Manual for Uniform Traffic Control Devices). Traffic Signal Warrant worksheets are included in the appendix for all study intersections operating or forecasted to operate at unacceptable conditions. Of the locations listed above that currently operate beyond the LOS threshold, the following unsignalized intersections meet the criteria for California MUTCD Warrant 3, Peak Hour under Existing Plus Project conditions:

- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 11 – Twin Cities Road & Marengo Road
- 13 – Marengo Road & Lake Park Avenue

Improvements to intersection control on State Highways are within Caltrans jurisdiction, and therefore must go through the Caltrans Intersection Control Evaluation (ICE) process.

5.2.2 Warrant 5, School Crossing

The study intersections were evaluated for traffic signal Warrant 5, School Crossing. This warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason for the consideration. According to the CA MUTCD, the need for a traffic control signal shall be considered when an engineering study of the frequency and adequacy of gaps in the vehicular traffic stream, at an established school crossing, shows that the number of adequate gaps in the traffic stream during the school crossing peak is less than the number of minutes in the same period, and a minimum of 20 schoolchildren during the highest crossing hour.

Based on US Census data for Galt, the total number of school children can be estimated for the development. High School-aged children will likely be allowed to walk to school, since Liberty Ranch High School is located within a ¼ mile of the Project site. Elementary and middle school-aged children will not likely walk to school due to the distances being further (over ½ mile) to the nearest schools. 2017 Census data reports that Galt has a High School enrollment of 2,777, and a total of 12,997 housing units; this equates to a rate of 0.214 high school students per residential unit. Applying this rate to the projected number of housing units (212) results in 45 high school students projected for the development. If 45% or more of the high school students walked to school during the same hour, this would likely meet the school crossing warrant. However, the CA MUTCD also has the criteria that, “before the decision is made based on the presence of schoolchildren, consideration shall be given to other remedial measures such as warning or flashing signs, or school crossing guards”. Since other remedial measures have not been implemented, a traffic signal solely based on Warrant 5, School Crossing is not warranted. However, the location in question (Twin Cities Road at Marengo Road) does meet the criteria for Warrant 3, as described above.



5.3 Existing Plus Project Ramp Operations

Existing Plus Project weekday AM and PM peak hour ramp segment operations were quantified by superimposing the additional increments in traffic generated by the proposed project onto existing traffic volumes from ramp-adjacent intersections and PeMS and Caltrans data. Table 5.2 presents a summary of the LOS and density (in pc/mi/ln) at each analysis location during the Existing Plus Project conditions.

Table 5.2 Existing Plus Project Conditions Ramp Operations

#	Location	Segment Type	No. of Lanes	Target LOS	AM Peak Hour			PM Peak Hour		
					Ramp Volume	Density (pc/mi/ln)	LOS	Ramp Volume	Density (pc/mi/ln)	LOS
1	SR 99 SB Off Ramp at West Stockton Blvd	Diverge	1	D	346	23.1	C	765	37.3	E
2	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities Rd	Merge	1	D	206	20.8	C	152	29.0	D
3	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities Rd	Merge	1	D	182	23.5	C	205	31.7	D
4	SR 99 NB Off Ramp at East Stockton Blvd	Diverge	1	D	296	33.1	D	336	34.3	D
5	SR 99 NB On Ramp at East Stockton Blvd	Merge	1	D	614	34.6	D	428	34.0	D

Notes:

1. Bold = Unacceptable Conditions

As presented in Table 5.2, the following ramps operate at unacceptable LOS during Existing conditions in the PM peak hour:

- 1 – SR 99 Southbound Off Ramp at West Stockton Boulevard



6. Cumulative No Project Conditions

Cumulative conditions refer to the analysis scenario which reflects future conditions represented by local and regional growth in approximately 20 years. Based on City direction, Cumulative No Project conditions will analyze the scenario that considers the projected 20-Year development forecast, including the currently planned and approved developments, but without the proposed Summerfield project.

6.1 20-Year Development Forecast

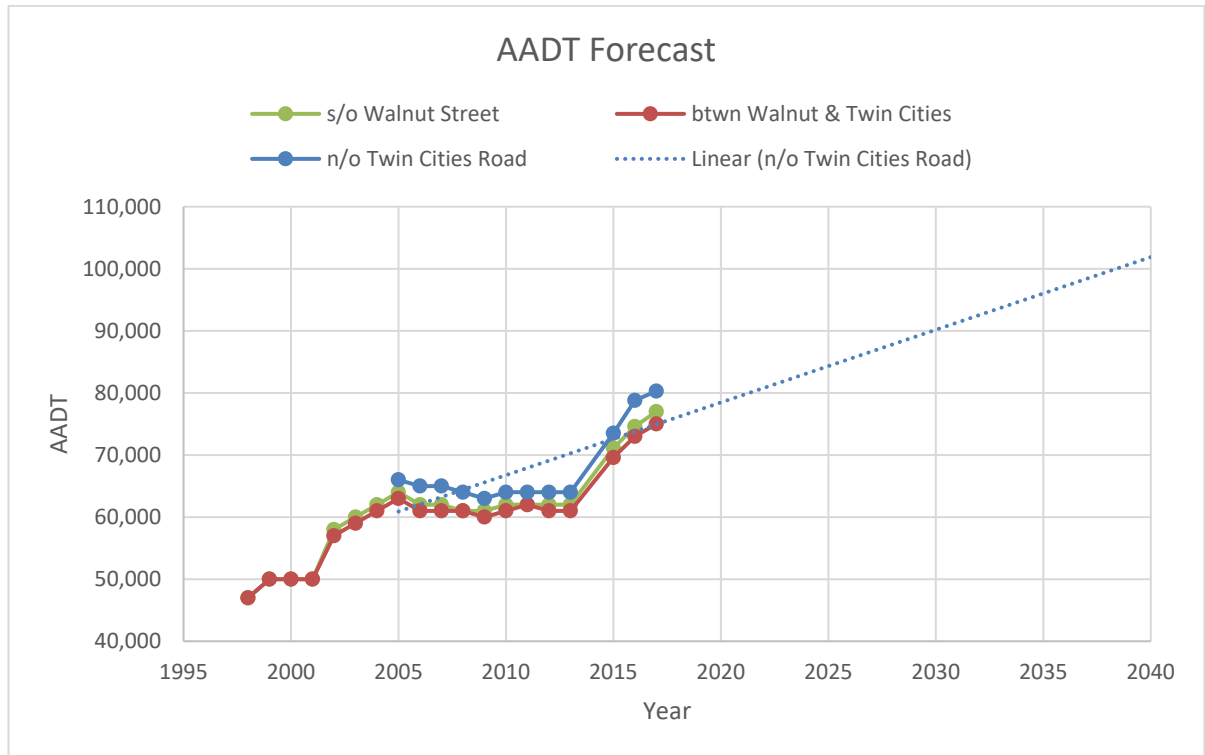
In 2015, the City contracted GHD (formerly Omni-Means) to develop a 20-year land use development forecast and comprehensive update to the Citywide Traffic Capital Improvement Program (TCIP). GHD performed minor updates to the 20-year development forecast in the *Carillion Boulevard Complete Street Corridor Study* to account for changes to current development proposals. The use of the 20-year forecasts were confirmed from the Memorandum of Assumptions, dated September 25, 2019. The information from the Carillion Boulevard study will be used as the baseline scenario for Cumulative conditions.

6.1.1 Carillion Boulevard Complete Street Corridor Study

The *Carillion Boulevard Complete Street Corridor Study* evaluates two alternatives for Carillion Boulevard. The first alternative analyzes Carillion Boulevard as a four-lane arterial. The second alternative analyzes Carillion Boulevard with road diet implementation. Since the plan is currently pending approval, the two alternatives for Carillion Boulevard will be considered under Cumulative conditions analysis for this Traffic Impact Study.

6.1.2 SR 99 Forecasts

Caltrans historical data along SR 99 in the project vicinity were reviewed over the past 10-20 years to evaluate the forecast trendline for the count location north of the Twin Cities Road (SR 104) Interchange. The graph below presents the Caltrans historical data from 1997 to 2017. A straight-line annual growth rate between 2005 and 2017 was calculated to be 1.8%. The graph projects a trendline to year 2040, based on SR 99 north of the Twin Cities Road (SR 104) Interchange. As shown, the historical data projects SR 99 north of Twin Cities Road to be at approximately 101,900 ADT in the year 2040.



The Citywide Travel Demand Model was also utilized to compare forecasts. The model considers growth based on developments within the City, as well as regional growth on SR 99, over the next 20 years. The model projects a growth of approximately 29,100 ADT on SR 99 north of Twin Cities Road. Adding the model delta to the current count, at this location, accounting for 22 years of growth from 2018 to 2040 results in a projection estimated at 109,400 ADT.

However, since SR 99 mainline forecasts have recently been developed nearby, at the Central Galt interchange as part of the *Simmerhorn Ranch Traffic Impact Study*, traffic volumes on SR 99 need to be conserved between the interchanges in the City of Galt. Therefore, the SR 99 mainline forecasts north of C Street ramps were utilized as the “control point” for developing forecasts for the Twin Cities Road Interchange. Mainline volumes at the Twin Cities Road Interchange were estimated by adding/subtracting the forecasted ramp volumes for ramp facilities at Walnut Avenue Interchange, Pringle Avenue/Ayers Lane, Elm Avenue/Simmerhorn Road, and the A Street/C Street (Central Galt) Interchange. Forecasted ramp volumes for The Central Galt Interchange and Elm Avenue/Simmerhorn Road ramps were available from the Simmerhorn Ranch Traffic Impact Analysis Study. At Pringle Avenue/Ayers Lane, forecasted ramp volumes were estimated using Caltrans 2017 published Ramp ADT, K&D data, and the growth in the Citywide travel demand model. At the Walnut Avenue Interchange, forecasted ramp volumes were estimated by adding the model delta from the Citywide Travel Demand Model to Caltrans 2017 Ramp ADT. Ramp volumes for Twin Cities Road Interchange were based on study intersection forecast volumes at the ramp termini, which were estimated using the Citywide Model. Based on the mainline volume estimates north of the Twin Cities Road Interchange, the estimated ADT is **98,300**.



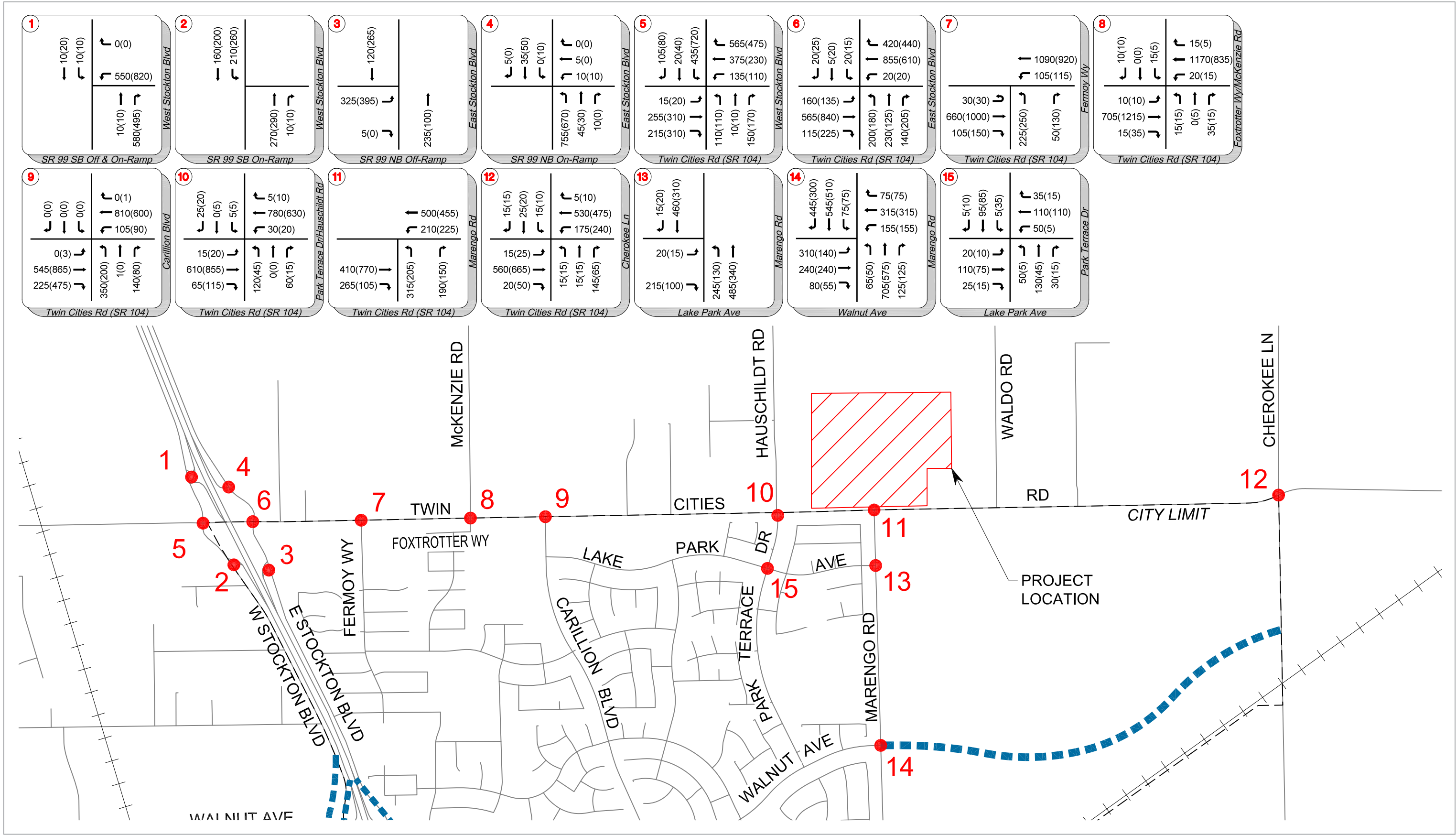
6.2 Cumulative Improvements

Under Cumulative No Project conditions, forecasted roadway improvements include the following:

- Widening of Twin Cities Road to four lanes, west of Marengo Road
- Widening of Marengo Road to four lanes
- Carillion Boulevard extension south between Simmerhorn Road and Crystal Way/SR 99 Northbound ramps (and other roadway extensions in the “Notch” area)
- Walnut Avenue Interchange
- Walnut Avenue extension east through the Eastview Specific Plan area

6.2.1 Cumulative No Project Peak Hour Forecasts

The 20-year development forecasts identified in the *Carillion Boulevard Complete Street Corridor Study* includes the Summerfield development (Project). Therefore, the *Carillion Boulevard Complete Street Corridor Study* was utilized as a basis for determining the 2040 (Cumulative) Plus Project traffic forecasts at the study locations. The 2040 Project Only peak hour traffic volumes were subtracted from the forecasts, rounded to the nearest 5 vehicles, and checked for consistency (volume balance without the proposed project) between intersections near the project site, to obtain 2040 No Project peak hour volume forecasts. Figure 6.1 presents the Cumulative (2040 No Project) peak hour traffic volumes.



1 <div> <div> <div>10(20)</div> <div>10(10)</div> </div> <div> <div>0(0)</div> <div>550(820)</div> </div> <div> <div>10(10)</div> <div>580(495)</div> </div> </div> <div>West Stockton Blvd</div> <div>SR 99 SB Off & On-Ramp</div>	2 <div> <div>160(200)</div> <div>210(260)</div> </div> <div> <div>270(290)</div> <div>10(10)</div> </div>
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West Stockton Blvd

SR 99 SB On-Ramp



6.3 Cumulative No Project Intersection Operations

Table 6.1 presents a summary of the LOS and delay (in sec/veh) at each study intersection during the Cumulative No Project conditions.

Table 6.1 Cumulative No Project Conditions Intersection Operations

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak		PM Peak		Warrant 3 Met?
				Delay	LOS	Delay	LOS	
1	SR 99 SB On/Off Ramps & W Stockton Blvd ⁵	TWSC	D	14.4	B	11.4	B	
2	SR 99 SB On Ramp & W Stockton Blvd	None	D	-	-	-	-	
3	SR99 NB Off Ramp & E Stockton Blvd	AWSC	D	14.2	B	18.5	C	
4	SR99 NB On Ramp & E Stockton Blvd ⁵	TWSC	D	20.3	C	18.5	C	
5	Twin Cities Rd & W Stockton Blvd	RNDBT	D	8.4	A	12.7	B	
6	Twin Cities Rd & E Stockton Blvd	RNDBT	D	18.6	B	6.9	A	
7	Twin Cities Rd & Fermoy Way	Signal	D	10.4	B	11.6	B	
8	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	TWSC	D	72.8	F	94.5	F	No
9	Twin Cities Rd & Carillion Blvd / Private Driveway	Signal	D	10.9	B	11.2	B	
10	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	TWSC	D	OVR	F	73.1	F	Yes
11	Twin Cities Rd & Marengo Rd	Signal	D	11.1	B	6.7	A	
12	Twin Cities Rd & Cherokee Ln	TWSC	D	146.3	F	189.3	F	Yes
13	Marengo Rd & Lake Park Ave	TWSC	E	OVR	F	11.8	B	Yes
14	Marengo Rd & Walnut Ave	Signal	D	51.6	D	19.8	B	
15	Lake Park Ave & Park Terrace Dr	TWSC	E	23.8	C	12.0	B	

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT

3. Warrants based on California MUTCD Warrant 3 (Peak Hour), Warrant 5 (School Crossing), Warrant 7 (Crash Experience)

4. Intersection #2 does not feature intersection control; assumed no delay.

5. Major approaches modeled as opposing free movements and minor approaches modeled as stop-controlled for compatibility with HCM 6 TWSC methodology.

6. **Bold** = Unacceptable Conditions - For Int. #8, side street left turn delay was greater than acceptable LOS, but side street volume was below Warrant 3 minimum threshold.

7. OVR = Delay over 300 seconds

As presented in Table 6.1, the following intersections operate at an unacceptable LOS under Existing conditions in the AM or PM peak hours:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue



6.4 Cumulative No Project Traffic Signal Warrant Analysis

6.4.1 Warrant 3, Peak Hour

The unsignalized study intersections which operate beyond the LOS thresholds were analyzed to check if they meet the peak hour volume thresholds to satisfy traffic signal Warrant 3, Peak Hour (based on California Manual for Uniform Traffic Control Devices). Traffic Signal Warrant worksheets are included in the appendix for all study intersections operating or forecasted to operate at unacceptable conditions. Of the locations listed above that currently operate beyond the LOS threshold, the following unsignalized intersections meet the criteria for California MUTCD Warrant 3, Peak Hour under Cumulative No Project conditions:

- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue

6.5 Cumulative No Project Ramp Operations

Cumulative No Project weekday AM and PM peak hour ramp segment operations were quantified using forecasted traffic volumes from ramp-adjacent intersections and PeMS and Caltrans data. Table 6.2 presents a summary of the LOS and density (in pc/mi/ln) at each analysis location during the Cumulative No Project conditions.

Table 6.2 Cumulative No Project Conditions Ramp Operations

#	Location	Segment Type	No. of Lanes	Target LOS	AM Peak Hour			PM Peak Hour		
					Ramp Volume	Density (pc/mi/ln) or V/C	LOS	Ramp Volume	Density (pc/mi/ln) or V/C	LOS
1	SR 99 SB Off Ramp at West Stockton Blvd	Diverge	1	D	550	28.8	D	820	v/c = 1.03	F
2	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities Rd	Merge	1	D	590	26.8	C	505	36.3	E
3	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities Rd	Merge	1	D	220	30.5	D	270	v/c = 1.01	F
4	SR 99 NB Off Ramp at East Stockton Blvd	Diverge	1	D	330	33.3	D	395	41.0	E
5	SR 99 NB On Ramp at East Stockton Blvd	Merge	1	D	765	35.7	E	670	v/c = 1.03	F

Notes:

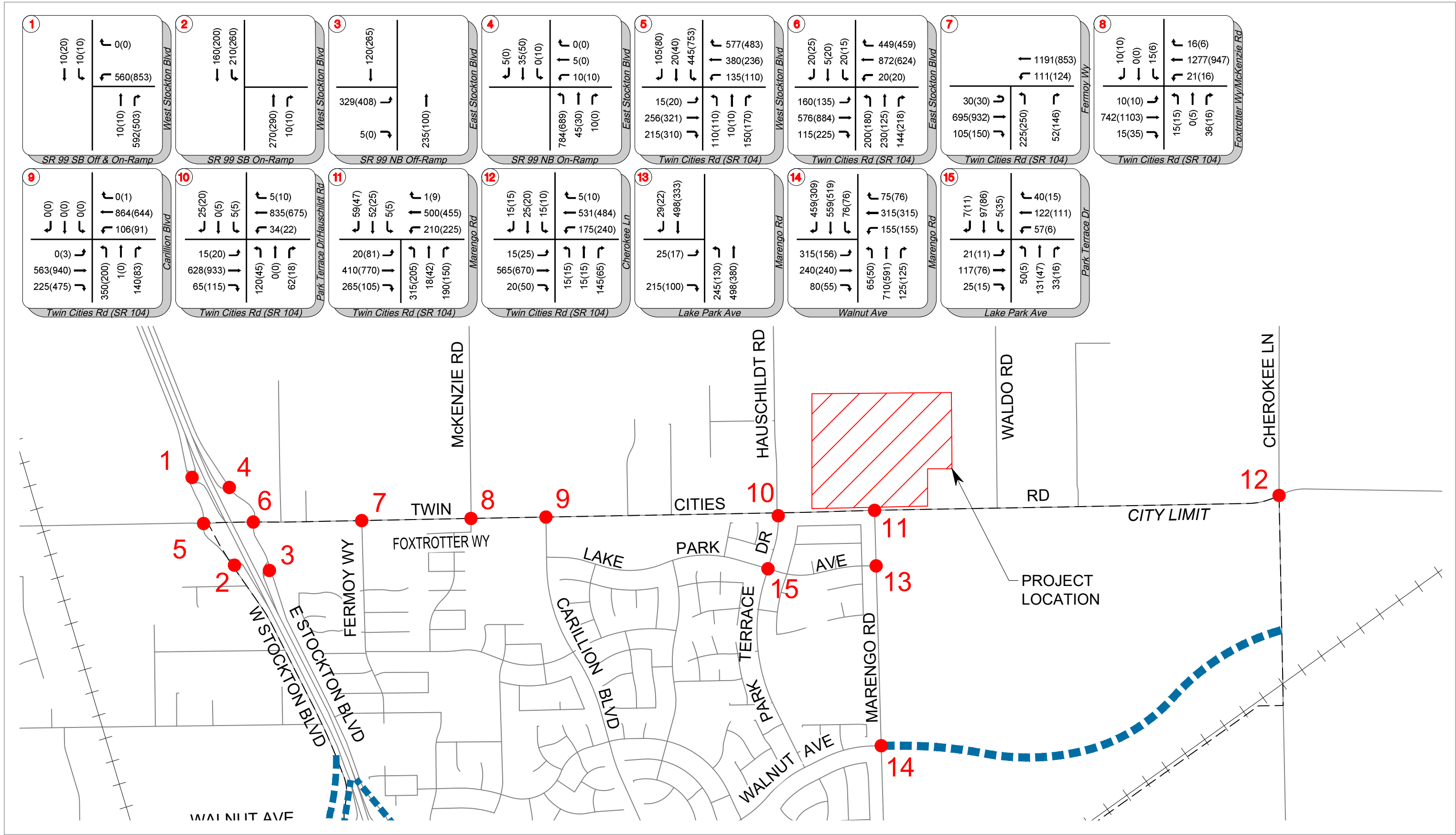
1. Bold = Unacceptable Conditions

As presented in Table 6.2, all five of the study ramp locations operate at unacceptable LOS under Cumulative No Project conditions.



7. Cumulative Plus Project Conditions

Cumulative Plus Project conditions refers to the analysis scenario in which projected trips generated by the proposed project are superimposed on 2040 No Project traffic volumes, and analyzed using the lane geometrics and intersection controls as listed under Cumulative No Project conditions. Figure 7.1 presents the Cumulative Plus Project traffic volumes.





7.1 Cumulative Plus Project Intersection Operations

Table 7.1 presents a summary of the LOS and delay (in sec/veh) at each study intersection during the Cumulative Plus Project conditions.

Table 7.1 Cumulative Plus Project Conditions Intersection Operations

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak		PM Peak		Warrant 3 Met?
				Delay	LOS	Delay	LOS	
1	SR 99 SB On/Off Ramps & W Stockton Blvd ⁵	TWSC	D	14.7	B	11.5	B	
2	SR 99 SB On Ramp & W Stockton Blvd	None	D	-	-	-	-	
3	SR99 NB Off Ramp & E Stockton Blvd	AWSC	D	14.4	B	19.6	C	
4	SR99 NB On Ramp & E Stockton Blvd ⁵	TWSC	D	21.6	C	19.1	C	
5	Twin Cities Rd & W Stockton Blvd	RNDBT	D	8.5	A	14.1	B	
6	Twin Cities Rd & E Stockton Blvd	RNDBT	D	20.3	C	7.0	A	
7	Twin Cities Rd & Fermoy Way	Signal	D	10.5	B	11.8	B	
8	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	TWSC	D	85.9	F	125.8	F	No
9	Twin Cities Rd & Carillion Blvd / Private Driveway	Signal	D	10.9	B	15.8	B	
10	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	TWSC	D	OVR	F	104.8	F	Yes
11	Twin Cities Rd & Marengo Rd	Signal	D	37.3	D	27.1	C	
12	Twin Cities Rd & Cherokee Ln	TWSC	D	150.3	F	189.3	F	Yes
13	Marengo Rd & Lake Park Ave	TWSC	E	OVR	F	12.3	B	Yes
14	Marengo Rd & Walnut Ave	Signal	D	54.4	D	20.0	B	
15	Lake Park Ave & Park Terrace Dr	TWSC	E	27.1	D	12.1	B	

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT

3. Warrants based on California MUTCD Warrant 3 (Peak Hour), Warrant 5 (School Crossing), Warrant 7 (Crash Experience)

4. Intersection #2 does not feature intersection control; assumed no delay.

5. Major approaches modeled as opposing free movements and minor approaches modeled as stop-controlled for compatibility with HCM 6 TWSC methodology.

6. **Bold** = Unacceptable Conditions - For Int. #8, side street left turn delay was greater than acceptable LOS, but side street volume was below Warrant 3 minimum threshold.

7. OVR = Delay over 300 seconds

As presented in Table 7.1, the following intersections operate at an unacceptable LOS under Cumulative Plus Project conditions in the AM or PM peak hours:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue



7.2 Cumulative Plus Project Traffic Signal Warrant Analysis

7.2.1 Warrant 3, Peak Hour

The unsignalized study intersections which operate beyond the LOS thresholds were analyzed to check if they meet the peak hour volume thresholds to satisfy traffic signal Warrant 3, Peak Hour (based on California Manual for Uniform Traffic Control Devices). Traffic Signal Warrant worksheets are included in the appendix for all study intersections operating or forecasted to operate at unacceptable conditions. Of the locations listed above that currently operate beyond the LOS threshold, the following unsignalized intersections meet the criteria for California MUTCD Warrant 3, Peak Hour under Cumulative Plus Project conditions:

- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue

7.3 Cumulative Plus Project Ramp Operations

Cumulative Plus Project weekday AM and PM peak hour ramp segment operations were quantified by superimposing the additional increments in traffic generated by the proposed project in Cumulative conditions onto forecasted traffic volumes from ramp-adjacent intersections and PeMS and Caltrans data. Table 7.2 presents a summary of the LOS and density (in pc/mi/ln) at each analysis location during the Cumulative Plus Project conditions.

Table 7.2 Cumulative Plus Project Conditions Ramp Operations

#	Location	Segment Type	No. of Lanes	Target LOS	AM Peak Hour			PM Peak Hour		
					Ramp Volume	Density (pc/mi/ln)	LOS	Ramp Volume	Density (pc/mi/ln)	LOS
1	SR 99 SB Off Ramp at West Stockton Blvd	Diverge	1	D	560	28.9	D	853	v/c = 1.04	F
2	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities Rd	Merge	1	D	602	26.9	C	513	36.4	E
3	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities Rd	Merge	1	D	220	30.6	D	270	v/c = 1.01	F
4	SR 99 NB Off Ramp at East Stockton Blvd	Diverge	1	D	334	33.3	D	408	41.1	E
5	SR 99 NB On Ramp at East Stockton Blvd	Merge	1	D	794	35.9	E	689	v/c = 1.03	F

Notes:

1. Bold = Unacceptable Conditions

As presented in Table 7.2, all five of the study ramp locations operate at unacceptable LOS under Cumulative Plus Project conditions.

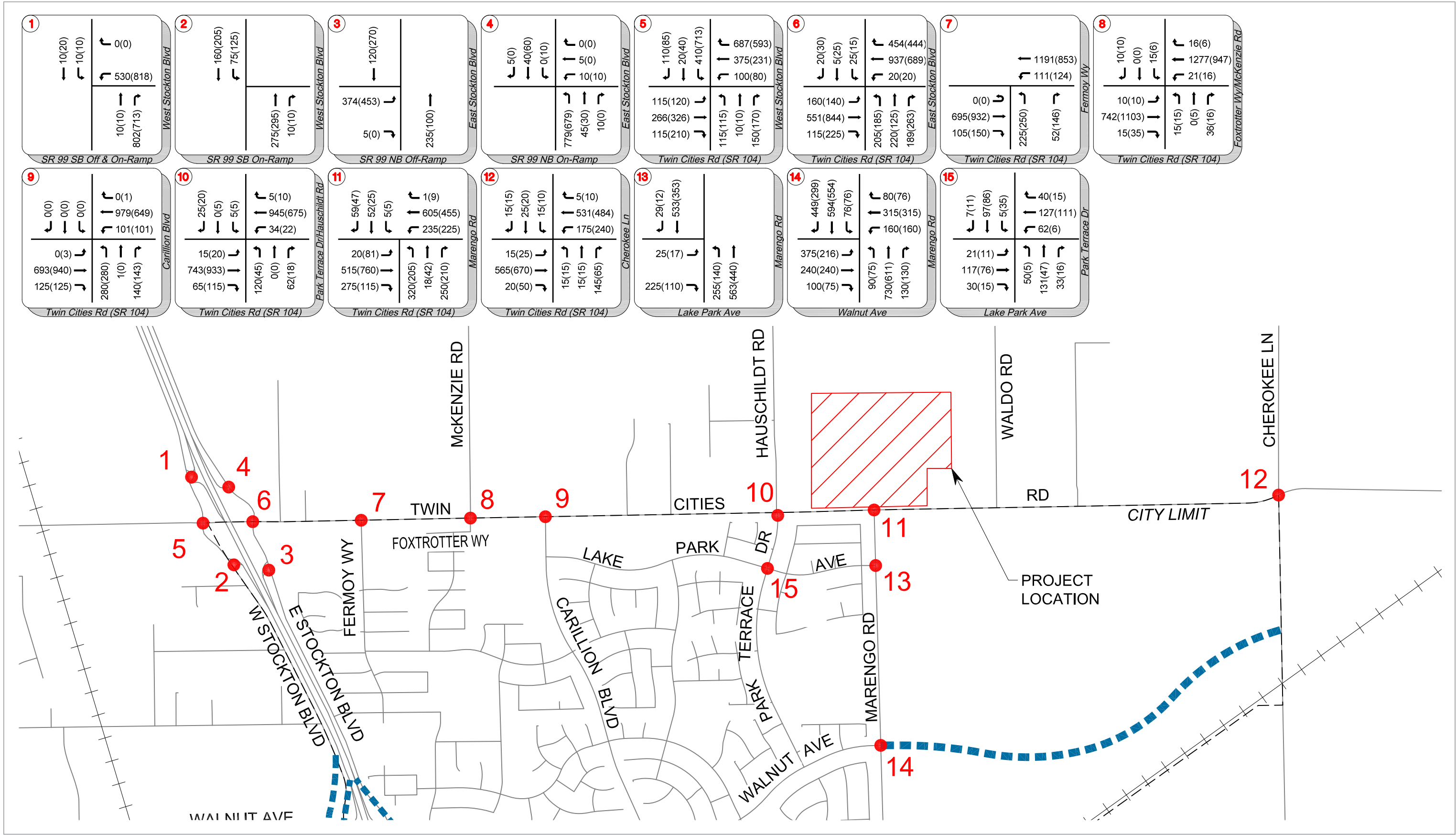


8. Cumulative Plus Project with Road Diet Conditions

Cumulative Plus Project with Road Diet conditions analyzes the scenario in which traffic impacts associated with the project are investigated in comparison to the Cumulative No Project conditions. This scenario utilizes roadway geometry proposed by the *Carillion Boulevard Complete Street Corridor Study*, referred to as “Road Diet” in this study. Under Cumulative Plus Project with Road Diet conditions, the following roadway geometry features vary from Cumulative No Project and Cumulative Plus Project conditions:

- Carillion Boulevard is narrowed to two (2) lanes between Twin Cities Road and Boessow Road, with roundabouts located in place of the 2040 No Project (four-lane scenario) intersection controls at the following study intersections:
 - Carillion Boulevard at Twin Cities Road
 - Roundabouts at other locations not analyzed in this study are also assumed to be in place

The Cumulative Plus Project with Road Diet forecasts were derived from the *Carillion Boulevard Complete Street Corridor Study*. The forecasts were first derived for 2040 “No Project” with the road diet, to check for consistency and balancing between the study intersections, and then the 2040 Project Only traffic volumes were added to obtain the “2040 Plus Project with Road Diet” traffic forecast. Figure 8.1 presents the Cumulative Plus Project with Road Diet peak hour traffic volumes.





8.1 Cumulative Plus Project with Road Diet Intersection Operations

Table 8.1 presents a summary of the LOS and delay (in sec/veh) at each study intersection during the Cumulative Plus Project with Road Diet conditions.

Table 8.1 Cumulative Plus Project with Road Diet Conditions Intersection Operations

#	Intersection	Control Type ^{1,2}	Target LOS	AM Peak		PM Peak		Warrant 3 Met?
				Delay	LOS	Delay	LOS	
1	SR 99 SB On/Off Ramps & W Stockton Blvd ⁵	TWSC	D	27.7	D	15.2	C	
2	SR 99 SB On Ramp & W Stockton Blvd	None	D	-	-	-	-	
3	SR99 NB Off Ramp & E Stockton Blvd	AWSC	D	16.8	C	25.2	D	
4	SR99 NB On Ramp & E Stockton Blvd ⁵	TWSC	D	21.9	C	19.1	C	
5	Twin Cities Rd & W Stockton Blvd	RNDBT	D	8.3	A	13.8	B	
6	Twin Cities Rd & E Stockton Blvd	RNDBT	D	24.9	C	7.4	A	
7	Twin Cities Rd & Fermoy Way	Signal	D	10.5	B	11.7	B	
8	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	TWSC	D	104.8	F	83.6	F	No
9	Twin Cities Rd & Carillion Blvd / Private Driveway	RNDBT	D	26.8	C	25.8	C	
10	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	TWSC	D	OVR	F	104.8	F	Yes
11	Twin Cities Rd & Marengo Rd	Signal	D	50.5	D	21.1	C	
12	Twin Cities Rd & Cherokee Ln	TWSC	D	150.3	F	189.3	F	Yes
13	Marengo Rd & Lake Park Ave	TWSC	E	OVR	F	12.8	B	Yes
14	Marengo Rd & Walnut Ave	Signal	D	65.0	E	21.0	C	
15	Lake Park Ave & Park Terrace Dr	TWSC	E	22.9	C	12.1	B	

Notes:

1. AWSC = All Way Stop Control; TWSC = Two Way Stop Control; RNDBT = Roundabout

2. LOS = Delay based on worst minor street approach for TWSC intersections, average of all approaches for AWSC, Signal, RNDBT

3. Warrants based on California MUTCD Warrant 3 (Peak Hour), Warrant 5 (School Crossing), Warrant 7 (Crash Experience)

4. Intersection #2 does not feature intersection control; assumed no delay.

5. Major approaches modeled as opposing free movements and minor approaches modeled as stop-controlled for compatibility with HCM 6 TWSC methodology.

6. **Bold** = Unacceptable Conditions - For Int. #8, side street left turn delay was greater than acceptable LOS, but side street volume was below Warrant 3 minimum threshold.

7. OVR = Delay over 300 seconds

As presented in Table 8.1, the following intersections operate at an unacceptable LOS under Cumulative Plus Project with Road Diet conditions in the AM or PM peak hours:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue



8.2 Cumulative Plus Project with Road Diet Traffic Signal Warrant Analysis

8.2.1 Warrant 3, Peak Hour

The unsignalized study intersections which operate beyond the LOS thresholds were analyzed to check if they meet the peak hour volume thresholds to satisfy traffic signal Warrant 3, Peak Hour (based on California Manual for Uniform Traffic Control Devices). Traffic Signal Warrant worksheets are included in the appendix for all study intersections operating or forecasted to operate at unacceptable conditions. Of the locations listed above that currently operate beyond the LOS threshold, the following unsignalized intersections meet the criteria for California MUTCD Warrant 3, Peak Hour under Cumulative Plus Project with Road Diet conditions:

- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 12 – Twin Cities Road & Cherokee Lane
- 13 – Marengo Road & Lake Park Avenue

The Twin Cities Road & Foxtrotter Way/McKenzie Road intersection also fell short of acceptable LOS operations, but the volume of side street left movement was below the warrant threshold to require improvements.

8.3 Cumulative Plus Project with Road Diet Ramp Operations

Cumulative Plus Project with Road Diet weekday AM and PM peak hour ramp segment operations were quantified by superimposing the additional increments in traffic generated by the proposed project in Cumulative conditions onto forecasted traffic volumes from ramp-adjacent intersections and PeMS and Caltrans data, utilizing roadway geometry proposed by the *Carillion Boulevard Complete Street Study*. Table 8.2 presents a summary of the LOS and density (in pc/mi/ln) at each analysis location during Cumulative Plus Project with Road Diet conditions.

Table 8.2 Cumulative Plus Project with Road Diet Conditions Ramp Operations

#	Location	Segment Type	No. of Lanes	Target LOS	AM Peak Hour			PM Peak Hour		
					Ramp Volume	Density (pc/mi/ln)	LOS	Ramp Volume	Density (pc/mi/ln)	LOS
1	SR 99 SB Off Ramp at West Stockton Blvd	Diverge	1	D	525	27.9	C	813	v/c = 1.01	F
2	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities Rd	Merge	1	D	807	28.0	C	718	37.4	E
3	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities Rd	Merge	1	D	85	30.9	D	135	v/c = 1.02	F
4	SR 99 NB Off Ramp at East Stockton Blvd	Diverge	1	D	379	36.1	E	453	v/c = 1.05	F
5	SR 99 NB On Ramp at East Stockton Blvd	Merge	1	D	789	38.0	E	679	v/c = 1.09	F

Notes:

1. **Bold** = Unacceptable Conditions



As presented in Table 8.2, all five of the study ramp locations operate at unacceptable LOS under Cumulative Plus Project with Road Diet conditions.



9. Vehicle Miles Traveled (VMT) Analysis

This chapter describes the methodology and results of the vehicle miles travelled (VMT) analysis performed for the project. Senate Bill (SB) 743 creates a process to change the way transportation impacts are analyzed under CEQA. Originally, SB 743 required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative measure of effectiveness (MOE) to control delay and associated Level of Service (LOS) for evaluating transportation impacts. On December 28, 2018, the California Office of Administrative Law cleared the revised State CEQA Guidelines for use. Among the changes to the State CEQA Guidelines was removal of vehicle delay and LOS from consideration as environmental impacts under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles travelled (VMT). Lead agencies have the opportunity to opt in to the revised guidelines early, but the new guidelines become effective Statewide on July 1, 2020. Recommendations on thresholds of significance for VMT have been developed by the OPR. However, lacking any operative thresholds under the lead agency, the City of Galt, VMT was not used to determine CEQA impacts within this report.

9.1 Model Selection

The California Emissions Estimator Model (CalEEMod) was used for this VMT analysis. CalEEMod is referred to as a "sketch model" which uses statistical characterizations of land use projects and transportation networks to estimate project VMT. CalEEMod was developed in cooperation with the South Coast Air Quality Management District (SCAQMD) and other air districts throughout the state. CalEEMod is designed as a uniform platform for government agencies, land use planners, and environmental professionals to quantify VMT and potential criteria pollutant and greenhouse gas emissions associated with construction and operation from a variety of land uses. CalEEMod version 2016.3.2 was used to estimate VMT from this project's operation.

Sources of methodologies and default vehicle activity data in CalEEMod include California Air Resources Board (CARB) vehicle emission model EMFAC. In addition, some local air districts provided customized values for their default data and existing regulation methodologies for use for projects located in their jurisdictions. When no customized information was provided and no regional differences were defined for local air districts, then state-wide default values were utilized.

9.2 Project Characteristics

The project's operational activity assumptions and parameters are summarized below.

"Sacramento County" and "Urban" settings were selected in the CalEEMod model.

The land use types and quantities described in Chapter 4 (Project Description) of this study were used to identify the approximate corresponding CalEEMod land uses used in the VMT analysis. These land uses and weekday trip generation rates are summarized in Table 9.1 for Existing Plus Project Trip Generation and Cumulative Plus Project trip generation. It is important to note that the CalEEMod Land Use Subtype names are not the proposed project land uses. They are the closest



CalEEMod Land Use Subtypes available that approximately correspond to the proposed project land uses.

Table 9.1 CalEEMod Model Project Land Uses and Trip Generation Rates

General Land Use	CalEEMod Land Use Subtype	Quantity	Unit Type	Trip Generation Rate (trips/unit/day)
Residential	Single Family Housing	212	Dwelling Unit	9.79

Source: GHD 2019, CalEEMod 2016.

The Trip Generation Rate is based off of the fitted curve equation for Land Use 210 of the ITE Trip Generation Manual, 10th Edition, and is consistent with the Trip Generation Table in Chapter 4 of this report.

9.3 Methodology

CalEEMod contains assumptions for trip length based on the type of trip, distribution of trip types, and trip purpose. Each of these components is used in the VMT calculations. The trip types, trip lengths, distribution and trip purpose distribution are detailed in the CalEEMod output, which is included in Appendix E.

9.4 Trip Types and Distribution

Land use trip types used in the analysis consist of the following categories, each with its own trip length: home-work (H-W) / commercial-work (C-W), home-school (H-S) / commercial-commercial (C-C), and home-other (H-O) / commercial-non-work (C-NW) such as delivery trips. The model includes a trip type distribution for each land use type. For residential uses, the CalEEMod assumes that 46.5% of land use trips are H-W / C-W trips, 12.5% are H-S / C-C trips, and 41% are H-O / C-NW trips.

9.5 Trip Length and Purpose

The model then modifies the trip lengths according to trip purpose. Trip purposes are:

- **Primary:** Primary trips are assumed to be dedicated to travel to the land use from the originating source or from the land use to the ultimate destination.
- **Diverted:** Diverted trips are trips that may occur as a result of travel to multiple land uses, such as would occur for running errands or other trip linking activity. Diverted trips are assumed to be 25 percent of the primary trip length, which are within accepted standards of practice.
- **Pass-by trips:** Pass-by trips are those that occur as along the path of another trip, such as pulling into a gas station while on the way to work. Pass-by trips are assumed to be 0.1 mile in length and are a result of no diversion from the primary route, which are within accepted standards of practice.

The trip length per trip type assumptions are for primary trip purposes, and serve as the 'starting point' for the VMT calculations. The model default trip lengths for primary trips for all land use types are 10 miles for H-W / C-W, 5 miles for H-S / C-C, and 6.5 miles for H-O / C-NW.



Due to the location and nature of the project, the model assumed for the residential land use type that 86% of trips would be primary, 11% of the trips would be diverted, and 3% of the trips would be pass-by for residential land use.

9.6 VMT Results

The VMT calculation results are provided in Table 9.2 for Project conditions. The detailed CalEEMod output is included in Appendix E. The projected VMT per capita for the proposed Project, based on the CalEEMod annual outputs, is calculated by taking the projected annual VMT divided by 365 days per year, the current persons per household for the City of Galt (3.07 based on 2017 ACS US Census data) and the number of dwelling units proposed (212 units).

Table 9.2 Operational Vehicle Miles Travelled – Existing Plus Project Trip Generation

Land Use	Quantity	Trip Generation		Vehicle Miles Traveled		
	Existing	Trips/Day /Unit	Daily	Annual	Daily	Per Capita
Single Family Housing	212 dwelling units	9.79	2,076	5,210,110	14,274	21.93

Source: GHD 2019, CalEEMod 2016.

Note: Assumes 3.07 persons per Household based on 2013-2017 American Community Survey 5-year estimates

9.6.1 SACOG Regional VMT

The current Household Generated VMT per capita is 17.95, for the Sacramento Area Council of Governments (SACOG) regional average, based on the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS; Table 5B.3).

The projected VMT per capita for the proposed Project is 21.93, based on CalEEMod. This is 22% higher than the regional average. This higher VMT per capita is largely due to the Project's more isolated location within the Sacramento region and lack of public transit stations and service and other multi-modal opportunities to nearby destinations.



10. Project Impacts and Mitigation Measures

10.1 Significance Thresholds

According to the current State CEQA Guidelines being utilized for this study, a Project results in a significant impact if the Project causes an increase in traffic that is substantial and adverse in relation to the traffic load and capacity of the existing street system. This standard of significance relates to automobile traffic only and does not address the potential effects on other travel modes including transit, bicycle, and pedestrian facilities. The following standards of significance will apply to the transportation impacts determined within this transportation impact study. For intersections at which the proposed project creates a significant impact, mitigations will be presented to reduce the project impact to less than significant.

Signalized Intersections

The project is considered to have a significant impact if it would:

- Result in a signalized intersection that will operate at an acceptable LOS (LOS D or E, or better) in the No Project condition to deteriorate to an unacceptable LOS E or F in the Plus Project condition
- Increase the delay by more than 5.0 seconds at a signalized intersection that is already operating or will already operate at an unacceptable LOS in the No Project condition

Unsignalized Intersections:

The project is considered to have a significant impact if it would:

- Result in an unsignalized intersection that will operate at an acceptable LOS (LOS D or E, or better) in the No Project condition to deteriorate to an unacceptable LOS E or F in the Plus Project condition
- Increase the delay by more than 5.0 seconds at an unsignalized intersection that is already operating or will already operate at an unacceptable LOS in the No Project condition

Freeway Ramps:

A project is considered to have a significant effect if it would:

- Result in a facility operating at an acceptable LOS to deteriorate to an unacceptable LOS, according to the LOS threshold defined by Caltrans (LOS D).
- Increase the density by more than 5% at a ramp segment that is already operating or will already operate at LOS E in the No Project condition
- Increase the v/c (volume/capacity) ratio by more than 0.05 at a ramp segment that will operate at LOS F in the Plus Project condition

Transit, Bicycle, and Pedestrian Impacts

The proposed project is considered to result in a potentially significant transit, bicycle, and/or pedestrian impact if any of the following would occur:



- The project conflicts with existing, planned, or possible future transit, bicycle, and/or pedestrian facilities and services;
- The path of travel between the project site and transit stops does not meet current ADA accessibility standards.

Vehicle Miles Traveled (VMT)

VMT was not used to determine CEQA impacts, lacking any operative baseline or impact thresholds under the lead agency, the City of Galt.

10.2 Existing Plus Project Impacts & Mitigation Measures

Project Site Access

The intersection of Twin Cities Road and Marengo Road is currently deficient and will require improvement (including addition of turn lane(s) on Twin Cities Road) when this Project is constructed. Modification to Caltrans intersections are required to go through the Caltrans ICE process. Pending a Caltrans ICE process, it may be determined that the intersection requires conversion from an all-way stop-control to a traffic signal or a modern roundabout.

Additionally, with either intersection improvement, the Project driveway does not appear to provide sufficient space for queuing of vehicles. The Project site plan will require modification to provide adequate queuing of vehicles with either a traffic signal or a roundabout, which will vary depending on the outcome of the ICE process. Lastly, since the Project directly accesses SR 104, the gated entrance should provide sufficient space for larger vehicles (such as moving trucks) to turn around and exit without reversing onto SR 104.

Intersection Impacts

Under both Existing and Existing Plus Project conditions, study intersections #8, #10, #11, and #13 operate at an unacceptable LOS. All other study intersections operate at an acceptable LOS under Existing Plus Project conditions during the AM and PM peak hours. Table 10.1 presents the deficient locations and determination of the Project impacts by comparing LOS and delay (in sec/veh) between Existing conditions and Existing Plus Project conditions, based on the thresholds previously identified.



Table 10.1 Project Impact Determination at Deficient Study Intersections under Existing Plus Project Conditions

#	8	10	12	13
Location	Twin Cities Rd & Foxtrotter Way / McKenzie Rd	Twin Cities Rd & Park Terrace Dr / Hauschildt Rd	Twin Cities Rd & Cherokee Ln	Marengo Rd & Lake Park Ave
Target LOS	D	D	D	E
SCENARIO	Delay (sec/veh) LOS	Delay (sec/veh) LOS	Delay (sec/veh) LOS	Delay (sec/veh) LOS
AM PEAK HOUR				
Existing	45.4 E	192.3 F	17.4 C	OVR F
Existing Plus Project	52.9 F	292.2 F	17.6 C	OVR F
Difference	7.5	99.9	0.2	336.7
Significant Impact?	Yes	Yes	No	Yes
PM PEAK HOUR				
Existing	36.3 E	18.3 C	12.7 B	9.5 A
Existing Plus Project	43.3 E	21.8 C	12.9 B	9.8 A
Difference	7.0	3.5	0.2	0.3
Significant Impact?	Yes	No	No	No

Notes:

1. **Bold** = Unacceptable Conditions
2. OVR = Delay over 300 seconds
3. Locations with significant impacts are shown in orange.

As presented in Table 10.1, the Project will have a significant impact at the following locations under Existing Plus Project conditions, as the Project traffic is projected to add more than 5 seconds of delay to these deficient locations:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 13 – Marengo Road & Lake Park Avenue

Existing Plus Project Intersection Mitigation Measures

#8 - Twin Cities Road & Foxtrotter Way / McKenzie Road is significantly impacted by Project traffic, but does not meet the criteria for the peak hour warrant for a traffic signal (Warrant 3, MUTCD). The delay experienced by drivers on the southbound approach causes the deficient LOS. The following lists alternative mitigation measures that would each reduce the impact to less than significant and provide acceptable operations under Existing Plus Project conditions.

- a) Intersection control could be implemented, such as a traffic signal or a modern roundabout, but will need to go through the Caltrans ICE process; or
- b) Alternatively, implement a left turn restriction southbound on McKenzie Road. This could be implemented as an interim measure until Twin Cities Road is widened to four lanes and a comprehensive access management plan is evaluated; or
- c) Alternatively, convert the existing westbound left turn on Twin Cities Road to a receiving/merge lane for southbound left turning traffic onto Twin Cities Road. This will eliminate westbound left turns, resulting in some traffic being redistributed to nearby



intersections, which may require further analysis. This mitigation could also be implemented as an interim measure until Twin Cities Road is widened to four lanes and a comprehensive access management plan is evaluated.

#10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road is significantly impacted by Project traffic and meets the peak hour warrant for a traffic signal. The following lists alternative mitigation measures that would each reduce the impact to less than significant and provide acceptable operations under Existing Plus Project conditions.

- a) Intersection control could be implemented, such as a traffic signal or a modern roundabout, to reduce the impact to less than significant, but would need to go through the Caltrans ICE process; or
- b) Alternatively, implement left turn restriction northbound on Park Terrace Drive (right turn only) in coordination with intersection improvements at Marengo Road that facilitate U-turns.

#13 – Marengo Road & Lake Park Avenue is significantly impacted by Project traffic and meets the peak hour warrant for a traffic signal. The following lists alternative mitigation measures that would each reduce the impact to less than significant and provide acceptable operations under Existing Plus Project conditions.

- a) Intersection control could be implemented, such as a traffic signal or a modern roundabout, in coordination with improvements at Twin Cities Road/Marengo Road; or
- b) Alternatively, provide two-stage turning for eastbound left turns from Lake Park Avenue by providing a center receiving lane on Marengo Road. This measure would be interim, as widening of Marengo Road to four lanes is planned under Cumulative conditions.

Ramp Segment Impacts

Under both Existing and Existing Plus Project conditions, ramp location #1 – SR 99 Southbound Off Ramp at West Stockton Boulevard operates at an unacceptable LOS in the PM peak hour. All other ramp segments operate at an acceptable LOS under Existing Plus Project conditions during the AM and PM peak hours. Table 10.2 presents the deficient ramp locations and determination of Project impacts by comparing LOS, density (in pc/mi/ln), or v/c ratio between Existing conditions and Existing Plus Project conditions, based on the thresholds previously identified.



Table 10.2 Project Impact Determination on Deficient Ramp Segments under Existing Plus Project Conditions

#	1	
Location	SR 99 SB Off Ramp at West Stockton Blvd	
SCENARIO	Density (pc/mi/ln)	LOS
AM PEAK HOUR		
Existing	23.0	C
Existing Plus Project	23.1	C
Difference	0.1	
Percent Change	0.4%	
Significant Impact?	No	
PM PEAK HOUR		
Existing	36.9	E
Existing Plus Project	37.3	E
Difference	0.4	
Percent Change	1.1%	
Significant Impact?	No	

Notes:

1. Target LOS at all ramp locations = LOS D
2. **Bold** = Unacceptable Conditions

As presented in Table 10.2, although this ramp location operates at unacceptable LOS in both Existing and Existing Plus Project conditions, the increase in density due to Project traffic is less than significant (less than 5% change) at the identified ramp location. No mitigation measures are necessary for ramp segments under Existing Plus Project conditions.

10.3 Cumulative Plus Project Impacts & Mitigation Measures

Intersection Impacts

Under both Cumulative No Project and Cumulative Plus Project conditions, study intersections #8, #10, #12, and #13 operate at an unacceptable LOS. All other study intersections operate at an acceptable LOS under Cumulative Plus Project conditions during the AM and PM peak hours. Table 10.3 presents the deficient location and determination of Project impacts by comparing LOS and delay (in sec/veh) between Cumulative No Project conditions and Cumulative Plus Project conditions, based on the thresholds previously identified.



Table 10.3 Project Impact Determination at Deficient Study Intersections under Cumulative Plus Project Conditions

#	8		10		12		13	
Location	Twin Cities Rd & Foxtrotter Way / McKenzie Rd		Twin Cities Rd & Park Terrace Dr / Hauschildt Rd		Twin Cities Rd & Cherokee Ln		Marengo Rd & Lake Park Ave	
Target LOS	D		D		D		E	
SCENARIO	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
AM PEAK HOUR								
Cumulative No Project	72.8	F	OVR	F	146.3	F	OVR	F
Cumulative Plus Project	85.9	F	OVR	F	150.3	F	OVR	F
Difference	13.1		156.2		4.0		341.8	
Significant Impact?	Yes		Yes		No		Yes	
PM PEAK HOUR								
Cumulative No Project	94.5	F	73.1	F	189.3	F	11.8	B
Cumulative Plus Project	125.8	F	104.8	F	189.3	F	12.3	B
Difference	31.3		31.7		0.0		0.5	
Significant Impact?	Yes		Yes		No		No	

Notes:

1. **Bold** = Unacceptable Conditions
2. OVR = Delay over 300 seconds
3. Locations with significant impacts are shown in orange.

As presented in Table 10.3, Project traffic will have a significant impact at the following locations under Cumulative Plus Project conditions, as the Project traffic is projected to add more than 5 seconds of delay to these deficient locations:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 13 – Marengo Road & Lake Park Avenue

Cumulative Plus Project Conditions Intersection Mitigation Measures

The locations identified above and in Table 10.3 are the same locations that showed significant impacts under Existing Plus Project conditions, with the addition of an impact during the PM peak hour at intersection #10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road. The mitigation measures identified for intersections #8 and #10 remain the same under Cumulative Plus Project conditions as those identified for Existing Plus Project conditions. However, for Intersection #13 – Marengo Road & Lake Park Avenue, intersection control including consideration of a traffic signal or a roundabout should be implemented to reduce the impacts to less than significant and provide acceptable operations. Intersection improvements at Marengo Road & Lake Park Avenue should be implemented in coordination with improvements at Twin Cities Road/Marengo Road.

Ramp Segment Impacts

Under both Cumulative No Project and Cumulative Plus Project conditions, all study ramp locations are projected to operate at an unacceptable LOS during the AM or PM peak hours. Table 10.4 presents the deficient ramp locations and determination of Project impacts by comparing LOS,



density (in pc/mi/ln), or v/c ratio between Cumulative No Project conditions and Cumulative Plus Project conditions, based on the thresholds previously identified.

Table 10.4 Project Impacts on Deficient Ramp Segments under Cumulative Plus Project Conditions

#	1		2		3		4		5	
Location	SR 99 SB Off Ramp at West Stockton Blvd		SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities		SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities		SR 99 NB Off Ramp at East Stockton Blvd		SR 99 NB On Ramp at East Stockton Blvd	
SCENARIO	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
AM PEAK HOUR										
Cumulative No Project	28.8	D	26.8	C	30.5	D	33.3	D	35.7	E
Cumulative Plus Project	28.9	D	26.9	C	30.6	D	33.3	D	35.9	E
Difference	0.1		0.1		0.1		0.0		0.2	
Percent Change	0.3%		0.4%		0.3%		0.0%		0.6%	
Significant Impact?	No		No		No		No		No	
PM PEAK HOUR										
Cumulative No Project	v/c = 1.03	F	36.3	E	v/c = 1.01	F	41.0	E	v/c = 1.03	F
Cumulative Plus Project	v/c = 1.04	F	36.4	E	v/c = 1.01	F	41.1	E	v/c = 1.03	F
Difference	0.01		0.1		0.00		0.1		0.00	
Percent Change			0.3%				0.2%			
Significant Impact?	No		No		No		No		No	

Notes:

1. Target LOS at all ramp locations = LOS D
2. **Bold** = Unacceptable Conditions

As presented in Table 10.4, the Project impact is less than significant on the identified ramp locations under Cumulative Plus Project conditions. No mitigation measures are necessary under Cumulative Plus Project conditions.

10.4 Cumulative Plus Project with Road Diet Impacts & Mitigation Measures

Intersection Impacts

Under both Cumulative No Project (with Road Diet) and Cumulative Plus Project with Road Diet conditions, study intersections #8, #10, #12, #13 and #14 are projected to operate at an unacceptable LOS. All other study intersections operate at an acceptable LOS under Cumulative Plus Project with Road Diet conditions during the AM and PM peak hours. Table 10.5 presents the deficient locations and determination of the Project impacts by comparing LOS and delay (in sec/veh) between Cumulative No Project with Road Diet conditions and Cumulative Plus Project with Road Diet conditions.



Table 10.5 Project Impact Determination at Deficient Study Intersections under Cumulative Plus Project with Road Diet Conditions

#	8		10		12		13		14	
Location	Twin Cities Rd & Foxtrotter Way / McKenzie Rd		Twin Cities Rd & Park Terrace Dr / Hauschildt Rd		Twin Cities Rd & Cherokee Ln		Marengo Rd & Lake Park Ave		Marengo Rd & Walnut Ave	
Target LOS	D		D		D		E		D	
SCENARIO	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
AM PEAK HOUR										
Cumulative (Road Diet) No Project	85.9	F	OVR	F	146.3	F	OVR	F	62.0	E
Cumulative (Road Diet) Plus Project	104.8	F	OVR	F	150.3	F	OVR	F	65.0	E
Difference	18.9		222.4		4.0		1046.4		3.0	
Significant Impact?	Yes		Yes		No		Yes		No	
PM PEAK HOUR										
Cumulative (Road Diet) No Project	67.1	F	73.1	F	189.3	F	12.1	B	20.8	C
Cumulative (Road Diet) Plus Project	83.6	F	104.8	F	189.3	F	12.8	B	21.0	C
Difference	16.5		31.7		0.0		0.7		0.2	
Significant Impact?	Yes		Yes		No		No		No	

Notes:

1. **Bold** = Unacceptable Conditions
2. OVR = Delay over 300 seconds
3. Locations with significant impacts are shown in orange.

As presented in Table 10.5, the Project will have a significant impact at the following locations under Cumulative Plus Project with Road Diet conditions, and are the same impacts as Cumulative Plus Project conditions:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
- 13 – Marengo Road & Lake Park Avenue

Cumulative Conditions with Road Diet Intersection Mitigation Measures

The locations identified above and in Table 10.5 are the same locations that showed significant impacts under Existing Plus Project conditions, and under Cumulative Plus Project conditions. The mitigation measures for these locations under Cumulative Plus Project with Road Diet conditions remain the same as those identified for Cumulative Plus Project conditions.

Ramp Segment Impacts

Under both Cumulative No Project (with Road Diet) and Cumulative Plus Project with Road Diet conditions, ramp locations #1, #2, #3, #4, and #5 (all locations) are projected to operate at an unacceptable LOS in the AM and/or PM peak hours. Table 10.6 presents the deficient ramp locations and determination of Project impacts by comparing LOS, density (in pc/mi/ln), or v/c ratio between Cumulative No Project with Road Diet conditions and Cumulative Plus Project with Road Diet conditions, based on the thresholds previously identified.



Table 10.6 Project Impact Determination on Deficient Ramp Segments under Cumulative Plus Project with Road Diet Conditions

#	1	2	3	4	5
Location	SR 99 SB Off Ramp at West Stockton Blvd	SR 99 SB On Ramp at West Stockton Blvd n/o Twin Cities	SR 99 SB On Ramp at West Stockton Blvd s/o Twin Cities	SR 99 NB Off Ramp at East Stockton Blvd	SR 99 NB On Ramp at East Stockton Blvd
SCENARIO	Density (pc/mi/ln) LOS	Density (pc/mi/ln) LOS	Density (pc/mi/ln) LOS	Density (pc/mi/ln) LOS	Density (pc/mi/ln) LOS
AM PEAK HOUR					
Cumulative (Road Diet) No Project	27.8 C	27.9 C	30.7 D	36.1 E	37.7 E
Cumulative (Road Diet) PP	27.9 C	28.0 C	30.9 D	36.1 E	38.0 E
Difference	0.1	0.1	0.2	0.0	0.3
Percent Change	0.4%	0.4%	0.7%	0.0%	0.8%
Significant Impact?	No	No	No	No	No
PM PEAK HOUR					
Cumulative (Road Diet) No Project	v/c = 1.00 F	37.4 E	v/c = 1.01 F	v/c = 1.05 F	v/c = 1.09 F
Cumulative (Road Diet) PP	v/c = 1.01 F	37.4 E	v/c = 1.02 F	v/c = 1.05 F	v/c = 1.09 F
Difference	0.01	0.0	0.01	0.00	0.00
Percent Change		0.0%			
Significant Impact?	No	No	No	No	No

Notes:

1. Target LOS at all ramp locations = LOS D

2. **Bold** = Unacceptable Conditions

As presented in Table 10.6, the Project impact is less than significant at the identified ramp locations under Cumulative Plus Project with Road Diet conditions. No mitigation measures are necessary under Cumulative Plus Project with Road Diet conditions.

10.5 Fair Share of Improvement Cost Calculations

Fair-share calculations have been identified for all intersections and ramp segments that have significant impacts due to Project traffic under Cumulative conditions. The proposed project's equitable share is calculated using the method for calculating equitable mitigation measures outlined in Equation C-1 (shown below) from Caltrans's *Guide for the Preparation of Traffic Impact Studies* (2002).

EQUITABLE SHARE RESPONSIBILITY: Equation C-1

NOTE: $T_E < T_B$, see explanation for T_B below.

$$P = \frac{T}{T_B - T_E}$$

Where:

P = The equitable share for the proposed project's traffic impact.

T = The vehicle trips generated by the project during the peak hour of adjacent State highway facility in vehicles per hour, vph.

T_B = The forecasted traffic volume on an impacted State highway facility at the time of general plan build-out (e.g., 20 year model or the furthest future model date feasible), vph.

T_E = The traffic volume existing on the impacted State highway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.



Fair Share for Intersection Improvements

It is currently unknown which of the Cumulative conditions alternatives evaluated in the *Carillion Boulevard Complete Street Corridor Study* will be implemented. Thus, fair share calculations for both alternatives (with and without the Carillion Boulevard Road Diet) are included below.

Table 10.7 presents the fair-share calculations for mitigation measures at significantly-impacted intersections, using AM and PM peak hour volumes, under Cumulative Plus Project conditions (without the Road Diet). For each intersection, the higher of AM or PM is highlighted.

Table 10.7 Fair Share Calculations – Cumulative Plus Project Conditions

#	8		10		13	
Location	Twin Cities Rd & Foxtrotter Way / McKenzie Rd		Twin Cities Rd & Park Terrace Dr / Hauschildt Rd		Marengo Rd & Lake Park Ave	
SCENARIO	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Existing Volume (T_E)	1468	1474	1082	843	911	no significant impact
Cumulative Plus Project Volume (T_B)	2157	2169	1794	1868	1510	
Total Growth ($T_B - T_E$)	689	695	712	1025	599	
Project-Generated Growth (T)	72	119	79	128	70	
Fair Share (P)	10.45%	17.12%	11.10%	12.49%	11.69%	

Notes:

1. Volumes reflect the sum of all movements at the intersection, measured in veh/hr.

As shown in Table 10.7, under Cumulative Plus Project conditions, the fair-shares (equitable shares) for installing improvements at significantly-impacted intersections are as follows:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road (**17.12%**)
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road (**12.49%**)
- 13 – Marengo Road & Lake Park Avenue (**11.69%**)

Table 10.8 presents the fair-share calculations for mitigation measures at significantly-impacted intersections, using AM and PM peak hour volumes, under Cumulative Plus Project with Road Diet conditions. For each intersection, the higher of AM or PM is highlighted.



Table 10.8 Fair Share Calculations – Cumulative Plus Project with Road Diet Conditions

#	8		10		13	
Location	Twin Cities Rd & Foxtrotter Way / McKenzie Rd		Twin Cities Rd & Park Terrace Dr / Hauschildt Rd		Marengo Rd & Lake Park Ave	
SCENARIO	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Existing Volume (T _E)	1468	1474	1082	843	911	no significant impact
Cumulative Plus Project with Road Diet Volume (T _B)	2157	2169	2019	1868	1630	
Total Growth (T _B -T _E)	689	695	937	1025	719	
Project-Generated Growth (T)	72	119	79	128	70	
Fair Share (P)	10.45%	17.12%	8.43%	12.49%	9.74%	

Notes:

1. Volumes reflect the sum of all movements at the intersection, measured in veh/hr.

As shown in Table 10.8, under Cumulative Plus Project with Road Diet conditions, the fair-shares (equitable shares) for installing improvements at significantly-impacted intersections are as follows:

- 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road (**17.12%**)
- 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road (**12.49%**)
- 13 – Marengo Road & Lake Park Avenue (**9.74%**)



11. Summary

The proposed 58.1-acre Summerfield development is a gated community comprised of 212 single family dwelling units, a 2.2-acre private park, a 3.3-acre detention basin, and 4.8 acres of open space/wetlands. The proposed site will provide one access point along the exterior of the development, located at the Twin Cities Road/Marengo Road intersection. Provided below is the summary of the findings of this Transportation Impact Analysis.

11.1 Project Impacts and Mitigations to Site Access

The intersection of Twin Cities Road and Marengo Road is currently deficient and will require improvement (including addition of turn lane(s) on Twin Cities Road) when this Project is constructed. Modification to Caltrans intersections are required to go through the Caltrans ICE process. Pending a Caltrans ICE process, it may be determined that the intersection requires conversion from an all-way stop-control to a traffic signal or a modern roundabout.

Additionally, with either intersection improvement, the Project driveway does not appear to provide sufficient space for queueing of vehicles. The Project site plan will require modification to provide adequate queueing of vehicles with either a traffic signal or a roundabout, which will vary depending on the outcome of the ICE process. Lastly, since the Project directly accesses SR 104, the gated entrance should provide sufficient space for larger vehicles (such as moving trucks) to turn around and exit without reversing onto SR 104.

11.2 Project Impacts and Mitigations for Intersection and Ramp Operations

Based upon the Level of Service (LOS) analyses provided in this Traffic Impact Study, development of the Summerfield Project results in significant impacts at the following study locations, under the listed scenarios.

- **Existing Plus Project conditions**
 - Study Intersections
 - 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
 - 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
 - 13 – Marengo Road & Lake Park Avenue
 - Ramps
 - *No ramp locations present Project impacts*
- **Cumulative Plus Project conditions**
 - Study Intersections
 - 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
 - 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
 - 13 – Marengo Road & Lake Park Avenue



- Ramps
 - *No ramp locations present Project impacts*
- **Cumulative Plus Project with Carillion Road Diet conditions**
 - Study Intersections
 - 8 – Twin Cities Road & Foxtrotter Way / McKenzie Road
 - 10 – Twin Cities Road & Park Terrace Drive / Hauschildt Road
 - 13 – Marengo Road & Lake Park Avenue
 - Ramps
 - *No ramp locations present Project impacts*

The following mitigation measures are identified for the locations which presented Project impacts in terms of Level of Service (LOS).

8 – Twin Cities Road & Foxtrotter Way / McKenzie Road

- Existing Plus Project and Cumulative Plus Project (with or without Carillion Boulevard Road Diet) Mitigation Measure Alternatives
 - Intersection control could be implemented, such as a traffic signal or a modern roundabout, but will need to go through the Caltrans ICE process; or
 - Alternatively, implement a left turn restriction southbound on McKenzie Road. This could be implemented as an interim measure until Twin Cities Road is widened to four lanes and a comprehensive access management plan is evaluated; or
 - Alternatively, convert the existing westbound left turn on Twin Cities Road to a receiving/merge lane for southbound left turning traffic onto Twin Cities Road. This will eliminate westbound left turns. This could also be implemented as an interim measure until Twin Cities Road is widened to four lanes and a comprehensive access management plan is evaluated.

10– Twin Cities Road & Park Terrace Drive / Hauschildt Road

- Existing Plus Project and Cumulative Plus Project (with or without Carillion Boulevard Road Diet) Mitigation Measure Alternatives
 - Intersection control could be implemented, such as a traffic signal or a modern roundabout, to reduce the impact to less than significant, but would need to go through the Caltrans ICE process; or
 - Alternatively, implement left turn restriction northbound on Park Terrace Drive (right turn only) in coordination with intersection improvements at Marengo Road that facilitate U-turns.

13 – Marengo Road & Lake Park Avenue

- Existing Plus Project Mitigation Measure Alternatives



- Intersection control could be implemented, such as a traffic signal or a modern roundabout, in coordination with improvements at Twin Cities Road/Marengo Road; or
 - Alternatively, provide two-stage turning for eastbound left turns from Lake Park Avenue by providing a center receiving lane on Marengo Road. This measure would be interim, as widening of Marengo Road to four lanes is planned under Cumulative conditions.
- Cumulative Plus Project (with or without Carillion Boulevard Road Diet) Mitigation Measure
 - Implement intersection control, such as a traffic signal or a modern roundabout, in coordination with improvements at Twin Cities Road/Marengo Road.



Appendices



Appendix A

Traffic Counts



Appendix B

Synchro / Sim-Traffic LOS Reports



Appendix C

Sidra Reports



Appendix D

HCS Reports



Appendix E

Traffic Signal Warrant Worksheets



Appendix F

VMT – CalEEMod Outputs



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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