

April 2022

THE GREENTREE PROJECT
DRAFT EIR
for the City of Vacaville

Prepared for:

Client

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1. Introduction

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Chapter 14 of the California Code of Regulations, Section 15378[a], Project, Greentree Development is considered a “project” subject to environmental review as its approval is “an action [undertaken by a public agency] which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.” This Draft Environmental Impact Report (Draft EIR) provides an assessment of the potential environmental consequences of implementation of the project, herein referred to as “proposed project.” Additionally, this Draft EIR identifies mitigation measures and alternatives to the proposed project that would avoid or reduce significant impacts. This Draft EIR compares the development of the proposed project with the existing baseline condition, described in detail in Chapter 4, Environmental Analysis, and each subchapter (Chapters 4.1 through 4.20). The City of Vacaville (City) is the lead agency for the proposed project. This assessment is intended to inform the City’s decision-makers, other responsible agencies, and the public-at-large of the nature of the proposed project and its effect on the environment.

1.2 PROPOSED PROJECT

The Greentree Development Group, Inc (project applicant) is requesting adoption of the proposed project, which would result in the development of two neighborhoods – the north of Sequoia neighborhood and the south of Sequoia neighborhood. This distinction is made due to the differing character of development proposed within each area and the supporting uses, infrastructure, and facilities needed to support each development. The project site is roughly bisected by Sequoia Drive into a northern portion and a southern portion. The north of Sequoia neighborhood includes high density residential land uses, commercial development, regional serving commercial sites, and park and recreational facilities. The south of Sequoia neighborhood includes a single-family active adult (senior) residential community and provides open space and recreational amenities.

The proposed project has incorporated site plan refinements that have been made over time based on input from City of Vacaville (City) planning, engineering, utility, parks, and economic development staff; discussions with several neighborhood groups and their representatives; analysis of market demands and projected development needs; updated hydrology, utility, biological resource, engineering, related technical information developed by the applicant team; and input from the Vacaville City Council. Recommendations for use types, use relationships, circulation patterns and roadway designs, residential densities and product types, commercial end use types and parcel size needs, and recreation resources have been considered through this process.

1. INTRODUCTION

The proposed project is anticipated to include the following entitlements requests: General Plan Amendment, Green Tree Park Policy Plan Amendment, Master Plan (Specific Plan), Rezoning, Vesting Tentative Map, and Development Agreement. Additional description of the environmental setting as it relates to each of the environmental issues are analyzed in Chapter 4.0, *Environmental Analysis*, of this Draft EIR (DEIR).

1.3 EIR SCOPE

The City determined the scope for this EIR based on review of the proposed General Plan, agency consultation, the Notice of Preparation (NOP), and comments in response to the NOP. Pursuant to Sections 15126.2 and 15126.4 of the CEQA Guidelines, the EIR should identify any potentially significant adverse impacts and recommend mitigation that would reduce or eliminate these impacts to levels of insignificance.

This Draft EIR is a project-level EIR that identifies and analyzes site-specific potential impacts of the project. This project EIR examines the specific short-term impacts (construction) and long-term impacts (operation) that would occur as a result of project approval and implementation. For a complete listing of environmental topics covered in this Draft EIR, see Chapter 4, Environmental Evaluation.

1.4 ENVIRONMENTAL REVIEW PROCESS

1.4.1 DRAFT EIR

Pursuant to CEQA Section 21080(d) and CEQA Guidelines Section 15063, the City determined that the proposed project could result in potentially significant environmental impacts and that an EIR would be required. In compliance with CEQA Section 21080.4, the City circulated the Notice of Preparation (NOP) of an EIR for the proposed project to the Office of Planning and Research State Clearinghouse. On April 1, 2019, the City of Vacaville issued a NOP for the Greentree Project EIR. The NOP and scoping process solicited comments from responsible and trustee agencies, as well as interested parties regarding the scope of the Draft EIR. Appendix 1-1 of this Draft EIR contains the NOP, NOP Distribution List, as well as the comments received by the City in response to the NOP.

The scope of environmental issues to evaluate in this EIR was established by the City of Vacaville through the EIR scoping process. The EIR includes an analysis of both the proposed project's impacts and cumulative impacts in the following issue areas:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils and Mineral Resources

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- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Parks and Recreation
- Population and Housing
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- CEQA Required Assessment Conclusions:
 - Impacts Found Not To Be Significant
 - Significant Unavoidable Impacts
 - Growth-Inducing Impacts
 - Significant Irreversible Changes

This Draft EIR will be available for review by the public and interested parties, agencies, and organizations for a 45-day comment period starting April 15, 2022, and ending May 30, 2022. During the comment period, the public is invited to submit written comments on the Draft EIR by mail or email to the City of Vacaville Planning Department. Written comments should be submitted to:

Peyman Behvand, Planning Manager
City of Vacaville, Planning Department
650 Merchant St.
Vacaville, CA 95688
Email: Peyman.Behvand@cityofvacaville.com

Written and/or verbal comments on the Draft EIR will also be accepted at a Planning Commission hearing, during the public comment period, which will be legally noticed and is tentatively scheduled for the following date: May 17, 2022 at 6:00 p.m. and will be held at Vacaville City Hall, 650 Merchant St., Vacaville, CA 95687.

1.4.2 FINAL EIR

Upon completion of the 45-day review period for the Draft EIR, the City of Vacaville will review all comments received and prepare written responses for each comment on the adequacy of the Draft EIR. A Final EIR will then be prepared, which contains the comments received, responses to comments raising environmental issues, and any changes to the Draft EIR. The Final EIR will then be presented to the City of Vacaville for certification as the environmental document for the proposed project. All persons who

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commented on the Draft EIR will be notified of the availability of the Final EIR and the date of the public hearing before the city.

The Planning Commission will review the Final EIR and the proposed project and make a recommendation to the City Council, which is the decision-making body for the EIR and the proposed project. A City Council public hearing will then be scheduled to concurrently consider a decision on the project and certification of the Final EIR. If the City Council determines that the project may be approved, the City Council will certify the Final EIR and adopt and incorporate into the project all feasible mitigation measures identified in the EIR and may also require other feasible mitigation measures as conditions of approval.

In some cases, the City Council may find that certain mitigation measures are outside the jurisdiction of the City to implement, or that there are no feasible mitigation measures for a given significant impact. In that case, the City Council would have to adopt a statement of overriding considerations that determines that economic, legal, social, technological, or other benefits of the proposed project outweigh the unavoidable, significant effects on the environment.

The City Council may also find that the project does not satisfy the required findings for approval and decide to reject the project on that basis. In that case, the City Council is not required to certify the Draft EIR. Public input is encouraged at all public hearings before the city.

1.4.3 MITIGATION AND MONITORING

Public Resources Code Section 21081.6 requires that the lead agency adopt a monitoring or reporting program for any project for which it has made mitigation findings pursuant to Public Resources Code Section 21081. Such a program is intended to ensure the implementation of all mitigation measures adopted through the preparation of an EIR. The Mitigation Monitoring and Reporting Program for the proposed project will be completed and available to the public prior to certification of this EIR.

2. Executive Summary

2.1 INTRODUCTION

This draft environmental impact report (DEIR) addresses the environmental effects associated with the implementation of the proposed project. The California Environmental Quality Act (CEQA) requires that local government agencies consider the environmental consequences before acting on projects over which they have discretionary approval authority. An environmental impact report (EIR) analyzes potential environmental consequences to inform the public and support informed decisions by local and state governmental agency decision makers. This document focuses on impacts determined to be potentially significant in the Initial Study/Notice of Preparation (IS/NOP) completed for the proposed project (see Appendix 1-1).

This EIR has been prepared pursuant to the requirements of CEQA and the City of Vacaville's CEQA procedures. The City of Vacaville, as the lead agency, has reviewed and revised all submitted drafts, technical studies, and reports as necessary to reflect its own independent judgement, including reliance on City technical personnel from other departments and review of all technical subconsultant reports.

Data for this EIR derive from onsite field observations, discussions with affected agencies, analysis of adopted plans and policies, review of available studies, reports, data and similar literature, and specialized environmental assessments (aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils and mineral resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, parks and recreation, population and housing, public services, transportation, tribal cultural resources, utilities and service systems, and wildfire).

2.2 ENVIRONMENTAL PROCEDURES

This DEIR has been prepared pursuant to CEQA to assess the environmental effects associated with implementation of the proposed project, as well as anticipated future discretionary actions and approvals. CEQA established six main objectives for an EIR:

1. Disclose to decision makers and the public the significant environmental effects of proposed activities.
2. Identify ways to avoid or reduce environmental damage.
3. Prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
4. Disclose to the public reasons for agency approval of projects with significant environmental effects.
5. Foster interagency coordination in the review of projects.

2. EXECUTIVE SUMMARY

6. Enhance public participation in the planning process.

An EIR is the most comprehensive form of environmental documentation in CEQA and the CEQA Guidelines; it is intended to provide an objective, factually supported analysis and full disclosure of the environmental consequences of a proposed project with the potential to result in significant, adverse environmental impacts.

An EIR is one of various decision-making tools used by a lead agency to consider the merits and disadvantages of a project that is subject to its discretionary authority. Before approving a proposed project, the lead agency must consider the information in the EIR; determine whether the EIR was prepared in accordance with CEQA and the CEQA Guidelines; determine that it reflects the independent judgment of the lead agency; adopt findings concerning the project's significant environmental impacts and alternatives; and adopt a statement of overriding considerations if significant impacts cannot be avoided.

2.2.1 EIR FORMAT

Chapter 1. Introduction: Describes the purpose of this EIR, background on the proposed project, overview of the NOP process, the use of incorporation by reference, and Final Environmental Impact Report (FEIR) certification.

Chapter 2. Executive Summary: Summarizes the background and description of the proposed project, the format of this EIR, project alternatives, any critical issues remaining to be resolved, and the potential environmental impacts and mitigation measures identified for the proposed project.

Chapter 3. Project Description: Contains a detailed description of the proposed project, including its objectives, its area and location, approvals anticipated to be required as part of the proposed project, necessary environmental clearances, and the intended uses of this EIR.

Chapter 4. Environmental Analysis: Each environmental topic is analyzed in a separate section that discusses the thresholds used to determine if a significant impact would occur; the methodology to identify and evaluate the potential impacts of the proposed project; the existing environmental setting; the potential adverse and beneficial effects of the proposed project; the level of impact significance before mitigation; the mitigation measures for the proposed project; the level of significance after mitigation is incorporated; and the potential cumulative impacts of the proposed project and other existing, approved, and proposed development in the area.

Chapter 5. Significant Unavoidable Adverse Impacts: Describes the significant unavoidable adverse impacts of the proposed project.

Chapter 6. Alternatives to the Proposed Project: Describes the alternatives and compares their impacts to the impacts of the proposed project. Alternatives include the No Project Alternative and a Reduced Intensity Alternative.

2. EXECUTIVE SUMMARY

Chapter 7. CEQA-Mandated Sections. Briefly describes the potential impacts of the proposed project that were determined not to be significant by the IS/NOP and were therefore not discussed in detail in this EIR. Describes the significant irreversible environmental changes associated with the proposed project. Describes the ways in which the proposed project would cause increases in employment or population that could result in new physical or environmental impacts.

Chapter 8. Organizations and Persons Consulted: Lists the people and organizations that were contacted during the preparation of this EIR.

Appendices: The appendices for this document (in PDF format on a CD attached to the front cover) comprise these supporting documents:

- Appendix 1-1: NOP, NOP Distribution List, and NOP Comments
- Appendix 4.6-1: Air Quality/Energy/Greenhouse Gas Report
- Appendix 4.7-1: Biological Assessment Greentree Development Project
- Appendix 4.7-2: Arborist’s Report
- Appendix 4.8-1: Historic Evaluation of the Green Tree Golf Course, Vacaville, California
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- Appendix 4.19-2: Transportation Analysis

2. EXECUTIVE SUMMARY

2.2.2 TYPE AND PURPOSE OF THIS EIR

This DEIR has been prepared as a “Project EIR,” defined by Section 15161 of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3) for the analysis of the proposed Greentree project. This type of EIR examines the environmental impacts of a specific development project and should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation.

2.3 PROJECT LOCATION

The proposed project is located at 999 Leisure Town Road, situated to the east of Interstate 80 (I-80) in the city of Vacaville, Solano County, California (project site). The project site is in the northeastern portion of the city, located approximately 2.7 miles northeast of Downtown Vacaville, approximately 10.5 miles north of the city of Fairfield, and approximately 7.5 southwest of the city of Dixon (see Figure 2-1, *Regional Location*). The project site is bounded by Leisure Town Road to the east; Orange Drive to the north and northwest; Sequoia Drive, and Yellowstone Drive to the west; and Green Tree Drive to the southwest (see Figure 2-2, *Project Vicinity*).

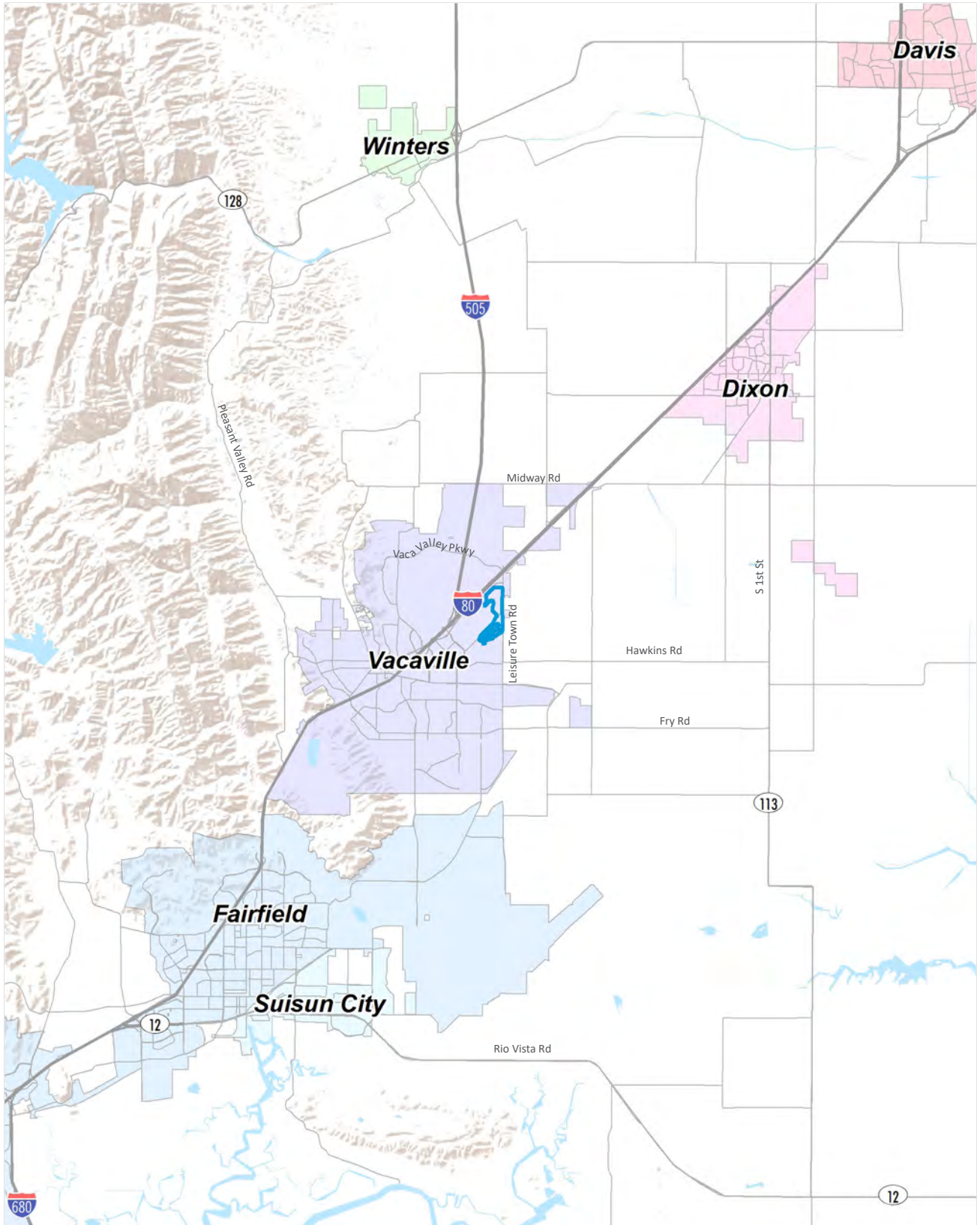
2.4 PROJECT SUMMARY

The Greentree Development Group, Inc (project applicant) is requesting adoption of the proposed project, which would result in the development of two neighborhoods – the north of Sequoia neighborhood and the south of Sequoia neighborhood. This distinction is made due to the differing character of development proposed within each area and the supporting uses, infrastructure, and facilities needed to support each development. The project site is roughly bisected by Sequoia Drive into a northern portion and a southern portion. The north of Sequoia neighborhood includes high density residential land uses, commercial development, regional serving commercial sites, and park and recreational facilities. The south of Sequoia neighborhood includes a single-family active adult (senior) residential community and provides open space and recreational amenities.

The proposed project has incorporated site plan refinements that have been made over time based on input from City of Vacaville (City) planning, engineering, utility, parks, and economic development staff; discussions with several neighborhood groups and their representatives; analysis of market demands and projected development needs; updated hydrology, utility, biological resource, engineering, related technical information developed by the applicant team; and input from the Vacaville City Council. Recommendations for use types, use relationships, circulation patterns and roadway designs, residential densities and product types, commercial end use types and parcel size needs, and recreation resources have been considered through this process.

The proposed project is anticipated to include the following entitlements requests: General Plan Amendment, Green Tree Park Policy Plan, Master Plan (Specific Plan), rezoning, and subdivision map. Additional description of the environmental setting as it relates to each of the environmental issues are analyzed in Chapter 4.0, *Environmental Analysis*, of this Draft EIR (DEIR).

2. EXECUTIVE SUMMARY



Source: ESRI, 2021

Project Boundary



Figure 2-1
Regional Location

2. EXECUTIVE SUMMARY

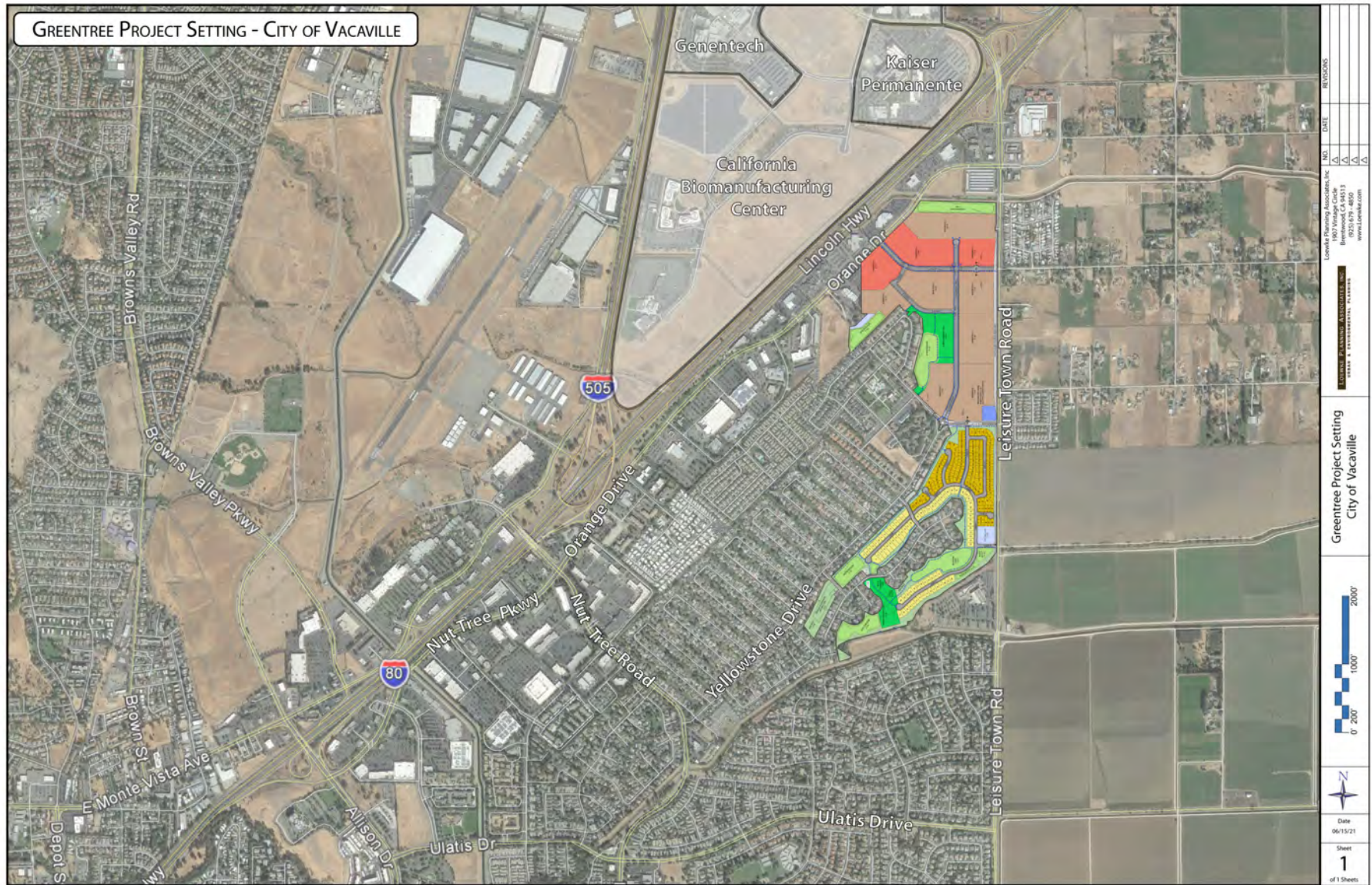


Figure 2-2
Project Vicinity

2. EXECUTIVE SUMMARY

2.5 SUMMARY OF PROJECT ALTERNATIVES

CEQA Guidelines section 15126.6 requires that an EIR describe a range of reasonable alternatives to a project that could feasibly attain the basic objectives of a project and avoid or lessen the environmental effects of a project. While the City considered various options and recommendations during the scoping process, the final selection of alternatives was based on the CEQA Guidelines section 15126.6[f], which states that the selection of alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.

Based on the criteria listed in Section 7.2, the following two alternatives have been determined to represent a reasonable range of alternatives that have the potential to feasibly attain most of the basic objectives of the Proposed Project but may avoid or substantially lessen any of the significant effects of the project. Project alternatives are assessed in further detail in Chapter 6, *Alternatives to the Project*.

- Alternative 1: No Project Alternative
- Alternative 2: Reduced Commercial Development Alternative

2.5.1 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

2.5.1.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

CEQA Guidelines section 15126.6(e) requires that a “No Project” Alternative be evaluated. This analysis must discuss the existing site conditions as well as what would be reasonably expected to occur in the foreseeable future if the proposed project were not approved.

2.5.1.2 ALTERNATIVE 2:

Under this alternative, the proposed project would reduce the commercial building footprint by 15 percent from 300,000 square feet to 255,000 square feet. Under this alternative, the rezone, General Plan Amendment, and Green Tree Park Policy Plan Amendment would still be required similar to the proposed project.

2.6 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed project, the major issues to be resolved include decisions by the lead agency as to:

1. Whether this DEIR adequately describes the environmental impacts of the proposed project.
2. Whether the benefits of the proposed project override those environmental impacts which cannot be feasibly avoided or mitigated to a level of insignificance.
3. Whether the proposed land use changes are compatible with the character of the existing area.
4. Whether the identified goals, policies, or mitigation measures should be adopted or modified.

2. EXECUTIVE SUMMARY

5. Whether there are other mitigation measures that should be applied to the proposed project besides the mitigation measures identified in the DEIR.
6. Whether there are any alternatives to the proposed project that would substantially lessen any of the significant impacts of the proposed project and achieve most of the basic proposed project objectives.

2.7 AREAS OF CONTROVERSY

On April 1, 2019, the city issued an NOP for the proposed project. The scoping period for this IS/NOP was between April 1, 2019, and May 3, 2019, during which interested agencies and the public could submit comments about the proposed project. During this time, the City conducted a public scoping meeting on April 25, 2019, and received comment letters, comment emails, and comment cards during the scoping meeting, from agencies and members of the public. Comments received during circulation of the NOP/IS are included in Appendix 1-1.

The following is a discussion of issues that are likely to be of particular concern to agencies and interested members of the public during the environmental review process. While every concern applicable to the CEQA process is addressed in this DEIR, this list is not necessarily exhaustive, but rather attempts to capture those concerns that are likely to generate the greatest interest based on the input received during the scoping process.

- **Traffic and Circulation:** Design of project circulation and street connections to encourage access to Leisure Town Road and Orange Drive, with minimized through traffic using use of existing White Sands Drive and Yellowstone Drive.
- **Traffic and Circulation:** Control of vehicle speeds and accommodation of safe pedestrian movement through use of project design, project circulation alternatives, and implementation of traffic calming measures.
- **Traffic and Circulation:** Examine project traffic in the context of vehicle miles traveled (VMT) and alternative strategies to reduce overall VMT.
- **Public Services:** Need for adequate recreational facilities to meet the project needs as well as those of the adjoining senior-oriented neighborhood.
- **Biological Resources:** Concern to properly survey, protect during construction, and provide suitable replacement habitat for burrowing owls currently utilizing a portion of the site.

2.8 SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND LEVELS OF SIGNIFICANCE AFTER MITIGATION

Table 2-1, *Summary of Impacts and Mitigation Measures*, summarizes the conclusions of the environmental analysis contained in this DEIR. Impacts are identified as potentially significant, less than significant, or no impact, and mitigation measures are identified for all significant impacts. The level of significance after imposition of the mitigation measures is also presented.

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AESTHETICS			
AES-1: The project would not have a substantial adverse effect on a scenic vista.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
AES-2: The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	No Impact	No mitigation measures are required.	No Impact
AES-3: The project would not, 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
AES-4: The project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
AES-5: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to aesthetics.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
AGRICULTURE AND FORESTRY RESOURCES			
AG-1: The project would not 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.	No Impact	No mitigation measures are required.	No Impact
AG-2: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	No Impact	No mitigation measures are required.	No Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
AG-3: The project would not conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	No Impact	No mitigation measures are required.	No Impact
AG-4: The project would not result in loss of forest land or conversion of forest land to non-forest use.	No Impact	No mitigation measures are required.	No Impact
AG-5: The project would not 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.	No Impact	No mitigation measures are required.	No Impact
AG-6: The proposed project would not result in cumulative impacts with respect to agricultural and forestry resources.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant
AIR QUALITY			
AIR-1: The project would conflict with or obstruct implementation of the applicable air quality plan.	Potentially Significant Impact	There are no feasible mitigation measures.	Significant and unavoidable
AIR-2: The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under applicable federal or State ambient air quality standard.	Potentially Significant Impact	There are no feasible mitigation measures.	Significant and unavoidable
AIR-3: The project would not expose sensitive receptors to substantial pollutant concentrations.	Potentially Significant Impact	Mitigation Measure AIR-1: At the two apartment buildings that are completely within the area with 10 per million or greater cancer risk, the developer shall install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system shall include a properly installed and operated ventilation system with filters having a Minimum Efficiency Report Value of 13, which is expected to achieve an 80 percent reduction. A reduction of 80 percent	Less Than Significant Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>in DPM would reduce cancer risk from I-80 at the closest of the two apartment buildings (the most sensitive receptor location) from 12.9 to 3.1 in a million, well below the single-source threshold of 10 in a million.</p> <p>Mitigation Measure AIR-2: At the two apartment buildings that are partially within the area with 10 per million or greater cancer risk, the developer shall locate the air intakes as far outside the area with 10 per million or greater risk from I-80 as possible.</p>	
AIR-4: The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
AIR-5: The proposed project would not result in cumulative impacts to air quality.	Less Than Significant	No mitigation measures are required.	Less Than Significant Impact
BIOLOGICAL RESOURCES			
BIO-1: The project would 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 plan, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.	Potentially Significant Impact	<p>Mitigation Measure BIO-1</p> <ul style="list-style-type: none"> ▪ Prior to grading, the applicant shall mitigate for the loss of Swainson’s hawk foraging habitat by preserving similar or better habitat at an off-site location at a 1:1 ratio, consistent with CDFW’s 1994 Staff Report regarding Mitigation for Impacts to Swainson’s Hawks (<i>Buteo swainsoni</i>) in the Central Valley of California. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as the Burke Ranch Conservation Bank or the Elsie Gridley Mitigation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The applicant shall prepare and submit a plan of the proposed off-site mitigation to the City for approval. If the project is constructed in phases, the compensatory mitigation for impacted Swainson’s hawk foraging habitat within each phase shall be provided prior to grading that phase. <p>Mitigation Measure BIO-2</p> <ul style="list-style-type: none"> ▪ The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting Swainson’s hawks. 	Less Than Significant Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<ul style="list-style-type: none"> <li data-bbox="930 407 1709 753">■ A qualified biologist shall present an “Environmental Awareness Program” (EAP) that shall be implemented to educate the contractors and construction personnel of the sensitive habitats and species in the study area. The EAP shall include a presentation on the life history and legal status of potentially occurring special-status species, potential consequences of impacting special-status species, and distribution of informational packages to each worker. Swainson’s hawk, white-tailed kite, burrowing owl, valley elderberry longhorn beetle, and western pond turtle will be the focal species of the EAP. The biologist shall present the program and allow time for questions and answers. The applicant shall provide translators, as needed, for workers that only speak other languages. Each worker shall sign a form acknowledging they attended the EAP. <li data-bbox="930 769 1709 1057">■ A pre-construction survey for nesting Swainson’s hawks within 0.25 mile of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. The surveys shall incorporate methodologies from CDFW’s 1994 Staff Report regarding Mitigation for Impacts to Swainson’s Hawks (<i>Buteo swainsoni</i>) in the Central Valley of California (CDFW 1994) and the Swainson’s Hawk Technical Advisory Committee (SHTAC) survey guidelines (SHTAC 2000). A report describing the results of the survey shall be provided to the City. If no active nests are located, no further action to mitigate for this potential impact is required. <li data-bbox="930 1073 1709 1159">■ If there is a lapse in project-related work of fifteen (15) days or longer during the nesting season, another focused survey shall be performed, and the results sent to the CDFW prior to resuming work. <li data-bbox="930 1175 1709 1435">■ If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the Swainson’s hawks are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active. 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>Mitigation Measure BIO-3</p> <ul style="list-style-type: none"> <li data-bbox="930 456 1707 917"> <p>■ Prior to grading, the applicant shall mitigate for the loss of 158.92 acres of potential burrowing owl habitat and two active nests by preserving similar or better habitat at an off-site location at a 1:1 ratio. The applicant shall prepare and submit a plan of the proposed off-site mitigation to the City for approval. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as Burke Ranch Conservation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The mitigation for loss of burrowing owl habitat may be accomplished concurrent with the Swainson’s hawk off-site mitigation conditional on the mitigation area being compatible with burrowing owl conservation and actively managed to encourage establishment of a year-round burrowing owl population. If the project is constructed in phases, the compensatory mitigation for impacted burrowing owl habitat within each phase shall be provided prior to grading that phase.</p> <p>Mitigation Measure BIO-4</p> <ul style="list-style-type: none"> <li data-bbox="930 992 1707 1279"> <p>■ Within 14 days prior to the commencement of construction of any phase of the project, a qualified biologist shall conduct an initial preconstruction survey for burrowing owls within the construction limits and adjacent lands within 250 feet, as access and visibility allow. The surveys shall incorporate methodologies from CDFW’s Staff Report on Burrowing Owl Mitigation (CDFG 2012). A follow-up survey shall be conducted within 24 hours of the commencement of construction. A preconstruction survey report describing the results of the survey shall be provided to the City. If no burrowing owls or active burrows are located, no further action for this potential impact is required.</p> <li data-bbox="930 1295 1707 1437"> <p>■ If there is a lapse in construction of fourteen (14) days or longer during the nesting season, a qualified biologist shall conduct another preconstruction survey for burrowing owls and follow-up survey within 24 hours of the commencement of construction focused survey shall be performed and the results sent to CDFW prior to resuming work.</p> 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<ul style="list-style-type: none"> ■ If burrowing owls or active burrows are documented in the study area during the non-breeding season (September 1 through January 31), an Environmentally Sensitive Area (“ESA”) with a radius of 160 feet shall be established around the occupied burrow(s). The applicant shall prepare a passive relocation plan incorporating the methodologies of CDFW’s Staff Report on Burrowing Owl Mitigation (CDFG 2012) for submittal to the City and CDFW. The applicant shall implement passive relocation following approval by the City. The ESA shall remain in place until the City concurs the burrow is no longer active. ■ If burrowing owls or active burrows are documented within 250 feet of the study area during the breeding season (February 1 through August 31), an ESA with a radius of 250 feet shall be established around the occupied burrow(s). The ESA shall remain in place throughout the breeding season, or until the City concurs the burrow is no longer active. Passive relocation may then proceed as described above. 	
		<p>Mitigation Measure BIO-5</p>	
		<ul style="list-style-type: none"> ■ The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting white-tailed kite. ■ A pre-construction survey for nesting white-tailed within 500 feet of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. A report describing the result of the survey shall be provided to the City. If no active nests are located, no further action is required. ■ If there is a lapse in project-related work of fifteen (15) days or longer during the nesting season, another focused survey shall be performed, and the results sent to CDFW prior to resuming work. ■ If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals any may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the white-tailed kite 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.</p> <p>Mitigation Measure BIO-6</p> <ul style="list-style-type: none"> ■ Pre-construction surveys for western pond turtle and their nests shall be conducted by a qualified biologist within 48 hours prior to onset of staging and construction activities and again if there is a lapse in activity longer than 2 weeks. This will involve a search for nests in grasslands within 300 feet of Horse Creek and Ulatis Creek. If nest sites are located, the applicant will notify the City and a 50-foot buffer area around the nest shall be staked and work will be delayed until hatching is complete and the young have left the nest site. ■ Prior to the commencement of construction, an Environmentally Sensitive Area (“ESA”) shall be established along the north edge of the study area adjacent to Horse Creek. An ESA shall also be established in the southwest corner of the study area near Ulatis Creek. A qualified biologist will oversee the ESA fencing. The ESAs will be delineated by silt fencing keyed below ground at least 4 inches. The ESA fencing shall be installed as close to the limits of grading as possible. ■ If a western pond turtle is observed within the project area, it shall be left alone to move out of the area on its own. <p>Mitigation Measure BIO-7</p> <ul style="list-style-type: none"> ■ The project shall not involve the removal or damage to an occupied blue elderberry shrub that could result in the take of valley elderberry longhorn beetle. ■ Prior to the commencement of construction within 100 feet of blue elderberry shrubs, an Environmentally Sensitive Area (“ESA”) shall be established around the blue elderberry shrubs and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by orange safety fencing and will prevent disturbance to the blue elderberry shrubs by 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>construction crews and equipment. The ESA fencing shall delineate the minimal “buffer zone” and shall be installed as close to the limits of grading as possible and at least 20 feet from the driplines of each of the shrubs.</p> <ul style="list-style-type: none"> ■ Signs shall be installed every 50 feet along the edge of the ESA stating: “This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Federal Endangered Species Act. Violators are subject to prosecution, fines, and imprisonment.” Signs shall be easily read from a distance of 20 feet and shall remain in place for the duration of construction. ■ Mass-grading along the south edge of the study area shall be scheduled between August 1 through February 28 when any valley elderberry longhorn beetle that may be present would be within the stems of the shrubs. ■ Following completion of construction along the south edge of the study area, buffer zones of at least 20 feet around the blue elderberry shrubs shall be protected from adverse effects of the adjacent development project. The applicant shall prepare a plan outlining protective measures such as fencing and signage, as well as maintenance activities such as use of herbicides, fertilizers, or other chemicals, or weed abatement within the buffer zones. The plan shall be subject to City approval and shall be included in the final project plans. <p>Mitigation Measure BIO-8</p> <ul style="list-style-type: none"> ■ Prior to the commencement of construction within 250 feet of the seasonal wetlands, the applicant shall submit the large branchiopod dry-season and wet-season sampling reports to USFWS with a request for concurrence on negative findings. If USFWS provides concurrence on negative findings, no further action is needed. ■ If USFWS does not readily concur on the negative findings, the applicant shall consult further with USFWS to determine if additional surveys are needed, such as a second year of wet-season surveys during a more normal rainfall year. If USFWS provides concurrence on negative findings following 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>further surveys or consultation, no further action is needed. If USFWS does not provide concurrence on negative findings following the completion of wet-season surveys during a more normal rainfall year or USFWS does not provide on-site evidence of presence within 6 months of the completion of wet-season surveys during a more normal rainfall year, no further action is needed.</p>	
		<ul style="list-style-type: none"> ■ In the unlikely event vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp are documented in the study area, or the applicant elects to assume species presence, the applicant shall consult with USFWS to obtain authorization for take. The applicant shall provide compensatory mitigation for impacted occupied habitat at a minimum ratio of 3:1 (i.e., 2:1 preservation and 1:1 preservation). ■ The applicant shall provide to the City USFWS' concurrence regarding a negative finding or evidence that compensatory mitigation has been completed. 	
		<p>Mitigation Measure BIO-9</p>	
		<ul style="list-style-type: none"> ■ A qualified biologist who is experienced with the identification of local bat species shall conduct pre-construction roosting bat surveys within 14 days prior to any tree removal during the breeding season (April through August). If no active roosts of special-status bats are found, no further mitigation is required. ■ If special-status bats or roosts are detected during the surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The plan shall prescribe measures to minimize the potential for take of bats, such as undertaking tree removal during certain times of the year, undertaking tree removal when daytime temperatures are high enough to allow individuals to leave on their own, implementing a two-step tree removal process of limbs followed by trunks, and monitoring during construction. The applicant shall implement the take avoidance plan following approval by CDFW. 	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
<p>BIO-2: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.</p>	<p>Potentially Significant Impact</p>	<p>Mitigation Measure BIO-10</p> <ul style="list-style-type: none"> ■ A qualified biologist shall conduct pre-construction surveys for American badgers and their dens within 14 days of the commencement of grading. If no American badgers or their dens are found, no further mitigation is required. ■ If American badgers or their dens are detected during the pre-construction surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The Plan shall prescribe measures to minimize the potential for take of American badgers, such as establishing temporary Environmentally Sensitive Areas (“ESAs”) around occupied dens or relocating badgers. The applicant shall implement the take avoidance plan following approval by CDFW. 	
		<p>Mitigation Measure BIO-11</p> <ul style="list-style-type: none"> ■ The Aquatic Resources Delineation shall be submitted to the USACE for verification to firmly establish the boundaries and current jurisdictional status of the aquatic features on the project site. The verified Aquatic Resources Delineation shall be used to quantify the project impacts to aquatic resources. If the USACE verifies the golf course ponds, ditches, and seasonal wetlands are non-jurisdictional, no further interface with the USACE is needed. ■ A permit from the USACE shall be secured prior to the placement of any fill material (e.g., culverts, fill dirt, rock) within jurisdictional Waters of the U.S. or wetlands. As a condition of the USACE permit, 401 Water Quality Certification shall also be secured from Regional Water Quality Control Board (RWQCB). ■ Waste Discharge Requirements (WDRs) shall be secured from RWQCB prior to the placement of any material regulated by the Regional Board in Waters of the State. 	<p>Less Than Significant Impact</p>

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
<p>BIO-3: The project would 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.</p>	<p>Potentially Significant Impact</p>	<p>Implement Mitigation Measure BIO-1.</p> <p>Mitigation Measure BIO-12</p> <ul style="list-style-type: none"> ■ Prior to the commencement of construction, an Environmentally Sensitive Area (“ESA”) shall be established along the north edge of the remnant channels in the study area and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by silt fencing and orange safety fencing and will prevent disturbance to potentially jurisdictional Waters of the U.S. by construction crews and equipment. The ESA fencing shall be installed as close to the limits of grading as possible and outside the driplines of the trees and shrubs along the banks of the channels. ■ The applicant shall comply with all conditions of any USACE permit(s) or WDRs including the provision of compensatory mitigation for impacts to regulated aquatic resources. The compensatory mitigation shall be at a minimum ratio of 1:1 and would be best accomplished through the purchase of credits from an agency approved mitigation bank. ■ A qualified biologist shall present an “Environmental Awareness Program” (EAP) as described in Recommended Mitigation Measure BIO-2. ■ The applicant shall remove vegetation during the fall and winter, if feasible, to minimize the potential for take of birds. ■ A pre-construction survey for nesting birds on and within 100 feet of the project site shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. A report describing the result of the survey shall be provided to the City. If no active nests are located, no further action is required. ■ If during the nesting season there is a lapse in project-related work for each respective phase of construction of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work. 	<p>Less Than Significant Impact</p>

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<ul style="list-style-type: none"> If active nests are found, a biologist experienced with protected birds shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to protected birds or their nest are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active. 	
BIO-4: The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
BIO-5: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.	No Impact	No mitigation measures are required.	No Impact
BIO-6- Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to biological resources.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
CULTURAL RESOURCES			
CULT-1: The project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
CULT-2: The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.	Potentially Significant Impact	Mitigation Measure CULT - 1: Prior to the issuance of grading permits for all phases of project development, the City shall confirm the applicant has required all construction crews to undergo adequate training for the identification of federal- or State-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources on-site, of the laws protecting these resources and associated penalties, and of the	Less Than Significant Impact

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TABLE 2-1 **SUMMARY OF IMPACTS AND MITIGATION MEASURES**

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>procedures to follow should they discover cultural resources during project-related work.</p> <p>Mitigation Measure CULT - 2: In the event that unanticipated discoveries of potentially sensitive cultural resources are encountered during construction activities, all activity should cease within 100 feet of the find until a qualified archaeologist, who meets federal criteria under 36 CFR 61, can determine the significance of the find and determine the appropriate mitigation. If the deposits are determined to not be significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided if feasible. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the archaeologist, in coordination with the City, local tribes, and the CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan.</p> <p>The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological or paleontological materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological or paleontological resources is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological or paleontological context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.</p> <p>The City shall confirm that the project applicant has retained a qualified archeologist for the preparation and implementation of the data recovery plan. The recovery plan shall be submitted to the project applicant, the City, and the Northwest Information Center. A data recovery plan shall not be required for resources that have been deemed by the Northwest Information Center as adequately recorded and recovered by studies already completed. Once the recovery plan is reviewed and approved by the City and any appropriate</p>	

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
<p>CULT-3: The project would/would not disturb any human remains, including those interred outside of formal cemeteries.</p>	<p>Potentially Significant Impact</p>	<p>resource recovery completed, project construction activity within the area of the find may resume.</p> <p>Mitigation Measure CULT -3: If archaeological resources are discovered during construction, then work should be halted within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. If the find is determined to be significant, then appropriate mitigation measures will be formulated and implemented.</p> <p>Mitigation Measure CULT -4: If human remains are found during construction, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Solano County is contacted to determine that no investigation of the cause of death is required.</p> <p>If the coroner determines the remains to be Native American, the coroner will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The MLD may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in Public Resources Code Section 5097.98.</p> <p>The landowner or their authorized representative will reburial the Native American human remains and associated grave goods, with appropriate dignity, on the property in a location not subject to further disturbance if: a) the Native American Heritage Commission is unable to identify the MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.”</p>	<p>Less Than Significant Impact</p>

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
CULT-4: The proposed project would not result in cumulative impacts with respect to cultural resources.	Less Than Significant	Implementation of Mitigation Measures CULT-1, CULT-2, CULT-3 and CULT-4 identified above would ensure that archaeological and paleontological resources, if discovered on the Project site, are protected, and that discovered human remains and TCR are handled appropriately.	Less Than Significant
ENERGY			
ENE-1: The project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
ENE-2: The project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
ENE-3: The proposed project would not result in cumulative impacts to energy.	Less Than Significant Impact	No mitigation measures are required	Less Than Significant Impact
GEOLOGY AND SOILS AND MINERAL RESOURCES			
GEO-1: The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; iv) Landslides, mudslides, or other similar hazards.	Potentially Significant Impact	Mitigation Measure GEO-1: All grading operations and construction shall be conducted in conformance with the recommendations included in the geotechnical evaluations for the project site prepared by ENGEO, Inc., specifically the Preliminary Geotechnical Exploration for Greentree, Solano County, California dated June 6, 2019, and subsequent geotechnical reports prepared for this project. Specific recommendations in the geotechnical evaluations shall be incorporated into the final project plans and construction-level geotechnical report.	Less Than Significant Impact
GEO-2: The project would not result in substantial soil erosion or the loss of topsoil.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
GEO-3: The project 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 landslide, lateral spreading, subsidence, liquefaction, or collapse.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
GEO-4: The project would be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	Potentially Significant Impact	Implement Mitigation Measure GEO-1	Less Than Significant Impact
GEO-5: The project would not 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
GEO-6: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant Impact	<p>Mitigation Measure GEO-2: In the event that fossils or fossil-bearing deposits are discovered during construction, excavations within 50 feet of the find shall be temporarily halted or diverted. The contractor shall notify a qualified paleontologist to examine the discovery. The paleontologist shall document the discovery, as needed, in accordance with Society of Vertebrate Paleontology standards, evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource important. The plan shall be submitted to the City of Vacaville for review and approval prior to implementation.</p> <p>Any paleontological materials encountered during project excavation shall be salvaged and treated as described by SVP (2010). This treatment shall include preparation, identification, determination of significance, and curation into a public museum. Should sediments be discovered during monitoring that may yield microvertebrate fossils, sediment samples should be wet screened (either on- or off-site) to recover a representative sample of the microvertebrates present per SVP standard procedures.</p>	Less Than Significant Impact
GEO-7: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to geology and soils.	Less Than Significant	No mitigation measures are required.	Less Than Significant

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
MIN-1: The project would not result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.	No Impact	No mitigation measures are required.	No Impact
MIN-2: The project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	No Impact	No mitigation measures are required.	No Impact
MIN-3: The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to mineral resources	No Impact	No mitigation measures are required.	No Impact
GREENHOUSE GAS EMISSIONS			
GHG-1: The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	Potentially Significant Impact	<p>a) Mitigation Measure GHG-1: Applicant proposed mitigation measures include: <i>Pedestrian network improvements which promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.</i></p> <p>b) <i>Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.</i></p> <p>c) <i>For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).</i></p> <p>d) <i>For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).</i></p> <p>e) <i>No woodstoves or natural gas hearths.</i></p> <p>f) <i>Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:</i></p> <ul style="list-style-type: none"> • <i>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.</i> 	Significant and unavoidable Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<ul style="list-style-type: none"> • <i>All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.</i> • <i>All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.</i> • <i>All vehicle speeds on unpaved roads shall be limited to 15 mph.</i> • <i>All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</i> • <i>Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.</i> • <i>All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.</i> • <i>Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.</i> • <i>Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.</i> • <i>Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.</i> • <i>Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.</i> • <i>Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.</i> 	

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p><i>g) Construction phase equipment exhaust control measures that reduce NOx and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include:</i></p> <ul style="list-style-type: none"> • <i>All diesel construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 final emission standards for PM (PM10 and PM2.5), if feasible, otherwise,</i> <ul style="list-style-type: none"> <i>i. If Tier 4 Final equipment is not available, alternatively use equipment that meets U.S. EPA emission standards for Tier 4 Interim or Tier 3 engines with particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve an 85 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment;</i> <i>ii. The construction contractor shall demonstrate to the City of Vacaville that Tier 4 Interim equipment is not available if Tier 3 equipment is used; and</i> <i>iii. Use alternatively fueled equipment with lower NOx emissions that meet the NOx and PM reduction requirements above.</i> • <i>Diesel engines, whether for off-road equipment or on-road vehicles, shall not be left idling for more than two minutes, except as provided in exceptions to the applicable state regulations (e.g., traffic conditions, safe operating conditions). The construction sites shall have posted legible and visible signs in designated queuing areas and at the construction site to clearly notify operators of idling limit.</i> • <i>Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators, concrete/industrial saws, welders, and air compressors.</i> • <i>Portable equipment shall be powered by electricity if available, instead of diesel generators. If grid electricity is not available, batteries or fuel cell systems for backup power shall be considered before using fossil-fueled generators.</i> 	

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		<p>h) <i>Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.</i></p> <p>i) <i>Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).</i></p> <p>j) <i>Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).</i></p> <p>k) <i>Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 15 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).</i></p> <p>l) <i>Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.</i></p> <p>m) <i>Energy demand reduction measures that include:</i></p> <ul style="list-style-type: none"> • <i>Cool roofs on all non-residential buildings to reduce building cooling needs;</i> • <i>Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;</i> • <i>Energy Star appliances in all non-residential buildings;</i> • <i>Programmable thermostats in residential units; and</i> <p><i>Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years</i></p>	

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
GHG-2: The project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
GHG-3 The proposed project would result in cumulative greenhouse gas emissions impacts.	Potentially Significant Impact	There are no feasible mitigation measures.	Significant and unavoidable Impact
HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: The project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-2: The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-3: The project would not emit hazardous emissions or handle hazardous materials, substances or waste within ¼-mile of an existing or proposed school.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-4: The project would be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 but would not create a significant hazard to the public or the environment.	Potentially Significant Impact	Mitigation Measure HAZ-1: As part of site the improvements, an estimated 20 cubic yards (28 tons) of soil must be excavated and disposed along the northern edge of the former maintenance yard building in a 10 foot by 15 foot by 2-foot excavation by a California Hazardous Waste licensed contractor, undersigned California Hazardous Waste manifests to accepting Class I landfill. Excavation activities should be observed and recorded by a California Professional Geologist and/or Professional Engineer certified in environmental remediation. Excavated soil must be placed within 20 cubic yard Visqueen lined roll-off bins and/or transport trucks. Similarly, excavated soil can be temporary stockpiled on site and placed on and covered with Visqueen.	Less Than Significant Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
		Mitigation Measure HAZ-2: Confirmation soil samples must be collected from the excavation limits to determine if the lead impacted soil was removed from the site. Approximately 10 confirmation soil samples should be randomly collected from the excavation limits using clean laboratory supplied glass jars, which should be capped, labeled, and placed, within a pre-chilled ice chest for temporary storage. The confirmation soil samples should be delivered under chain-of-custody documentation to a State-Certified hazardous waste testing laboratory and analyzed for lead analysis using EPA Methods SW3550B/SW6020. If lead concentrations exceed 80 mg/Kg, then additional excavation must be conducted along with additional confirmation soil sampling as described above.	
HAZ-5: The project would not, for a project located within an airport land use plan, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-6: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-7: The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HAZ-8: The proposed project would result in less-than-significant cumulative impacts with respect to hazards and hazardous materials.	Less Than Significant	No mitigation measures are required	Less Than Significant
HYDROLOGY AND WATER QUALITY			
HYD-1: The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
HYD-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HYD-3: The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HYD-4: The project would not be in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HYD-5: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
HYD-6: Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to hydrology and water quality.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
LAND USE AND PLANNING			
LU-1: The project would not physically divide an established community.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

2. EXECUTIVE SUMMARY

TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
LU-2: The project would not 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
LU-3: The proposed project would not result in cumulative impacts with respect to land use and planning.	Less Than Significant Impact	No mitigation measures are required	Less Than Significant
NOISE			
NOI-1: Construction activities would result in temporary noise increases in the vicinity of the proposed project.	Potentially Significant Impact	<p>Mitigation Measure NOI -1</p> <ul style="list-style-type: none"> ▪ All construction equipment shall be properly maintained and muffled to minimize noise generation at the source. <p>Mitigation Measure NOI -2</p> <ul style="list-style-type: none"> ▪ Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor. <p>Mitigation Measure NOI -3</p> <ul style="list-style-type: none"> ▪ All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from noise-sensitive land uses. <p>Mitigation Measure NOI -4</p> <ul style="list-style-type: none"> ▪ Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses. <p>Mitigation Measure NOI -5</p> <ul style="list-style-type: none"> ▪ Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and the contact phone number of a designated noise disturbance coordinator. 	Less Than Significant Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
	Less Than Significant	<p>Mitigation Measure NOI -6</p> <ul style="list-style-type: none"> <li data-bbox="930 456 1688 638">■ Commercial/retail land uses proposed for the project should develop site-specific truck access routes in the vicinity of proposed sensitive receptors. All truck movements occurring within proposed commercial/retail areas should maintain a minimum setback of approximately 100 feet during daytime hours and approximately 180 feet during nighttime hours, from outdoor activity areas of proposed sensitive receptors. 	Less Than Significant
		<p>Mitigation Measure NOI -7</p> <ul style="list-style-type: none"> <li data-bbox="930 716 1703 995">■ Loading docks located within 315 feet of a sensitive receptor could result in noise levels exceeding the City’s daytime maximum noise level standard of 70 dB. Loading docks located within 150 feet of a sensitive receptor could result in noise levels exceeding the City’s daytime maximum noise level standard of 65 dB. Any proposed loading docks should be located at the above-described minimum setback distances (depending on if daytime vs nighttime deliveries were expected) or incorporate sufficient mitigation measures (sound walls) to mitigate noise levels to below the City’s noise level standards at sensitive receptor locations. 	
		<p>No mitigation measures are required.</p>	
<p>NOI-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.</p>	No Impact	No mitigation measures are required.	No Impact
<p>NOI-4: The proximity of the project site to an airport or airstrip would not result in exposure of people residing or working in the project area to excessive noise levels.</p>	No Impact	No mitigation measures are required.	No Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
PARKS AND RECREATION			
PRK-1: The project would not 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
PRK-2: The project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
POPULATION AND HOUSING			
POP-1: The project would not induce substantial unplanned population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
POP-2: The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	No Impact	No mitigation measures are required.	No Impact
PUBLIC SERVICES			
PS-1: The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i) fire protection; ii) police protection; iii) schools, iv) libraries; and v) other public facilities.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
PS-2: The proposed project, in combination with past, present and reasonably foreseeable projects, would not result in substantial adverse physical impacts associated with the provision of new or physically altered facilities or need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i) fire protection; ii) police protection; iii) schools, iv) libraries; and v) other public facilities.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
TRANSPORTATION			
TRANS-1: The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
TRANS-2: The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).	Potentially Significant Impact	There are no feasible mitigation measures.	Significant and unavoidable
TRANS-3: The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), nor would the project result in inadequate emergency access.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
Trans-4: The project would not result in inadequate emergency access.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
TRANS-5: VMT attributable to commercial portion of the proposed development would exceed applicable thresholds under cumulative conditions.	Potentially Significant Impact	Project is an infill site which adjoins an established residential neighborhood (to the west) and a growing employment center (on the north side of Interstate 80). It contains several measures to minimize VMT, including placement of higher density residential uses in close proximity of local commercial services, incorporation of complete streets, and pedestrian walkways and bicycle/pedestrian trails connecting the commercial area with the entire project	Significant and unavoidable

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
as well as the adjoining neighborhood, and access to public transportation. No further mitigation is feasible.			
TRIBAL CULTURAL RESOURCES			
TCR-1: The proposed project would not cause a substantial adverse change in the significance of a Tribal Cultural Resource.	Potentially Significant Impact	<p>Implement Mitigation Measures CULT-2 and CULT-3, and in addition, implement following Measure TCR-1:</p> <p>Mitigation Measure TCR-1: If human remains are found during construction, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Solano County is contacted to determine that no investigation of the cause of death is required.</p> <p>If the coroner determines the remains to be Native American, the coroner will contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission will identify the person or persons it believes to be the most likely descendent (MLD) from the deceased Native American. The MLD may then make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and associated grave goods as provided in Public Resources Code Section 5097.98.</p> <p>The landowner or their authorized representative will rebury the Native American human remains and associated grave goods, with appropriate dignity, on the property in a location not subject to further disturbance if: a) the Native American Heritage Commission is unable to identify the MLD or the MLD failed to make a recommendation within 48 hours after being notified by the commission; b) the descendent identified fails to make a recommendation; or c) the landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.</p>	Less Than Significant Impact
TCR-2: The proposed project would not, in combination with past, present, and reasonably foreseeable projects, result in significant cumulative impacts to tribal cultural resources.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
UTILITIES AND SERVICE SYSTEMS			
UTIL-1: Sewer and wastewater treatment systems are adequate to meet project requirements.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
UTIL-3: Water supply and delivery systems are adequate to meet project requirements.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
UTIL-5: Existing and/or proposed storm drainage systems are adequate to serve the drainage requirements of the proposed project.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
UTIL-7: The 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
UTIL-8: The proposed project would not result in cumulative impacts with respect to solid waste.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
WILDFIRE			
WILD-1: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan.	No Impact	No mitigation measures are required.	No Impact
WILD-2: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not, 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
WILD-3: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact

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TABLE 2-1 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Significant Impact	Significance Without Mitigation	Mitigation Measures	Significance With Mitigation
lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.		No mitigation measures are required.	
WILD-4: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not 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.	Less Than Significant Impact	No mitigation measures are required.	Less Than Significant Impact
WILD-5: The proposed project would not result in cumulative impacts regarding wildfire when combined with past, present, and reasonably foreseeable projects.	No Impact	No mitigation measures are required.	No Impact

2. EXECUTIVE SUMMARY

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3. Project Description

3.1 INTRODUCTION

The purpose of this section is to describe the proposed Greentree Project (proposed project) to the public, reviewing agencies, and decision makers. Pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines (State CEQA Guidelines, Section 15124), an environmental impact report (EIR) should contain a description of the proposed project that includes:

- A) The precise location and boundaries of the proposed project;
- B) A statement of the objectives sought by the proposed project, including the underlying purpose of the project;
- C) A general description of the project's technical, economic, and environmental characteristics; and
- D) A statement briefly describing the intended uses of the EIR, including a list of the agencies that are expected to use the EIR in their decision making, a list of permits and other approvals required to implement the project, and a list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

An adequate project description should not supply extensive detail beyond that needed for evaluation and review of environmental impacts. Accordingly, this chapter describes the necessary details of the proposed project that are critical in assessing the direct, indirect, long-term, and temporary impacts associated with project implementation. This project description identifies key elements of the proposed project including information about entitlement needs; the proposed site plan and land uses; circulation plan; parks and recreation plan; trail plan; development capacity and population generation; and roadway sections, complete streets, and other circulation features.

This project description is organized in the following manner:

- **Introduction** – An overview of the project description and its organization.
- **Project Background** – A summary of the history of the proposed project.
- **Project Setting** – A written description and graphic portrayal of the project location, project site characteristics, general plan and zoning designation, and surrounding land uses.
- **Statement of Project Objectives** – A statement of the proposed project objectives and underlying purpose of the proposed project.
- **Proposed Project Overview**- High-level overview of the key elements of the proposed project.

3. PROJECT DESCRIPTION

- **Proposed Project Characteristics** – A comprehensive description of the proposed project, organized by the various project characteristics and features, including residential, recreational and open space, circulation, and utilities and infrastructure.
- **Project Construction** – A description of the proposed project’s construction plans, schedule, and phasing.
- **Intended Uses of the EIR** – Identification of the proposed project’s Lead Agency, Responsible Agencies, and Trustee Agencies, as well as definition of all anticipated approvals required for project implementation.
- **References** – Listing of all references used in the development of this section.

3.2 PROJECT SUMMARY

The Greentree Development Group, Inc (project applicant) is requesting adoption of the proposed project, which would result in the development of two neighborhoods – the north of Sequoia neighborhood and the south of Sequoia neighborhood. This distinction is made due to the differing character of development proposed within each area and the supporting uses, infrastructure, and facilities needed to support each development. The project site is roughly bisected by Sequoia Drive into a northern portion and a southern portion. The north of Sequoia neighborhood includes higher density residential land uses, commercial development, local serving commercial sites, and park and recreational facilities. The south of Sequoia neighborhood includes a single-family active adult (senior) residential community and provides open space, a second park, and recreational amenities.

The proposed project has incorporated site plan refinements that have been made over time based on input from City of Vacaville (City) planning, engineering, utility, parks, and economic development staff; discussions with several neighborhood groups and their representatives; analysis of market demands and projected development needs; updated hydrology, utility, biological resource, engineering, related technical information developed by the applicant team; and input from the Vacaville City Council. Recommendations for use types, use relationships, circulation patterns and roadway designs, residential densities and product types, commercial end use types and parcel size needs, and recreation resources have been considered through this process.

The proposed project is anticipated to include the following entitlements requests: General Plan land use designation and policy text amendments, Green Tree Park Policy Plan amendment to remove the project site from the Policy Plan, Specific Plan, rezoning and related code amendments and design exceptions, vesting tentative subdivision map, and development agreement. Additional description of the environmental setting as it relates to each of the environmental issues are analyzed in Chapter 4.0, *Environmental Analysis*, of this Draft EIR (DEIR).

3.3 PROJECT SETTING

3.3.1 REGIONAL LOCATION

The proposed project is located at 999 Leisure Town Road, situated to the south of Interstate 80 (I-80) in the city of Vacaville, Solano County, California (project site). The project site is in the northeastern portion of the city, located approximately 2.7 miles northeast of Downtown Vacaville, approximately 10.5 miles north of the city of Fairfield, and approximately 7.5 southwest of the city of Dixon (see Figure 2-1, *Regional Location*).

3.3.2 PROJECT SITE

The overall project site is currently undeveloped and encompasses a total of approximately 185.4 acres, which would be divided into two neighborhoods, including the north of Sequoia neighborhood site and the south of Sequoia neighborhood site. The north of Sequoia site is approximately 107.5 gross acres and encompasses nine Assessor's Parcel Numbers (APNs), including APN 133-120-190,-340; 134-020-240; 134-030-010,-370,-380,-400; 134-310-010; 134-480-110, plus the existing Gilley Way right-of-way. Additionally, the south of Sequoia project site is approximately 77.9 gross acres and encompasses 19 APNs, including APN 134-020-180,-290,-300,-310,-320,-330,-340,-350,-360,-380,-450,-460; 134-180-030,-040; 134-181-130,-140; 134-183-140,-150; 134-332-100,-180, plus existing Sequoia Drive right-of-way.

Most of the Project site was improved in the 1950's as a golf course, which closed in February of 2016. The former golf course buildings and other physical improvements currently remain on the site, including the original golf course ponds which continue to be utilized as part of the City's storm drainage system. The project site is bounded by Leisure Town Road to the east; Horse Creek and Orange Drive to the north and northwest; portions of Sequoia Drive, Yellowstone Drive, and Grand Canyon Drive to the west; and Old Ulatis Creek to the south (see Figure 2-2, *Project Vicinity*).

3.3.3 GENERAL PLAN AND ZONING DESIGNATION

The project site has existing General Plan land use designations of Commercial Highway (CH) and Private Recreation (PR) (City of Vacaville 2015a). The Commercial Highway designation adjoins interstate highways and includes specialty retailing, restaurants, hotels/motels, and commercial recreation and entertainment, designed to attract primarily visitor business and shopping. The Private Recreation designation includes country clubs, free-standing golf courses, recreational vehicle (RV) parks, riding stables, campgrounds, and theme parks (City of Vacaville 2015b). The project site is zoned General Commercial (CG) and Recreation Commercial (CR) (City of Vacaville 2015c).

3. PROJECT DESCRIPTION

3.3.4 SURROUNDING LAND USES

Land uses surrounding the project site generally include residential uses located to the east, south and west of the project site; agricultural uses located east of the project site; and commercial uses located to the north and west of the project site. As shown in Figure 3-1, *Existing Land Uses*, the project site is surrounded by the following General Plan land use designations:

- Rural Residential
- Agriculture or Hillside Agriculture
- Retired Single-Family Residential
- Retail Service
- Retired Multiple-Family Residential
- Commercial Service
- Church
- Public
- Manufactured Homes
- Public Open Space
- Private Recreation
- Vacant

3.4 STATEMENT OF OBJECTIVES

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15124, the EIR must identify the objectives of the proposed project. Proposed project objectives include:

1. Respect existing adjacent neighborhoods by maximizing compatibility of new development with these neighborhoods, minimizing new vehicular through-traffic, integrating expanded pedestrian and bicycle connectivity and recreational opportunities, introducing traffic calming measures, and facilitating access to local-serving commercial uses;
2. Incorporate a viable, high quality commercial retail/service commercial center that will serve the needs of the new neighborhoods within the project site, as well as existing neighborhoods in the project vicinity;
3. Provide opportunities for a variety of housing types at a range of price points to increase the City's housing stock and promote affordability to a range of income levels, with a focus on workforce, age-restricted senior housing, and "missing middle" housing products;
4. Allow a mix of commercial retail and residential uses within the area designated Mixed-Use Overlay to provide options for additional, diverse residential product types, tailor commercial retail/services to the needs of project residents and existing residents in the project vicinity, and activate the commercial center;
5. Incorporate strong recreational elements including two neighborhood parks, an integrated multi-use trail system, and passive open space;

3. PROJECT DESCRIPTION



Source: ERSI 2019, Solano County GIS 2016

Figure 3-1
Existing Land Uses

3. PROJECT DESCRIPTION

Design a circulation plan that incorporates complete street concepts and includes extensive pedestrian and bicycle facilities to provide connectivity throughout the project site; includes traffic calming measures to be selected from a range of proven measures such as bulb-outs within the site and on adjacent neighborhood streets to slow traffic speeds for enhanced pedestrian and bicycle safety, and incorporates a small format roundabout at Yellowstone Drive/Sequoia Drive to optimize traffic flow while facilitating safe pedestrian and bicycle connections across Sequoia Drive.

6. North of Sequoia planning objectives include the following:

- Provide residential land uses at higher densities to enable development of a variety of housing types/products including workforce housing and move-up “missing middle” housing;
- create local-serving commercial retail and service commercial development opportunities described previously;
- create flexibility to allow ground floor retail with residential above by enabling mixed-use development in a limited portion of the area;
- locate larger format commercial retail sites along Orange Drive;
- provide a neighborhood park that serves the proposed new neighborhoods and existing neighborhoods in the surrounding area;
- design and construct circulation improvements that create and connect distinct development blocks, improve efficiency of the circulation network by providing connections to adjacent neighborhoods and facilities, incorporate pedestrian and bicycle facilities, and incorporate traffic calming features for pedestrian and bicycle safety;
- provide sufficient land for storm water management facilities; and
- ensure consistency with the Jepson Parkway Concept Plan.

7. South of Sequoia planning objectives include the following:

- Provide a single-family, senior residential community;
- ensure lot size/density compatibility with the existing adjacent residential neighborhoods;
- provide a second park and passive use open space as recreation amenities for new residents that are also accessible to adjacent existing senior-oriented neighborhoods;
- create an extensive multi-use trail network;
- reserve sufficient land to address storm water management needs;
- create a circulation network that minimizes through traffic and effects on existing adjacent neighborhoods; and
- integrates pedestrian and bicycle facilities, provides enhanced emergency vehicle access, and achieves consistency with the Jepson Parkway Concept Plan.

3. PROJECT DESCRIPTION

3.5 PROPOSED PROJECT OVERVIEW

Proposed project uses include residential development at a variety of densities, with a wide range of housing types, including active-adult detached single-family and workforce-oriented housing; commercial retail including neighborhood serving uses; public parks; trails and open space; circulation improvements, and infrastructure facilities. Higher density residential, commercial retail, and a family-oriented neighborhood park are the primary uses planned north of Sequoia Drive. Detached, single-family senior residential development, open space, and a second park are the primary proposed uses south of Sequoia Drive. The proposed project would include approximately 1,149 dwelling units, with approximately 950 units of higher density housing types located north of Sequoia and 199 units of detached, single-family senior housing located south of Sequoia. Commercial building capacity for north of Sequoia is estimated at up to 299,345 square feet.

In addition to the proposed residential and commercial uses, the proposed project includes a range of amenities, such as parks, a trail network, open space, and infrastructure features including dedication of additional land for the City's sewer pump station site, dedication of two water well sites, and improvement of storm water detention facilities. Approximately 6.0 acres north of Sequoia are planned to function as a neighborhood park, 4.5 acres south of Sequoia to function as a second smaller park, and 19.8 acres to function as public trail corridor/open space (excluding detention basins). Additional acreage has been dedicated to retention basins that are part of an integrated stormwater management plan that has been designed to accommodate storm water flows from existing development west of the project site and from within the project site.

3.6 PROPOSED PROJECT CHARACTERISTICS

Pursuant to the CEQA Guidelines Section 15378(a), the proposed project is considered a "project" subject to environmental review because it is "an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." This DEIR compares the proposed project with the existing baseline condition, described in detail in each section of Chapter 4.0, *Environmental Analysis*.

3.6.1 MASTER PLAN/SPECIFIC PLAN

Pursuant to the City's Planned Development requirements, a specific plan has been prepared that meets California Government Code content requirements (sections 65450 et seq.) as well as content requirements contained in Chapter 14.09.112 of the City Zoning Ordinance- Land Use Permits and Approvals, Specific Plans and Policy Plans. The Greentree Specific Plan contains the following main chapters:

1. Introduction
2. Land Use Plan
3. Design Guidelines and Development Standards

3. PROJECT DESCRIPTION

4. Community Design
5. Mobility Plan
6. Parks, Open Space, and Trail Plan
7. Infrastructure Plan
8. Community Services
9. Implementation Plan
10. Consistency with the General Plan
11. Sources

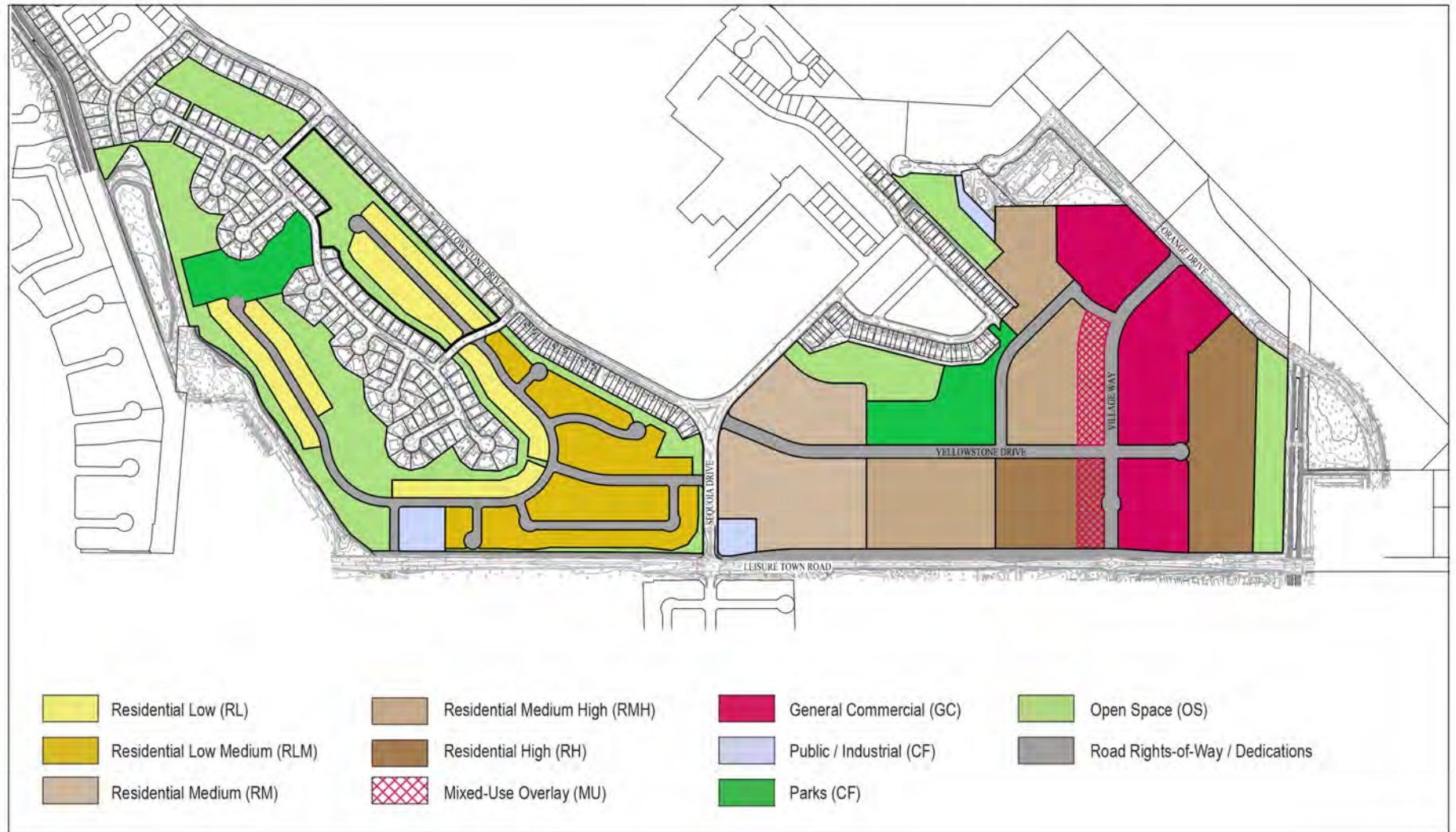
Appendices: (A) Development Standards and Design Guidelines, and (B) Buildout Phasing Diagram and Improvement Phasing Matrix

3.6.2 GENERAL PLAN AMENDMENT AND REZONING

The project site would require a General Plan Amendment to incorporate the Greentree Specific Plan and amend the existing land use designations from Commercial Highway (CH) and Private Recreation (PR) to Residential Low Density (RL), Residential Low Medium (RLM), Residential Medium Density (RM), Residential Medium High Density (RMH), Residential High Density (RH), Public Park (PK), Public Open Space (POS), and General Commercial (GC), as shown in Figure 3-2, *Proposed General Plan Land Use*. Related amendments to the General Plan text and figures are proposed to provide consistency with the Greentree Specific Plan and to reflect updates to the City's adopted storm drainage, water, sewer, and parks master plans. In addition, amendments to the Green Tree Park Policy Plan are required to remove the portions of the project site that are currently within the policy plan boundary from that plan, because with approval of the Greentree Specific Plan, the specific plan will become the applicable development implementation plan document. Finally, as discussed in Chapter 4.4, Biology, an amendment to the language in Policy COS-P1.12 is proposed to utilize the specific analysis and mitigation included in this EIR as the basis for avoidance, minimization, and mitigation of impacts to biological resources. Policy COS-P1.12 is proposed to be amended as follows:

Policy COS-P1.12 Until the Solano Habitat Conservation Plan (HCP) is adopted, comply with all of the Avoidance, Minimization, and Mitigation Measures listed in the Draft Solano HCP (see Appendix A for a list of the Avoidance and Minimization Measures that are applicable to Vacaville), unless the project is an infill project, or potential project impacts are otherwise evaluated in an Environmental Impact Report. However, the City's issuance of grading permits or other authorizations does not absolve the applicant's obligations to comply with all other State and federal laws and regulations.

3. PROJECT DESCRIPTION



Source: CBG 2021

Figure 3-2
Proposed General Plan Land Use Map

3. PROJECT DESCRIPTION

Additionally, the proposed project would require a rezoning approval to ensure that zoning is consistent with the Greentree Specific Plan's proposed land uses. The Project site would be rezoned to Residential Low (RL), Residential Low Medium (RLM), Residential Medium (RM), Residential Medium High (RMH), Residential High (RH), General Commercial (CG), Community Facilities (CF), and Open Space (OS) from General Commercial (CG) and Recreation Commercial (CR). The Greentree Specific Plan contains zoning (development) standards that are applicable solely within the specific plan boundary. These standards modify and/or supplement development standards contained in Title 14, Land Use and Development Code, Division 14.09, Zoning, of the City of Vacaville Municipal Code. Therefore, the Greentree Specific Plan also serves as a regulatory tool for implementing future development within the specific plan boundary. With the City's adoption of the Greentree Specific Plan, zoning for the project site will be consistent with the amended Vacaville General Plan.

3.6.3 SUBDIVISION MAP

3.6.3.1 NORTH OF SEQUOIA NEIGHBORHOOD

The proposed project calls for approval of a vesting tentative subdivision map to divide the north of Sequoia neighborhood into a series of large lot residential blocks, commercial blocks, a park, and associated infrastructure (e.g. detention basins, enlarged sewer pump station site, and well site), all served by "backbone" public streets. One or more future small-lot subdivisions would be required to further define the residential neighborhoods and internal streets.

3.6.3.2 SOUTH OF SEQUOIA NEIGHBORHOOD

The proposed vesting tentative map also calls for subdivision of the south of Sequoia neighborhood into 199 residential lots served by public streets, and additional parcels containing infrastructure (e.g. detention ponds and a water well site), open space, and park uses.

3.6.4 PROJECT COMPONENTS

The proposed project includes the implementation of the Greentree Specific Plan that would guide the construction of the two neighborhoods. Figure 3-3, *Overall Site Plan*, shows the site plan and land use summary for both neighborhoods. A current aerial view of the project site, identifying the project boundary is shown in Figure 3-4, *Aerial Photograph*. Figure 3-5, *Project Aerial View with Park* shows a mocked up view of the developed project site from above. Both neighborhoods would include associated infrastructure (e.g., detention basins/ponds, water well, and a sewer pump station sites). Table 3-1, *Proposed Project Land Use/Zoning and Development Capacity*, summarizes proposed uses, acreages, and development capacity for the proposed project.

3. PROJECT DESCRIPTION



LAND USE SUMMARY - SOUTH				
LAND USE	LOTS	% OF TOTAL LOTS	AREA (AC)	% OF TOTAL AREA
RESIDENTIAL	101	58	151	30%
COMMERCIAL	0	0	0	0%
PARK	0	0	6.5	1%
OPEN SPACE / WALK CORRIDOR	0	0	19.0	4%
DETENTION BASIN / WATER QUALITY	0	0	14.7	3%
LEISURE TOWN ROAD DEDICATION	0	0	3.1	1%
RIGHT OF WAY / ROAD	0	0	8.7	2%
CITY WELL SITE	0	0	1.5	0%
UTILITY DRIVE	0	0	2.4	0%
TOTAL	101	100%	72.9	100%

LAND USE SUMMARY - NORTH		
LAND USE	AREA (AC)	% OF TOTAL AREA
RESIDENTIAL	10.9	33%
COMMERCIAL	19.8	58%
PARK	8.1	24%
DETENTION BASIN / WATER QUALITY	11.3	34%
CITY SEWER PUMP STATION	1.4	4%
CITY WELL SITE DEDICATION	0.6	2%
LEISURE TOWN ROAD DEDICATION	2.1	6%
RIGHT OF WAY / ROAD	8.4	25%
UTILITY DRIVE	1.8	5%
TOTAL PROPOSED SITE	47.5	100%

LAND USE SUMMARY - OVERALL		
LAND USE	AREA (AC)	% OF TOTAL AREA
RESIDENTIAL	21.8	43%
COMMERCIAL	19.8	39%
PARK, OPEN SPACE AND DETENTION BASIN	25.9	51%
CITY SEWER PUMP STATION	1.4	3%
CITY WELL SITE DEDICATION	2.1	4%
LEISURE TOWN ROAD DEDICATION	4.8	10%
RIGHT OF WAY / ROAD	16.2	32%
UTILITY DRIVE	2.4	5%
UTILITY DRIVE (EXCLUDED IN RESIDENTIAL)	1.8	4%
TOTAL	106.4	100%

LEGEND

- GREENTREE SPECIFIC PLAN BOUNDARY
- MAJOR TRAIL CONNECTIONS
- MIXED USE OVERLAY

GREENTREE DEVELOPMENT PLAN
OVERALL, NORTH & SOUTH
 CITY OF VACAVILLE, SOLANO COUNTY, CALIFORNIA
 SCALE: 1" = 100' DATE: FEBRUARY 24, 2022
LOEWE PLANNING ASSOCIATES, INC.
 STRATEGIC & ENVIRONMENTAL PLANNING
 8000 PARKWAY • SUITE 100 • VACAVILLE, CA 94997
 (707) 451-1877
 www.loeweplanning.com
cbg
 CIVIL ENGINEERS • SURVEYORS • PLANNERS

Figure 3-3 Overall Site Plan

3. PROJECT DESCRIPTION

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3. PROJECT DESCRIPTION



Source: ESRI, 2021

— Project Boundary



Figure 3-4
Aerial Photograph

3. PROJECT DESCRIPTION

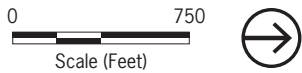


Figure 3-5
Project Aerial View with Park

3. PROJECT DESCRIPTION

TABLE 3-1 PROPOSED PROJECT LAND USE/ZONING AND DEVELOPMENT CAPACITY

Site Plan Area	Proposed Land Use	Equivalent Zoning	Residential Density (du/acre)		Net Acres	Projected Development Capacity	
			Average	Maximum		Residential (du) ¹	Commercial (sq. ft.)
North of Sequoia Residential, Commercial and Recreation							
Residential 1	Residential Medium	Residential Medium (RM)	10.9	14	9.9	108	0
Residential 2	Residential Medium	Residential Medium (RM)	10.9	14	5.9	64	0
Residential 3	Residential Medium High	Residential Medium High (RMH)	17.0	20	8.5	144	0
Residential 4	Residential High	Residential High (RH)	22.5	24	7.1	163	02
Residential 5	Residential Medium High	Residential Medium High (RMH)	17.0	20	8.6	146	02
Residential 6	Residential Medium High	Residential Medium High (RH)	17.0	20	5.0	85	0
Residential 7	Residential High	Residential High (RH)	22.5	24	10.8	240	0
Commercial 1	General Commercial	General Commercial (CG)	0.35 FAR		4.6	0	299,345 ³
Commercial 2	General Commercial	General Commercial (CG)	0.35 FAR		9.2	0	
Commercial 3	General Commercial	General Commercial (CG)	0.35 FAR		6.0	0	
Park	Public Park	Community Facilities (CF)	0		6.0 ⁴	0	0
Detention Basins	Public Open Space	Open Space (OS)	0		11.5	0	0
City Sewer Pump Station	Public	Community Facilities (CF)	0		1.0	0	0
City Water Well Site	Public	Community Facilities (CF)	0		0.6	0	0
Leisure Town Rd. Dedication	---	---	0		2.9	0	0
Road Right-of- Way	---	---	0		9.9	0	0
Subtotal					107.5	950	299,345
South of Sequoia Senior Residential and Recreation							
Residential 8	Residential Low Medium	Residential Low Medium (RLM)	7.7	8.0	15.1	117	0
Residential 9	Residential Low	Residential Low (RL)	6.4	5.0	12.9	82	0
Park	Public Park	Community Facilities (CF)	0		4.5	0	0
Trail Corridor/Open Space	Public Open Space	Open Space (OS)	0		20.3	0	0
Detention & WQ Basins	Public Open Space	Open Space (OS)	0		10.6	0	0

3. PROJECT DESCRIPTION

Site Plan Area	Proposed Land Use	Equivalent Zoning	Residential Density (du/acre)		Net Acres	Projected Development Capacity	
			Average	Maximum		Residential (du) ¹	Commercial (sq. ft.)
Water WellSite	Public	Community Facilities (CF)	0		1.5	0	0
Leisure Town Rd. Dedication	---	---	0		1.1	0	0
Road Right-of-Way	---	---	0		11.9	0	0
Subtotal					77.9	199	0
TOTAL					185.4	1,149	299,345

Notes:

¹Unit numbers for each block are calculated based on average densities, and are subject to adjustment up to the maximum density listed, where units may be shifted between blocks (the Greentree Specific Plan defined “Subareas”) north and south of Sequoia Drive, respectively, subject to the maximum aggregate yields of 950 units north of Sequoia and 199 units south of Sequoia.

²Subareas 4 and 5 may accommodate ground floor commercial along the south side of Village Way as specified in the Greentree Specific Plan; however, any such optional commercial square footage must be counted as part of the total maximum of 299,345 for the project as a whole.

³For Commercial Areas 1, 2 and 3, building capacity is based on aggregate net acreage with a total not to exceed capacity of 299,345 square feet, including any commercial uses developed within the mixed-use overlay district fronting on the south side of Village Way. Commercial Subarea C1, as shown in this table, has been reduced in area by 0.1 acre to reflect the intended dedication of 0.1 acre of land for purposes of accommodating a dedicated left-turn pocket on south-bound Village Way at Leisure Town Road (not yet shown on the Vesting Tentative Map).

⁴ 4.3-acre detention basin is planned adjacent to the Public Park within an area to be zoned Open Space. This detention basin acreage is not included in the Public Park acreage.

3. PROJECT DESCRIPTION

3.6.4.1 RESIDENTIAL USES

North of Sequoia Neighborhood

The north of Sequoia neighborhood would include seven residential blocks (“Subareas”) and three commercial blocks (“Subareas”; see Figure 3-6, *North of Sequoia Neighborhood Site Plan*). Residential blocks would include densities varying from a maximum of 14 units per acre (Residential Medium) to a maximum of 24 units per acre (Residential High). Actual residential densities may not exceed the maximums specified for each Greentree Specific Plan zoning category, and units may be adjusted between the subareas (blocks), subject to the maximum residential development capacity of 950 units.

The proposed project would include a Mixed-Use Overlay designation for the portions of residential blocks 4 and 5 that front on Village Way. The overlay would apply within an area that extends about 150 feet from the Village Way right-of-way. A mix of ground floor retail with residential above or behind is provided for as an optional element; however, any such commercial square footage must be counted as a part of the overall project-wide maximum of 299,345 commercial square feet. Residential density of up to about 24 units per acre would be permitted. Land within the overlay designation could develop either as residential, commercial retail, or a mix of commercial retail and residential. Residential development capacity may be shifted among the residential blocks, but must remain within the total capacity of 950 units, and would generate approximately 2,565 residents, based on an estimated average of 2.7 persons/household.

South of Sequoia Neighborhood

The South of Sequoia Neighborhood would include a total of 199 lots (see Figure 3-7, *South of Sequoia Neighborhood Site Plan*). The proposed lots would range in size, with approximately 82 lots being 6,000 square feet and 117 lots being 4,500 square feet. Larger lots are planned within Subarea R9 which is closest to the existing development taking access from White Sands Drive. Lots and roadways located adjacent to existing residential lots homes would be set back a minimum of 50 feet from the project boundary. Homes on the new lots within Subarea 9 will be restricted to a single-story in height, whereas those in Subarea R7 may be either one or two story, as specified in the Development Standards section of the Greentree Specific Plan. These design features promote land use and density compatibility with existing adjacent neighborhoods. The proposed project is anticipated to generate approximately 398 residents, based on an estimated average of 2.0 persons/household in the south of Sequoia neighborhood.

3. PROJECT DESCRIPTION

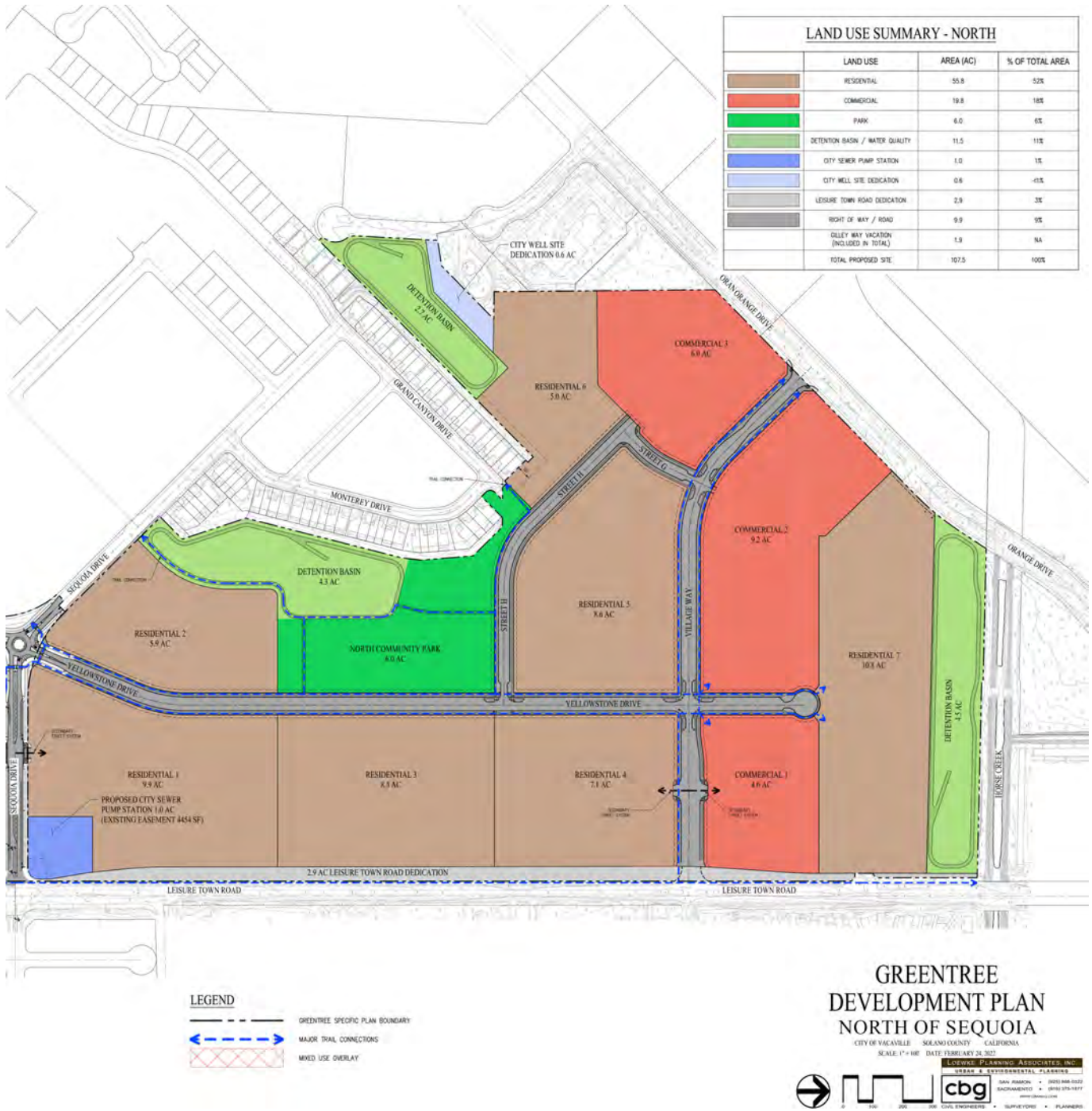


Figure 3-6
North of Sequoia Site Plan

3. PROJECT DESCRIPTION



Figure 3-7
South of Sequoia Site Plan

3. PROJECT DESCRIPTION

3.6.4.2 COMMERCIAL USES

North of Sequoia Neighborhood

The commercial density for uses such as supermarkets, drug stores, entertainment, and other retail uses, on the site would have a maximum 0.35 floor area ratio (FAR). The building development capacity for the north of Sequoia project site is planned as a maximum of 299,345 square feet. The commercial retail area would potentially include a grocery store, drug store, and other neighborhood-serving retail and service uses. A destination “plaza” is planned at the Yellowstone Drive/ Village Way intersection that would be fronted by retail and service uses, including restaurants. The larger retailers are to be located along the Orange Drive frontage, and may include one tenant of over 45,000 square feet, as specified in the Greentree Specific Plan.

If cumulative residential and/or commercial development were to be proposed that exceeds the 950-unit or the 299,345-square foot limit, a specific plan amendment, general plan amendment, and additional CEQA documentation could be required.

3.6.4.3 RECREATION AND OPEN SPACE

City Park Land Requirements

The City’s General Plan requires that new residential projects provide park land at a ratio of 4.5 acres per 1,000 residents. The proposed project would generate approximately 2,963 new residents. Consequently, the proposed project would be required to provide the equivalent of 13.3 acres of park land, including 5.3 acres of on-site neighborhood park, 5.0 acres of community park and 2.9 acres of regional park. The City’s General Plan does not envision acquisition of more regional park land due to the fact that the City has existing, undeveloped regional park acres; however, the Park DIF includes some funding for development of regional park acres to serve new residents.

The General Plan also includes a policy that parks classified as neighborhood parks should typically be a minimum of 6.0 acres. The two proposed parks, one of which fully meets the definition of Neighborhood Park and the other of which is smaller than 6.0 acres, are designed to be responsive to project needs and the unique needs of the surrounding neighborhoods. These facilities would be consistent with the Vacaville Parks Master Plan. The smaller neighborhood park is 4.5 acres which can be acceptable per General Plan standards for infill areas where there would otherwise be a shortfall of parkland.

Proposed Park and Recreation Plan

The proposed project includes park and recreation features that in aggregate includes 10.5 acres of new park land. The proposed Neighborhood Park north of Sequoia Drive and the additional smaller neighborhood park south of Sequoia Drive have been designed to serve the needs of the neighborhoods in which they are located. The parks can be accessed by all future residents of the project and by residents of surrounding neighborhoods through multiple modes of transportation, including an extensive network of public trails as shown in Mobility Chapter 5 of the Greentree Specific Plan.

3. PROJECT DESCRIPTION

Neighborhood Park North of Sequoia Drive

The proposed project includes a 6-acre park along the western side of Yellowstone Drive in the center of the overall project site, as shown in Figure 3-3, *Overall Site Plan*. The park has been designed to include a range of active and passive recreation amenities, including playfields, ball courts, and play areas. Shade structures and picnic tables are planned along with other amenities in the northeast corner of the park closest to Yellowstone Drive and Street H, to serve as gathering place for neighborhood residents, including those living in the surrounding higher density housing areas. This larger neighborhood park would also serve residents south of Sequoia Drive and would be available for functions and programs to support the broader surrounding community. The preliminary park master plan for this neighborhood park is included in the Greentree Specific Plan's Parks, Open Space, and Trail Plan Chapter 6.

Parking will be available for visitors to the park along the frontages of both Yellowstone Drive and Street H. As discussed above and detailed in Greentree Specific Plan Chapters 5 and 6, an extensive network of public trails and protected public sidewalks link the Greentree North Neighborhood Park to residential areas north and south of Sequoia Drive, the existing neighborhood west of Greentree, and to the commercial area.

Park South of Sequoia Drive

The proposed project includes a second neighborhood park of 4.5 acres in the south of Sequoia neighborhood. This smaller park has been designed to meet the needs of the new senior neighborhood residents as well as seniors living in the adjacent senior community. The park would be located adjacent to planned open space areas and planned detention facilities to expand its perceived size and function as well as tie into the planned trail plan. The park would be designed primarily to meet the more passive recreation needs of active adults. Amenities would include bocce ball and/or pickle ball courts, a small off-leash facility, a small local-serving amphitheater, and picnic and BBQ areas. The preliminary master plan for this park is included in Chapter 6 of the Greentree Specific Plan.

The park would be connected to the existing residential neighborhoods and new active adult neighborhoods via a series of public pedestrian and bicycle paths, and public sidewalks. While vehicular access is provided, the emphasis is on non-vehicular access consistent with a desire to minimize vehicle traffic through the area and to maximize pedestrian and bicyclist safety.

Public Trails and Open Space

The proposed project would include an extensive trail system and a large open space area, including a total of approximately 42.4 acres of public open space uses including 20.3 acres of publicly accessible trails and open space. In addition, public trails will extend around the perimeter of several of the detention and water quality basins, as shown in Figure 3-8, *Greentree Specific Plan Pedestrian, Bicycle, Off-Street Trail Connectivity*. The public trails and enhanced sidewalk system would link the area north of Sequoia with the area south of Sequoia, and will include multiple points of connection to the existing neighborhood to the west. The trail system would traverse the large open space area located south of Sequoia. The open space area is considered to be "accessible" as described in the General Plan in that it will remain largely undeveloped as an aesthetic resource, but would include constructed trails for public

3. PROJECT DESCRIPTION

access that also tie into the trail system. The open space corridors would function to buffer existing homes from new planned residential development.

Trails are planned within many of the open space corridors and to/through larger open space areas and the proposed parks. The trails network is linked to pedestrian/bicycle facilities to be integrated into Street D, which would provide connectivity to Sequoia Drive and on to Yellowstone Drive and residential and commercial areas north of Sequoia Drive. Additionally, trails are also planned in the north of Sequoia Drive neighborhood. Trails through the neighborhood park/detention area would connect it to Sequoia Drive, Yellowstone Drive, Street H, Grand Canyon Drive, and to residential and commercial areas to the north and west.

3.6.4.4 CIRCULATION IMPROVEMENTS

Overall Connectivity Plan

The proposed Greentree Specific Plan includes a Pedestrian, Bicycle, and Off-Street Trail Connectivity Plan (in Chapter 5) to maximize opportunities for pedestrian and bicycle connectivity and neighborhood walkability: 1) within and between new neighborhoods; 2) to commercial, parks, and open space uses; and 3) to adjacent existing neighborhoods. As shown in Figure 3-8, (Greentree Specific Plan Pedestrian, Bicycle, Off-Street Trail Connectivity), the proposed project would include non-vehicular circulation features to fully integrate the proposed project with the adjacent neighborhoods. The connectivity network would create convenient non-vehicular access to parks, open space, and new commercial retail destinations; and reduce vehicle trips and vehicle miles traveled, thereby reducing greenhouse gas emissions and criteria air pollutants.

Roadway Sections

The proposed project would include several types of roadway sections, as shown in Figure 3-9, *Roadway Cross-Section Index* and Figure 3-10, *Roadway Cross-Sections*. All roadways would be consistent with City road standards, subject to approval of a design “exception” for two local cul-de-sac streets. Roadways within both the north and south of Sequoia neighborhoods would be public.

Complete Streets

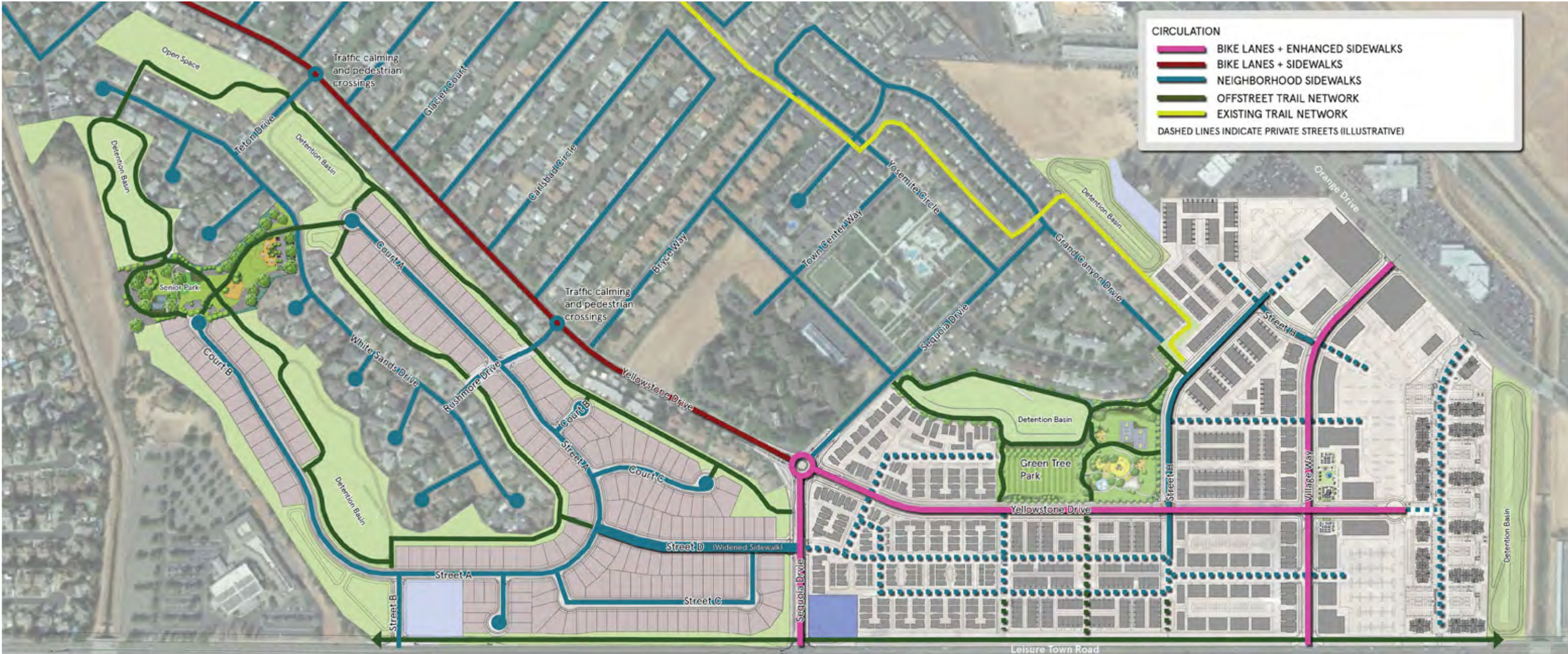
North of Sequoia Neighborhood

Yellowstone Drive north of Sequoia Drive and Village Way would be designed as “complete streets”, inclusive of separated bike lanes and enhanced pedestrian walkways to provide enhanced and safe resident access to the neighborhood park and commercial retail areas. Landscaped strips along Yellowstone Drive would separate traffic from the widened pedestrian walkways and bicycle lanes would be separated from traffic.

South of Sequoia Neighborhood

Street D in the south of Sequoia Drive neighborhood would feature an expanded pedestrian walkway, protected from the roadway by a landscaped planter strip.

3. PROJECT DESCRIPTION



Source: ELS 2022



Figure 3-8 Greentree Specific Plan Pedestrian, Bicycle, and Off-Street Trail Connectivity Plan

3. PROJECT DESCRIPTION

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3. PROJECT DESCRIPTION

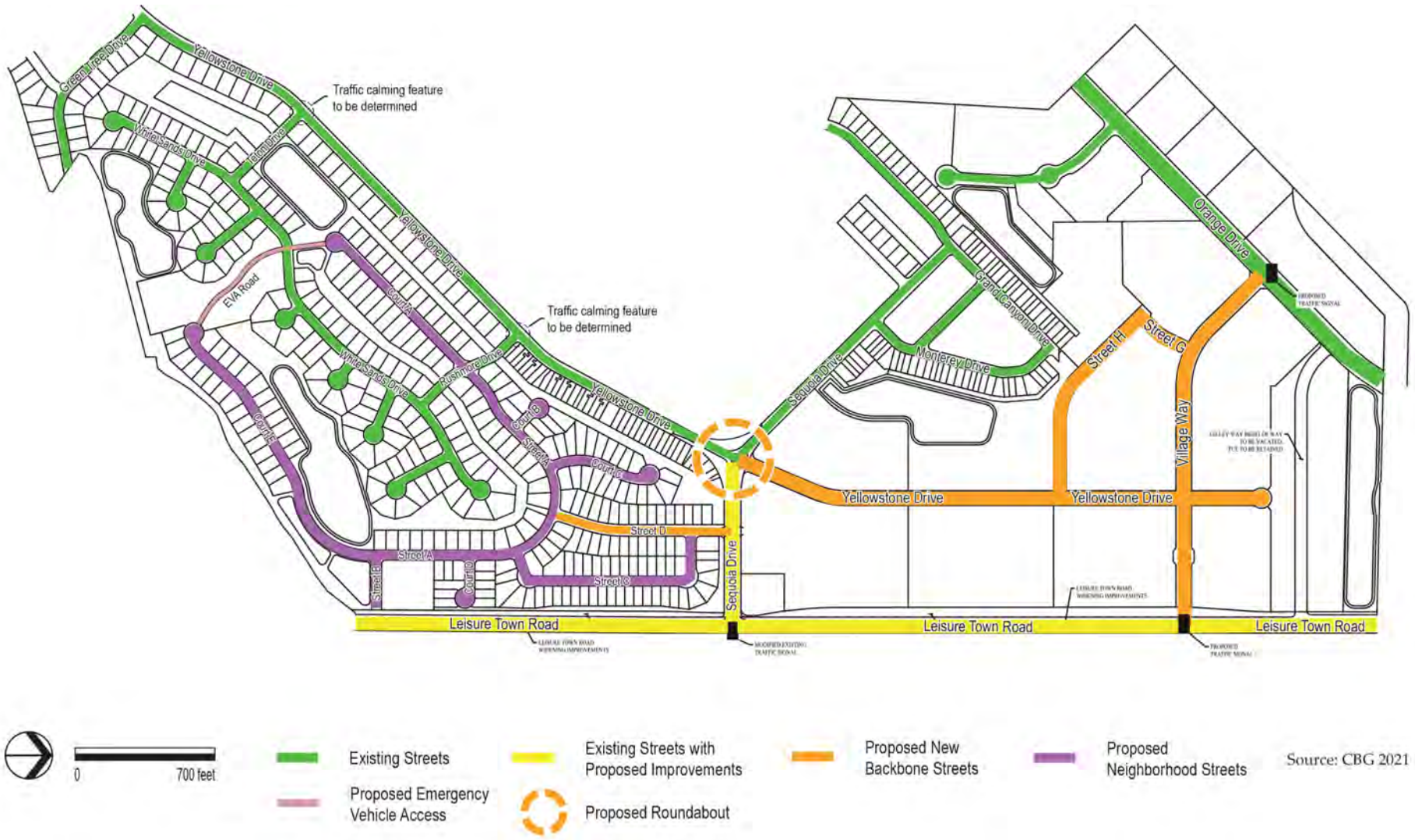


Figure 3-9
Roadway Cross-Section Index

3. PROJECT DESCRIPTION

Roundabout

The existing triangle at the intersection of Yellowstone Drive and Sequoia Drive would be replaced with a small format, 80-foot diameter roundabout to reduce vehicle speeds and increase pedestrian access and safety. The roundabout design would eliminate the possibility of head-on collisions and connect the existing and new senior residential areas located south of Sequoia Drive to the north of Sequoia Drive neighborhood park and retail commercial area.

Traffic Calming and Pedestrian Crossing

Sidewalk “bulb-outs” and other traffic calming measures would be incorporated into on-site complete street designs to increase pedestrian safety at the higher-density residential and commercial locations, including at the Yellowstone Drive and Village Way intersection. The bulb-outs would be designed to discourage cut-through traffic by reducing speeds. Traffic calming solutions on existing streets would be included in partnership with the City, to accommodate safe pedestrian access to the southern park by addressing vehicular speeds. These solutions would be applied along Yellowstone Drive.

Emergency Vehicle Accessibility Connection

The proposed project would include a 20-foot paved pathway/emergency vehicle access roadway (“EVA”) with gates or other measures to preclude daily vehicular traffic in the south of Sequoia Drive area. It would extend through the proposed park south of White Sands Drive and through the open space north of White Sands Drive to enable required fire department and other emergency access between Courts A and E, with identification as an approved route for first-responders and emergency crews. The route would be accessible to pedestrians and bicyclists and would provide enhanced non-vehicular public access to the park.

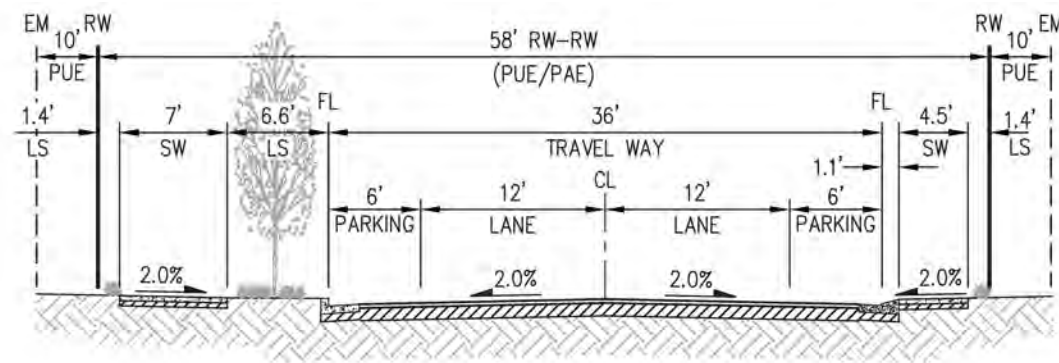
New Connection to Leisure Town Road

The proposed project would include a new roadway that would connect Leisure Town Road to Street A at the southeastern most corner of the south of Sequoia Drive neighborhood. The access onto Leisure Town Road would be right-in, right-out only. The new connection would be designed to decrease distribution of new project traffic trips onto Yellowstone Drive by enabling more direct access into and out of the south of Sequoia Drive neighborhood.

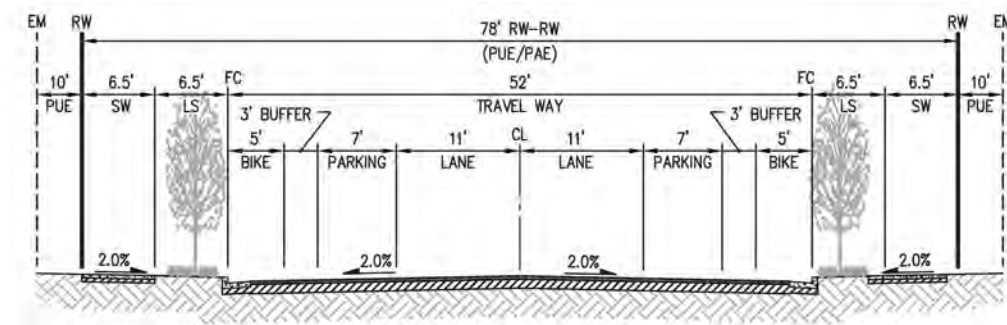
Circulation Plan Alternatives

Two circulation alternatives to that proposed by the project sponsor and presented in the Greentree Specific Plan have been identified in this EIR for internal roadway configurations and access points for the “North of Sequoia” development area. It is assumed that the proposed project circulation plan for the “South of Sequoia” development area remains consistent across both circulation alternatives. Figure 3-11, *Circulation Plan – Alternative 1*, and Figure 3-12, *Circulation Plan – Alternative 2*, show the potential circulation plans for both alternatives as studied in this EIR. The alternatives include the following roadway connections:

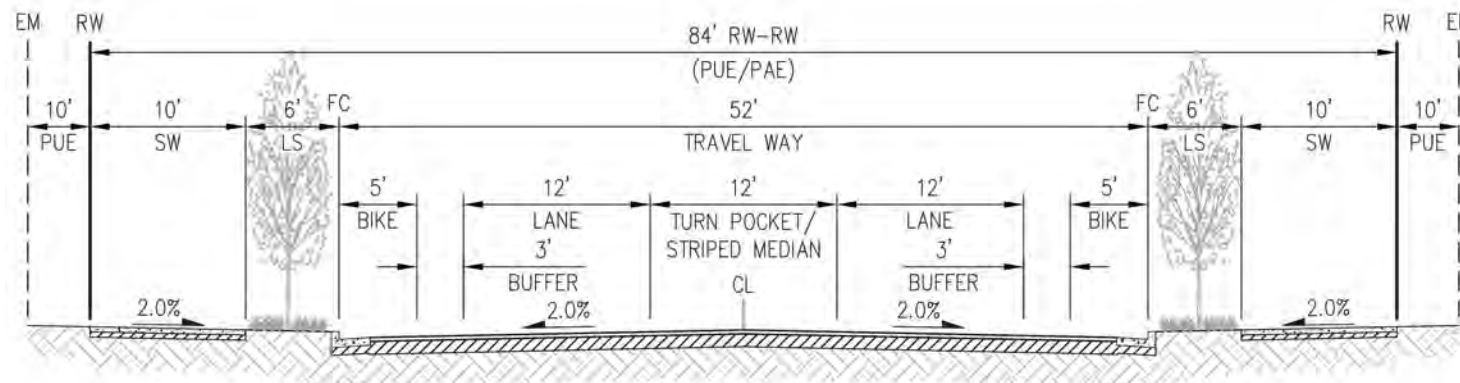
3. PROJECT DESCRIPTION



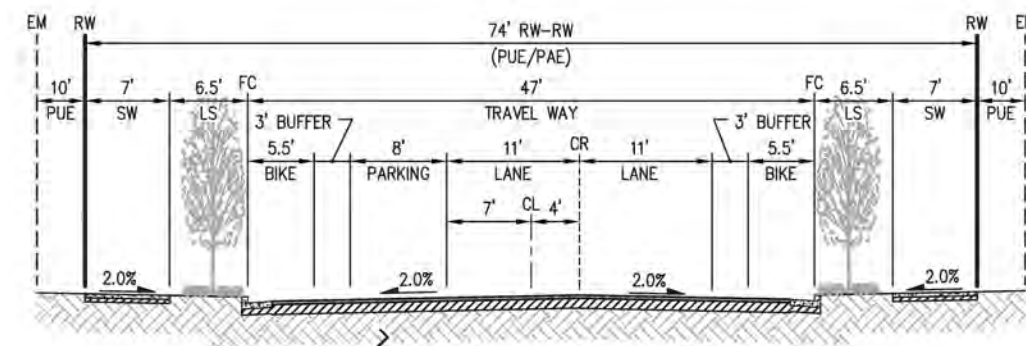
STREET D
58' RIGHT OF WAY (PARKING ON BOTH SIDES)
 (PUBLIC STREET)
 NOT TO SCALE



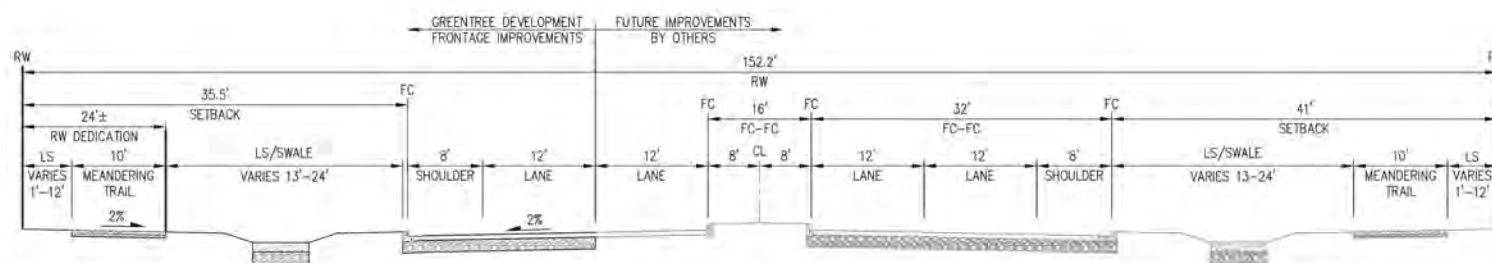
VILLAGE WAY
78' RIGHT OF WAY (PARKING ON BOTH SIDES)
 (PUBLIC STREET)
 NOT TO SCALE



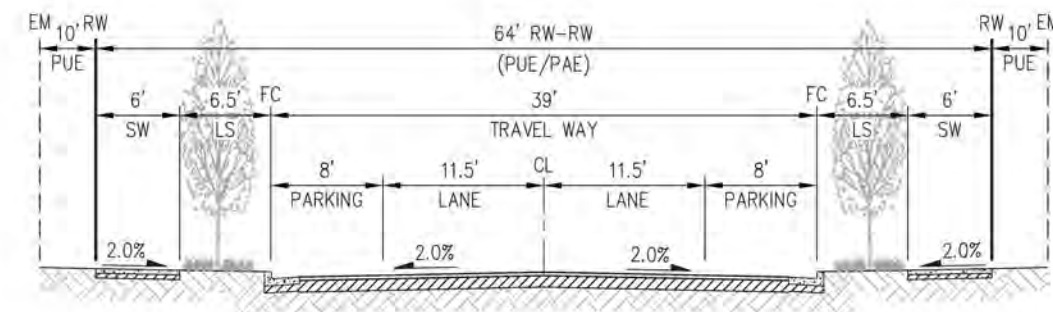
PROPOSED SEQUOIA DRIVE (84' RIGHT OF WAY)
 NOT TO SCALE



YELLOWSTONE DRIVE
74' RIGHT OF WAY (PARKING ON ONE SIDE)
 (PUBLIC STREET)
 NOT TO SCALE



LEISURE TOWN ROAD - 4-LANE INTERIM SECTION
 (PUBLIC STREET)
 NOT TO SCALE



STREET G & STREET H
64' RIGHT OF WAY (PARKING ON BOTH SIDES)
 (PUBLIC STREET)
 NOT TO SCALE

NOTE: IN THE SOUTH OF SEQUOIA NEIGHBORHOOD, INTERNAL NEIGHBORHOOD STREETS OTHER THAN STREET D WOULD HAVE 50-FOOT RIGHTS-OF-WAY WITH TWO TRAVEL LANES AND PARKING AND SIDEWALKS ON BOTH SIDES. SIDEWALKS WOULD VARY FROM 4.5 TO 7.0 FEET IN WIDTH.

Source: CBG Civil Engineers 2022

Figure 3-10

Roadway Cross-Sections

3. PROJECT DESCRIPTION

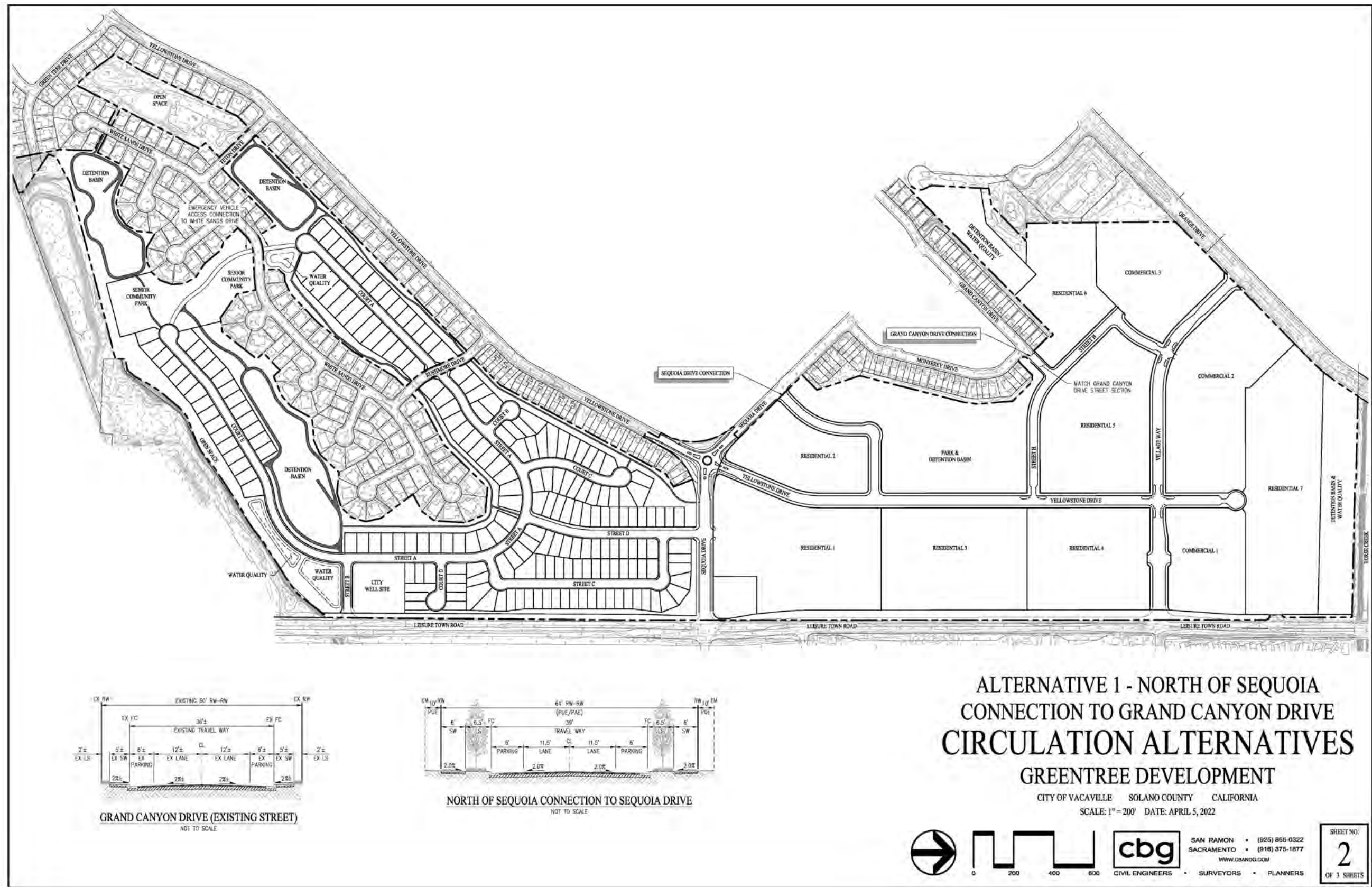


Figure 3-11
 Proposed Circulation Plan – Alternative 1

3. PROJECT DESCRIPTION

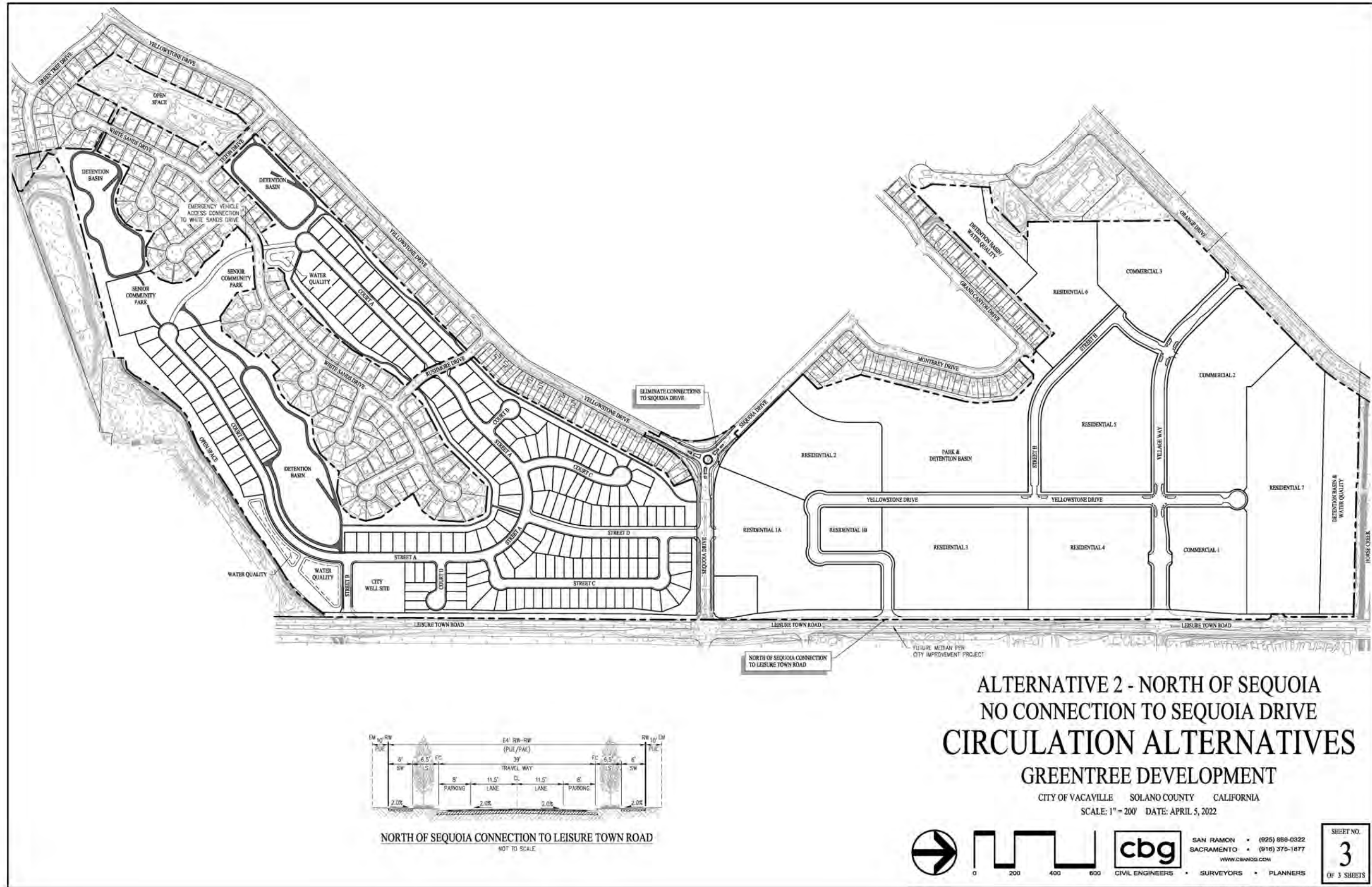


Figure 3-12
Proposed Circulation Plan – Alternative 2

3. PROJECT DESCRIPTION

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3. PROJECT DESCRIPTION

Alternative 1 – North of Sequoia – Connection to Grand Canyon Drive

- Includes the following access points:
 - Extend Yellowstone Drive (referred to herein to as “Yellowstone Drive – Extension”) from Sequoia Drive north to new Village Way, as shown in the Greentree Specific Plan.
 - Connect Village Way (Poplar Road Extension) to Orange Drive, providing access to new Street H and Yellowstone Drive – Extension, as shown in the Greentree Specific Plan.
- Provide additional access to Sequoia Drive via proposed “Sequoia Drive Connection” west of the intersection of Yellowstone Drive and Sequoia Drive, connecting Sequoia Drive and Yellowstone Drive – Extension adjacent to the “Residential 2” development area.
- Provide access to Grand Canyon Drive via proposed “Grand Canyon Drive Connection,” connecting Grand Canyon Drive and proposed Street H between Residential Subarea 6 and Park development areas.

Alternative 2 – North of Sequoia – No Connection to Sequoia Drive

- No direct vehicular connection to Sequoia Drive
- Of the access points described previously, includes only the Village Way access to Leisure Town Road and Orange Drive, as shown in the Greentree Specific Plan.
- Provide additional access to Leisure Town Road via proposed Yellowstone Drive (referred to as “Yellowstone Drive – New”), north of the intersection of Leisure Town Road and Sequoia Drive.

Under the proposed project circulation plan, the “North of Sequoia” development area would be accessed via a network of proposed roadway connections, which intersect with public roads at the following locations:

- Village Way (Poplar Road Extension) at Orange Drive
- Village Way (Poplar Road Extension) at Leisure Town Road
- Sequoia Drive at Yellowstone Drive

Under the Alternative 1 circulation plan, two additional roadway connections are proposed via the “Sequoia Drive Connection” and “Grand Canyon Drive Connection.” The “Sequoia Drive Connection” would provide an additional connection between Sequoia Drive and Yellowstone Drive – Extension near “Residential 1” and the park, and the “Grand Canyon Drive Connection” would provide additional access to the proposed “Street H” via Grand Canyon Drive near “Residential Subarea 5,” “Residential Subarea 6,” and the “Park and Detention Basin.”

3. PROJECT DESCRIPTION

The Alternative 2 circulation plan would maintain proposed connections between Leisure Town Road and Orange Drive via Village Way (Poplar Road Extension) but exclude access to the “north of Sequoia” project area via Sequoia Drive (though driveway access is proposed along Sequoia Drive to the “Residential 1A” area). Additional access to the park and residential Subareas 1 (A and B) through 5 would be provided via a proposed circuitous roadway (Yellowstone Drive – New) connecting Leisure Town Road and Poplar Road/Village Way.

3.6.4.5 UTILITIES AND INFRASTRUCTURE

The proposed project would include storm water detention and biofiltration facilities to manage existing runoff through the project site and storm water that would be generated by new development, as well as that flowing into the project site currently from the existing neighborhood to the west. An approximately 1.5-acre water well site on the north side of Street B at Leisure Town Road would be dedicated to the City. A second water well site of approximately 0.6 acres located west of Subarea R6 would also be dedicated to the City. Biofiltration area on the south side of Street B and at the end of Court A will treat storm water before discharging into Old Ulatis Creek. The existing “Stinky Pond” detention basin would be removed and replaced with open space. Detention ponds are planned throughout the project site as part of the overall storm water management plan. Stormwater basins will be integrated with park and open space areas using naturalized contouring and landscaping where appropriate. Stormwater basins will be designed as “dry” basins to minimize vector control (e.g., mosquito) concerns. On-site water quality will be controlled using combination bioretention/detention basins where elevation constraints permit, and local bioretention features such as bioswales or rain gardens where necessary.

3.7 PROJECT CONSTRUCTION

3.7.1.1 CONSTRUCTION SCHEDULE

The Proposed Project would be constructed in either a single phase or multiple phases, corresponding to the 9 residential Subareas and 3 commercial Subareas, with construction activities anticipated to begin as soon as mid-2023 and finishing over the course of up to ten years, depending on market absorption for the specialized workforce and senior housing and local serving retail identified in the Greentree Specific Plan (see Greentree Specific Plan Chapter 9 for further details). Each phase would include the following activities—grading and excavation, trenching for site utilities, construction of the buildings, paving, and finishing. In particular, market absorption of the workforce housing component is expected to be linked to planned expansion of biomanufacturing and high-technology manufacturing uses in the business park directly opposite Greentree on the north side of Interstate 80. The Implementation Chapter of the Greentree Specific Plan (Chapter 9 and Appendix B) outlines the key infrastructure improvements required for independent implementation of the 9 residential subareas and 3 commercial subareas in Greentree. Given the range of densities and housing product types planned in the project, it is possible that development of various subareas could occur either sequentially or simultaneously.

3. PROJECT DESCRIPTION

3.7.1.2 CONSTRUCTION STAGING

Construction of the proposed project would require a temporary construction staging area that would utilize a portion of each residential or commercial subarea initiated for development. In general, these staging areas would be separated from existing surrounding development to the maximum extent feasible. All construction activities will comply with the City's limitations on hours and incorporate controls on dust and erosion, as detailed later in this document.

3.7.1.3 CONSTRUCTION GRADING

The proposed project would require grading to cut and fill 279,100 cubic yards over 185.4 acres. The north of Sequoia neighborhood project site would require grading to cut and fill approximately 152,600 cubic yards over approximately 107.5 acres, and the south of Sequoia neighborhood project site would require grading to cut and fill approximately 126,500 cubic yards over approximately 77.9 acres. The preliminary grading plans shown on the vesting tentative map identify the potential for import of up to 55,100 cubic yards for development south of Sequoia Drive, and up to 61,800 cubic yards north of Sequoia Drive. This figure may be reduced during final design, and corresponds to requirements for satisfying site drainage and flood control requirements, as further discussed later in this document.

3.8 INTENDED USES OF THE EIR

3.8.1 LEAD AGENCY

Under CEQA, the "Lead Agency" is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment (State CEQA Guidelines, Section 15367).

The City of Vacaville is the Lead Agency under CEQA. To approve the proposed project, the City must first certify the Final EIR (FEIR). The City would consider the information in the EIR when making its decision to approve or deny the proposed project, or in directing modifications to the proposed project in response to the EIR's findings and mitigation measures. The EIR is intended to disclose to the public the proposed project's details, analyses of the proposed project's potential environment impacts, and identification of feasible mitigation or alternatives that would lessen or reduce significant impacts to less-than-significant levels.

3.8.2 RESPONSIBLE AND TRUSTEE AGENCIES

Under CEQA, a public agency, other than a Lead Agency, that has discretionary approval power over the Project is considered a "Responsible Agency" (State CEQA Guidelines, Section 15381). The City is the sole public agency with discretionary approval over the proposed project; however, if the City approves the proposed project, subsequent implementation of various project components could require discretionary approval from responsible agencies. In addition, a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California is considered a "Trustee Agency" (State CEQA Guidelines, Section 15386). The proposed project may require review and/or approval from other jurisdictional agencies, including but not limited to:

3. PROJECT DESCRIPTION

- Central Valley Regional Water Quality Board
- California Department of Transportation (Caltrans)
- Yolo-Solano Air Quality Management District

3.8.3 PROJECT APPLICANT

Greentree Development Group, Inc.
2301 Napa Valley Highway
Napa, CA 94558

3.8.4 REQUIRED PERMITS AND APPROVALS

3.8.4.1 CITY ACTIONS

The proposed project would require the following discretionary approvals from the City prior to the commencement of construction:

- **General Plan Amendment** – The proposed project would require a General Plan Amendment to change the land use designations for the site from Commercial Highway (CH) and Private Recreation (PR) to Residential Low Density, Residential Medium Density, Residential Medium High Density, Residential High Density, Public Park, Open Space, and General Commercial. In addition, related text and diagram amendments are needed to implement the Greentree Specific plan as discussed above.
- **Specific Plan** – Pursuant to the City’s Planned Development requirements, the Greentree Specific Plan has been prepared to meet the requirements of the California Government Code (Sections 65450 et seq.) as well as the requirements in Chapter 14.09.112 of the City Zoning Ordinance – Land Use Permits and Approvals, Specific Plans, and Policy Plans. The document would contain the chapters listed above.
- **Rezoning** – A rezoning approval would be required to implement the project as called for in the Greentree Specific Plan. Planned Unit Development zoning is assumed for both the north Sequoia and south Sequoia Neighborhoods. The project site would be rezoned to Residential Low (RL), Residential Medium (RM), Residential Medium High (RMH), Residential High (RH), General Commercial (CG), Community Facilities (CF), and Open Space (OS) from General Commercial (CG) and Recreation Commercial (CR).
- **Subdivision Map** – A vesting tentative subdivision map approval is requested to divide the north of Sequoia neighborhood into a series of large lot residential blocks, commercial blocks, a park, and associated infrastructure. The vesting tentative map calls for subdivision of the neighborhood south of Sequoia Drive into 199 residential lots and additional parcels containing infrastructure. Implementation of the individual higher density subareas north of Sequoia Drive are also likely to require their own subdivision approvals, consistent with the standards contained in the Greentree Specific plan.

3. PROJECT DESCRIPTION

- **Green Tree Park Policy Plan Amendment** – Amendments to the Green Tree Park Policy Plan would be required to remove the project site and references to it from the Policy Plan.
- **Airport Land Use Compatibility Review-** The proposed project will be subject to review by the Solano County Airport Land Use Commission with respect to the 1988 Nut Tree Airport/Land Use Compatibility Plan and the Travis Air Force Base Land Use Compatibility Plan.
- **Design Exceptions** – Approval of the Greentree Specific Plan and related project entitlements is also dependent on approval of design exceptions related to the City’s standard street length in the south of Sequoia neighborhood.
- **Design Review for R7 Greentree Apartments** – The Greentree Apartments within Subarea R7 includes a detailed site plan for construction of a 240 unit apartment complex on the approximate 10.77-acre site.

Additionally, construction of the proposed project would require approval of building permits; and operation of the proposed project may require multiple building permits for tenant improvements, building modifications, and equipment upgrades.

3.9 REFERENCES

City of Vacaville. 2015a. General Plan. Accessed August 2021. <https://www.ci.vacaville.ca.us>

———.2015b. General Plan Land Use Map. Accessed August 2021.
<https://cov.maps.arcgis.com/apps/webappviewer>

———.2015. General Plan Zoning Map. Accessed August 2021.
<https://cov.maps.arcgis.com/apps/webappviewer>

United State Environmental Protection Agency (US EPA). 2021. *WATERS Geoviewer*. Access August 2021.
<https://epa.maps.arcgis.com/apps/webappviewer>

3. PROJECT DESCRIPTION

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4. *Environmental Analysis*

4.1 CHAPTER ORGANIZATION

This chapter of the Draft EIR is made up of 19 sub-chapters. This chapter describes the format of this Draft EIR and the methodology of the cumulative impact analysis. The 19 sub-chapters evaluate the direct, indirect, and cumulative environmental impacts of the proposed Project. The potential environmental effects of the proposed project are analyzed for the following environmental issue areas:

- Aesthetics (AES)
- Agriculture and Forestry Resources (AG)
- Air Quality (AIR)
- Biological Resources (BIO)
- Cultural Resources (CULT)
- Energy (ENE)
- Geology and Soils (GEO) and Mineral Resources (MIN)
- Greenhouse Gas Emissions (GHG)
- Hazards and Hazardous Materials (HAZ)
- Hydrology and Water Quality (HYD)
- Land Use and Planning (LU)
- Noise (NOI)
- Parks and Recreation (PRK)
- Population and Housing (POP)
- Public Services (PUB)
- Transportation (TRANS)
- Tribal Cultural Resources (TCR)
- Utilities and Service Systems (UTIL)
- Wildfire (WILD)

4. ENVIRONMENTAL ANALYSIS

4.2 FORMAT OF THE ENVIRONMENTAL ANALYSIS

Each sub-chapter is organized into the following sections:

- **Environmental Setting** provides an overview of federal, State, regional and local laws and regulations relevant to each environmental issue, together with a description of the existing environmental conditions, providing a baseline against which the impacts of the proposed project can be compared.
- **Standards of Significance** refers to the quantitative or qualitative standards or conditions used to compare the existing setting with and without the proposed project to determine whether the impact is significant. These standards are based primarily on the CEQA Guidelines, and may reflect established health standards, ecological tolerance standards, public service capacity standards, or guidelines established by agencies or experts.
- **Impact Discussion** gives an overview of the potential impacts of the proposed project and explains why impacts were found to be significant or less than significant and include suggested measures that would mitigate impacts with potentially significant or significant impact. Impacts and mitigation measures are numbered consecutively within each topical analysis and begin with an acronymic or abbreviated reference to the impact section. The following symbols are used for individual topics below. This subsection also includes a discussion of cumulative impacts of the proposed project.
- **Cumulative Impacts** gives an overview of the potential cumulative impacts of the proposed project in combination with past, present and reasonably anticipated future projects and explains why impacts were found to be cumulatively considerable or not cumulatively considerable and include suggested measures that would mitigate impacts with potentially significant or significant impact.
- **References**

4.3 TERMINOLOGY USED IN THIS DRAFT EIR

The level of significance is identified for each impact in this DEIR. Although the criteria for determining significance are different for each topic area, the environmental analysis applies a uniform classification of the impacts based on definitions consistent with CEQA and the CEQA Guidelines:

- **No impact.** The project would not change the environment.
- **Less than significant.** The project would not cause any substantial, adverse change in the environment.
- **Less than significant with mitigation incorporated.** The EIR includes mitigation measures that avoid substantial adverse impacts on the environment.
- **Significant and unavoidable.** The project would cause a substantial adverse effect on the environment, and no feasible mitigation measures are available to reduce the impact to a less than significant level.

4.4 AESTHETICS

This chapter describes the regulatory framework and existing conditions on the project site related to aesthetics, and the potential impacts of the project to the visual character of the project site and its surroundings. This section includes a discussion of the qualitative aesthetic characteristics of the environment that could be potentially degraded by the project's implementation. Aesthetics generally refer to the identification of visual resources and the quality of what can be seen, as well as an overall visual perception of the environment, and compares potential project impacts against the thresholds of significance contained in the City's General Plan. This analysis attempts to identify and objectively examine factors that contribute to the perception of aesthetic impacts.

4.4.1 ENVIRONMENTAL SETTING

4.4.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to aesthetics.

State Regulations

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission and is updated every three years. The latest version went into effect in January 2019. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction.

California Department of Transportation- California Scenic Highway Program

A scenic highway is generally defined by Caltrans as a public highway that traverses an area of outstanding scenic quality which contains striking views, flora, geology, or other unique natural attributes. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view. The California Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change, and the State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq.

The status of a proposed State scenic highway changes from eligible to officially designated when the local governing body applies to Caltrans for scenic highway approval, adopts a Corridor Protection Program, and receives notification that the highway has been officially designated a Scenic Highway. According to the California Scenic Highway Mapping System, administered by Caltrans, there are no officially designated scenic highways or scenic corridors in the City of Vacaville.

4.4 AESTHETICS

Local Regulations

City of Vacaville General Plan

The City of Vacaville's General Plan serves as a guide for future conservation, enhancement, and development in the city. The General Plan provides a vision for the future and establishes a framework for how Vacaville should grow and change over the upcoming decades. The General Plan is intended to guide the City's actions through the year 2035, or the horizon year of the General Plan.

California Government Code Section 65300 requires that the General Plan be comprehensive, internally consistent, and long-term. The General Plan articulates a vision for the city's long-term physical form and development. It also provides overall direction to the day-to-day decisions of the City Council, its commissions, and City staff. In particular, the General Plan serves six related purposes, including policy determination, policy implementation, communication, guidance, education, and action plan (City of Vacaville 2015). The general Plan was amended in September 2021 to include vehicle miles traveled.

Land Use Element

The Land Use Element sets forth specific goals, policies, and actions to guide land use for the City of Vacaville through the year 2035. The General Plan Land Use Map, which is also part of this element, graphically represents the City's vision for the future development within the city limits – the boundary that encompasses the incorporated city. The Land Use Element provides the following goals, policies, and objectives which are applicable to the project and related to aesthetics:

GOAL LU-1 Preserve, promote, and protect the existing character and quality of life within Vacaville.

- **Policy LU-P1.1:** Maintain Vacaville as a free-standing community surrounded by foothills, farmland, and other open space.
- **Policy LU-P1.2:** Protect Vacaville's natural environment. Integrate creeks, hills, utility corridors, and other significant natural features into major development plans.
- **Policy LU-P1.3:** Preserve the predominant single-family residential character of Vacaville while providing other housing opportunities.
- **Policy LU-P1.4:** Protect established neighborhoods from incompatible uses.
- **Policy LU-P1.5:** With the exception of Priority Development Areas, require that infill projects be designed to complement the neighborhood and surrounding zoning with respect to the existing scale and character of surrounding structures, and blend, rather than compete, with the established character of the area.
- **Policy LU-P1.8:** Design aesthetically pleasing roadways using trees or other appropriate landscaping.

Conservation Element and Open Space Element

The purpose of the Conservation and Open Space Element is to ensure the comprehensive and long-range preservation and management of open space lands in and around the city for the protection of natural resources and as a scenic resource. The recreation amenities of open space lands are addressed in the Parks and Recreation Element. This Conservation and Open Space Element also addresses the protection of cultural resources, including paleontological resources, archaeological resources, historic resources, and Native American cultural resources. Lastly, this Element addresses air quality because clean air is an important natural resource and a vital component of a healthy environment. The Conservation and Open Space Element provides the following goals, policies, and objectives related to aesthetic and scenic resources:

Goal COS-8 Maintain and enhance the quality of Vacaville’s scenic and visual resources.

- **Policy COS-P8.1** Preserve scenic features and the feel of a city surrounded by open space, and preserve view corridors to the hills and other significant natural areas.
- **Policy COS-P8.2** Retain major ridgelines and hillsides as open space.

4.4.1.2 EXISTING CONDITIONS

An aerial photograph of the project site is shown on Figure 3-3, *Aerial Photograph*, in Chapter 3, *Project Description*. The project site consists of approximately 185.4 acres and is located on the south side of Interstate 80 (I-80) along Leisure Town Road, between Orange Drive and an irrigation canal. The former Green Tree Golf Course is situated within the project site.

Visual Character

The project site is located in an urbanized area in the eastern portion of the City of Vacaville. The project site is surrounded by commercial and residential uses, and vacant land. The project site is bounded by Leisure Town Road to the east; Orange Drive to the north and northwest; Sequoia Drive, and Yellowstone Drive to the west; and Green Tree Drive to the southwest. To the north and west of the project site is commercial uses, including Starbucks and several auto dealerships, and to the south and east are residential uses.

The project site consists of vacant land to the north of existing Gilley Way, and the remaining improvements of the former Green Tree Golf Course, closed in 2016. Off-site and to the north, there is a public storage facility consisting of several one-story white and red buildings. The remnants of the former golf course include parking lots, cart paths, the former maintenance building, the former golf course ponds which continue to function as part of the City’s storm drainage system, and unirrigated turf and decaying trees.

Visual Resources

There are no visual resources present on the project site.

4.4 AESTHETICS

Landform

The strongest visual features of the City are the Vaca Mountains, Alamo Creek Ridge, and the English Hills along the western borders of the City; these natural hillsides and ridgelines can be seen from most areas of the City. The project site is generally flat and gradually slopes from west to east. No natural landforms occur on the project site.

Scenic Resources, Vistas, and Corridors

Vacaville's scenic resources are a valued asset for the community. Views of and from the City serve to situate the community in its local environment and landscape. Most of Vacaville's scenic resources are associated with the open space, natural resources, and agricultural uses. Such areas include the riparian corridors, views of the rural and undeveloped lands surrounding the City, and Vacaville's hillside areas. Many of the scenic resources, such as the ridgelines of the Vaca Mountains and English Hills, are located outside the City limits. There are no state-designated scenic highways in Vacaville, and none of these resources occur within the project site.

4.4.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant aesthetics impact if it would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. 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.
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

4.4.3 IMPACT DISCUSSION

AES-1	The project would not have a substantial adverse effect on a scenic vista.
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The proposed project would have a significant environmental impact if it would result in a substantial adverse effect on a scenic vista. Views from the site are limited due to the site's flat topography and, as a result, far-field views are generally obscured by existing vegetation and structures. The proposed project would not be located on the streets or parks recognized as affording the best views of those resources. As described above, scenic resources, such as the ridgelines of the Vaca Mountains and English Hills, are located outside the City limits. Thus, there are no high-quality visual resources located near the project site. Although the proposed project would change immediate views within the neighborhood and project

4.4 AESTHETICS

site, the major components of City-identified vistas, both near-field and mid-to-far-field, would remain. As a result, the project would result in a less than significant impact to scenic vistas.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AES-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

AES-2	The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
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According to the California Scenic Highway Mapping System, administered by Caltrans, there are no state-designated scenic highways in Vacaville. The nearest scenic highway is State Route 160, located in Sacramento County, approximately 23 mile east of the project site. Thus, the proposed project would not degrade views from that distance. As a result, the project would result in no impact to a view from a scenic highway.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AES-2 would be no impact.

Mitigation Measures

No mitigation measures are required.

AES-3	The project would not, 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.
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The proposed project includes residential and commercial land uses on the former golf course site. Views from existing residential units that currently have rear or side views of the golf course will be altered by the Project. The primary changes to the visual character of the site would be the removal of trees, addition of new buildings, streets and other urban development, a new palette of colors, and new soft and hardscapes. In addition, the proposed project would remove the deteriorating former golf course structures, roadways, fairways, and ponds. In order to avoid the potential for visual impacts, the Project has been designed to retain an open space buffer around all of the existing residential units as shown in Figure 3-3, Land Use Plan. As a result, the project would result in a less than significant impact with respect to the visual character or quality of the site and its surroundings.

4.4 AESTHETICS

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AES-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

AES-4	The project would create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.
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The project site is composed of vacant land and the former golf course; however, as described above, the project site is surrounded by various commercial uses including retail buildings and several auto dealerships, as well as residential uses. Buildout of the proposed project would alter and intensify land uses and their related lighting sources throughout the project site by introducing new buildings, new outdoor/recreational facilities, street signage, and streetlights associated with the additional residences, as well as the nonresidential development.

The proposed project would be in compliance with Section 14.09.127.110 (Light and Glare) of the City's Municipal Code, which states the following:

- A) Lighting shall be shielded and directed so as not to create a hazard or nuisance to other properties or impact traffic on adjacent streets.
- B) Exterior lighting should be installed to identify building entrances and to promote on-site safety or security.
- C) Parking lot lighting shall comply with the standards of the Off-Street Parking and Loading Design Guidelines, including, but not limited to, the following:
 - 1. Exterior lighting shall be a minimum of one foot candle and a maximum of six foot candles;
 - 2. A photometric plan demonstrating compliance with these lighting standards and a site plan showing the location and design of exterior lighting fixtures shall be required as a condition of project approval:
 - a) The lighting plan shall be subject to the approval of the Director;
 - b) The requirement for a photometric plan may be waived if the Director determines that the plan is not necessary to demonstrate compliance with the lighting standards;
 - 3. Flickering or flashing lights shall not be permitted;
 - 4. A reduction in the minimum lighting or an exception to the maximum lighting standard requirement may be granted by the Director if the applicant or developer can demonstrate to the satisfaction of the Director that the minimum lighting is unnecessary or that additional lighting is needed.

4.4 AESTHETICS

This would ensure new lighting sources are not only energy efficient, but regulated based on light power and brightness, shielding, and sensor-control standards. Overall, development in accordance with the Proposed Project would introduce new sources of light and glare. However, the surrounding community is highly urbanized and built out; new light and glare associated with the proposed project would be typical of the surrounding area and would not increase light or glare levels beyond what is expected for an urban community. Therefore, impacts for project-generated lighting and glare would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AES-4 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.4.4 CUMULATIVE IMPACTS

AES-5	The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to aesthetics.
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Aesthetic impacts are localized to the project area and its immediate surroundings. Given that the project area is highly urbanized and the surrounding areas are almost entirely built out, implementation of the proposed project and any other future cumulative development that would be accommodated under the City's General Plan would likely not negatively impact the visual character of the project area or its surroundings. As with development of the proposed project, all future cumulative development projects under the City's General Plan would be required to adhere to development standards related to aesthetics, as outlined in the City's Municipal Code. Therefore, the proposed project's contribution to cumulative visual character and quality impacts is considered less than significant.

In addition, due to the light and glare from existing residential, commercial, office, and institutional uses in the project area, the proposed project is not anticipated to add significant new sources of nighttime light and glare. Any new residential or nonresidential development near the project site would add new lighting sources, but would be primarily surrounded by other, existing uses with similar lighting sources. Therefore, light and glare impacts of future cumulative development projects would not combine with those of the proposed project to adversely impact existing or planned sensitive receptors. The proposed project's contribution to cumulative light and glare impacts is considered less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AES-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.4 AESTHETICS

4.4.5 REFERENCES

California Department of Transportation. 2021. California State Highways.
<https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>

4.5 AGRICULTURE AND FORESTRY RESOURCES

4.5 AGRICULTURE AND FORESTRY RESOURCES

This chapter describes the regulatory framework and existing conditions on the project site related to agriculture and forestry resources, and the potential impacts of the project to impact agriculture and forestry resources in the City of Vacaville.

4.5.1 ENVIRONMENTAL SETTING

4.5.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to agricultural resources for the proposed project.

Federal Regulations

Farmland Protection and Policy Act

The Farmland Protection and Policy Act (FPPA) was designed to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. This Act assures that to the extent possible, federal programs are administered to be compatible to with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. This Act does not authorize the federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. For the purposes of the act, “farmland” includes prime farmland, unique farmland, and farmland of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland, it can be forestland, pastureland, cropland, or other land, but not water or urban/built-up land.

State Regulations

Farmland Mapping and Monitoring Program

With the California Natural Resources Agency, the State Department of Conservation (CDC) provides services and information that promote informed land use decisions and sound management of the state’s natural resources. The Department manages the Farmland Mapping and Monitoring Program (FMMP), which supports agriculture throughout California by developing maps and statistical data for analyzing land use impacts to farmland.

The developed maps are called the Important Farmlands Inventory (IFI), which categorizes land based on the productive capabilities of the land. There are many factors that determine the agricultural value of land, including the suitability of soils for agricultural use, whether soils are irrigated, the depth of soil, water-holding capacity, and physical and chemical characteristics. To categorize soil capabilities, two soil classification systems are used: the Capability Classification System and the Storie Index. The Capability Classification System categorizes soils from Class I to Class VII based on their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time (Class I soils

4.5 AGRICULTURE AND FORESTRY RESOURCES

have few limitations for agriculture; Class VIII soils are unsuitable for agriculture) (NRCS 1992). The Storie Index takes into account other factors, such as slope and texture.

FMMP rates the production potential of agricultural land according to the following classifications:

- **Prime Farmland** has the best combination of physical and chemical features able to sustain long-term agricultural production. Prime Farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agriculture production at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance** is similar to Prime Farmland but with minor shortcomings, such as steeper slopes or less ability to store moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland** consists of lesser quality soils used for the production of the state’s leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance** is land that is important to the local agricultural economy. It is determined by each county’s board of supervisors and a local advisory committee.
- **Grazing Land** is the land on which the existing vegetation is suited to the grazing of livestock.
- **Urban and Built-Up Land** is occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.
- **Other Land** is land not included in any other mapping category. Common examples include low density rural developments; wetlands and riparian areas not suitable for livestock grazing; confined livestock, poultry, and aquaculture facilities; and strip mines. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land. The Rural Land Mapping Project provides more detail on the distribution of various land uses within the Other Land category in all eight San Joaquin Valley counties. The Rural Land categories include: Rural Residential Land, Semi-Agricultural and Rural Commercial Land, Vacant or Disturbed Land, Confined Animal Agriculture, and Nonagricultural or Natural Vegetation.
- **Water** is used to describe perennial water bodies with an extent of at least 40 acres.

Note that CEQA analysis focuses on impacts to three categories of mapped farmland—Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. In this section, the term “mapped important farmland” refers to these three categories of farmland combined.

4.5 AGRICULTURE AND FORESTRY RESOURCES

California Land Conservation Act (Williamson Act)

The California Land Conservation Act, or Williamson Act, was adopted in 1965 (California Government Code §§ 51200 et. seq.). The act was established to encourage the preservation of agricultural lands in view of the increasing trend toward their “premature and unnecessary” urbanization. The act enables counties and cities to designate agricultural preserves (Williamson Act lands) and offer preferential taxation to agricultural landowners based on the land’s income-producing value. In return for the preferential tax rate, the landowner is required to sign a contract (Williamson contract) with the county or city agreeing not to develop the land for a minimum of 10 years. The contract is renewed automatically on its anniversary date unless a notice of nonrenewal or petition for cancellation is filed.

California Government Code Section 56064

This section of the Government Code defines “Prime Agricultural Land” as follows:

Prime agricultural land means an area of land, whether single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:

- Land that qualifies, if irrigated, for rating as class I or class II in the United States Department of Agriculture (USDA) Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
- Land that qualifies for rating 80 through 100 Storie Index Rating.
- Land that supports livestock used for the production of food and fiber that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the USDA in the National Range and Pasture Handbook, Revision 1, December 2003.
- 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 basis from the production of unprocessed agricultural plant production not less than \$400.00 dollars per acre.
- Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than \$400.00 dollars per acre for three of the previous five calendar years.

Local Regulations

City of Vacaville General Plan

The Land Use Element and Conservation and Open Space Element provides the following policies protecting agricultural lands in the City:

- **Policy LU-P2.4:** Require that development on any prime farmland, farmland of statewide importance, or unique farmland (as classified by the California Department of Conservation) purchase conservation easements to permanently protect agricultural land of equal or greater value at a ratio of 1 acre of conserved agricultural land per 1 acre of developed agricultural land.

4.5 AGRICULTURE AND FORESTRY RESOURCES

- **Policy COS-P3.1:** Maintain a compact urban form and locate new development to minimize the loss of agricultural and open space resources.
- **Policy COS-P3.2:** Support the preservation of land under Williamson Act contracts within the Vacaville Planning Area.
- **Policy COS-P3.3:** Encourage the continued agricultural use of land within the Planning Area that is currently being used for agricultural purposes.
- **Policy COS-P3.4:** Work cooperatively with non-profit organizations, such as land trusts, to preserve agricultural land in the Planning Area, as shown on Figure LU-6 in the Land Use Element.

4.5.1.2 EXISTING CONDITIONS

Agricultural Uses

The project site is currently zoned CG, General Commercial, and CR, Recreation Commercial. Agricultural uses, excluding livestock, are a conditional use under the CR zone. The project site includes vacant land north of Gilley Way, and a former golf course. There are no agricultural uses onsite. The project site is surrounded by commercial and residential uses.

Agricultural Designations and Contracts

Of the 21,190 acres of land in the city, approximately 11 percent of the existing land use is designated agriculture, agriculture buffer, or hillside agriculture. The California Important Farmland Finder designates the project site as Urban and Built-Up Land. Prime Farmland is located adjacent to the east of the South Sequoia Area (DOC 2021). However, the project site has a General Plan land use designation of Commercial Highway (CH) and Private Recreation (PR). There are no Williamson Act contracts within the City limits (Vacaville 2015). As such, there are no agricultural uses or contracts on the project site.

Forestland and Timberland

According to the General Plan EIR, the city contains isolated woodlands that could fall under California Public Resource Code Section 12220(g) in the northern and southwestern portion of the city (Vacaville 2014). The project site does not contain woodland and is located in Urban and Built-Up land (DOC 2021).

4.5.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant agriculture and forestry resources impacts if it would:

1. 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.
2. Conflict with existing zoning for agricultural use, or a Williamson Act contract.

4.5 AGRICULTURE AND FORESTRY RESOURCES

3. Conflict with existing zoning for, or cause rezoning of, forestland (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)).
4. Result in the loss of forest land or conversion of forest land to non-forest use.
5. 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.

4.5.3 IMPACT DISCUSSION

AG-1	The project would not 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.
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The project site is currently designated as Urban and Built-Up Land (DOC 2021). There is no Prime Farmland, unique farmland or farmland of statewide importance located within the project site. Therefore, there would be no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-1 would be no impact.

Mitigation Measures

No mitigation measures are required.

AG-2	The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.
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The project site is zoned CG and CR; there is no agricultural zoning on the site. There are no Williamson Act contracts within the city limits (Vacaville 2015). As such, there are no agricultural zoning or contracts on the project site. Therefore, there would be no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-2 would be no impact.

Mitigation Measures

No mitigation measures are required.

4.5 AGRICULTURE AND FORESTRY RESOURCES

AG-3	The project would not conflict with existing zoning for, or cause rezoning of, forestland (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)).
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According to the General Plan EIR, the City Land Use and Development Code does not contain a zoning district for forest or timberland (Vacaville 2015). Additionally, the project site is a previously developed golf course and there is no forestland or timberland located in the project site. Therefore, there would be no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-3 would be no impact.

Mitigation Measures

No mitigation measures are required.

AG-4	The project would not result in loss of forest land or conversion of forest land to non-forest use.
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The city contains forest and timberland areas in certain areas, but none are located near or within the project site. The project site is a previously developed golf course and does not contain forest land; therefore, there would be **no impact**.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-4 would be no impact.

Mitigation Measures

No mitigation measures are required.

AG-5	The project would not 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
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As described above, the project site does not contain farmland or forest land. Therefore, there would be no conversion of farmland to non-agricultural use or forest land to non-forest use within the project site and there would be no impact.

4.5 AGRICULTURE AND FORESTRY RESOURCES

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-5 would be no impact.

Mitigation Measures

No mitigation measures are required.

4.5.4 CUMULATIVE IMPACTS

AG-6	The proposed project would not result in cumulative impacts with respect to agricultural and forestry resources.
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As noted above, the project site would not conflict with existing zoning or cause rezoning of forestland or farmland. The proposed project is located in primarily developed area and is surrounded by commercial and residential uses. Existing timberland within the city is primarily located in the northern and southwestern portion of the city. Since the proposed project is proposed on a site without zoning for forestland or farmland and is primarily surrounded by developed commercial and residential uses, the project's contribution to cumulative impacts related to agriculture and forest resources would be less than cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AG-6 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.5.5 REFERENCES

Department of Conservation (DOC). 2021, August 13 (accessed). California Important Farmland Finder. <https://maps.conservation.ca.gov/DLRP/CIFF/>

Vacaville, City of. 2015. City of Vacaville General Plan and ECAS Draft EIR, Agriculture and Forestry Resources. <https://www.ci.vacaville.ca.us/home/showdocument?id=5509>

4.5 AGRICULTURE AND FORESTRY RESOURCES

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4.6 AIR QUALITY

This chapter describes the regulatory framework, existing conditions on the project site, and potential impacts related to air quality.

The analysis in this section is based in part on the following technical report:

- *Air Quality/Energy/Greenhouse Gas Report*, EMC Planning Group, October 28, 2021. A complete copy of this report is included as Appendix 4.6-1.

4.6.1 ENVIRONMENTAL SETTING

4.6.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, state, regional, and local regulations and programs related to air quality for the proposed Specific Plan.

Federal Regulations

United States Environmental Protection Agency (EPA)

The EPA was established on December 2, 1970 to create a single agency that covered several agency concerns: federal research, monitoring, standard-setting, and enforcement. The purpose of the EPA is to protect the overall health of humans and the environment. The EPA does this by safeguarding all Americans from the hazardous risks in the environment where they live and work. Environmental safety is one of the primary concerns of U.S. policies and the following are commonly used to establish environmental policy: natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade.

Federal Clean Air Act

Air quality is regulated on the federal level through the Clean Air Act, adopted in 1970 and amended in 1990, which set federal standards for air quality.

The federal Clean Air Act required the EPA to set National Ambient Air Quality Standards for several air pollutants based on human health and welfare criteria. The Clean Air Act also set deadlines for the attainment of these standards. The Clean Air Act established two types of national air standards—primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive persons such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Historically, air quality laws and regulations have divided air pollutants into two broad categories of airborne pollutants—criteria pollutants and toxic air contaminants.

4.6 AIR QUALITY

In general, the Clean Air Act creates a partnership between state and federal governments for implementation of the Clean Air Act provisions. The federal Clean Air Act requires states to prepare an air quality control plan known as a State Implementation Plan. California's State Implementation contains the strategies and control measures that California will use to attain the National Ambient Air Quality Standards. If, when reviewing the State Implementation Plan for conformity with Clean Air Act Amendment mandates, the EPA determines a State Implementation Plan to be inadequate, EPA may prepare a Federal Implementation Plan for the non-attainment area and may impose additional control measures.

National Ambient Air Quality Standards

Ambient air quality is described in terms of compliance with the state and national standards. In general, criteria pollutants are pervasive constituents such as those emitted in vast quantities by the combustion of fossil fuels. Both the state and federal governments have developed ambient air quality standards for the most prevalent pollutants, which include ozone, carbon dioxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter, and fine particulate matter.

National Emissions Standards for Hazardous Air Pollutants are emissions standards set by the EPA for an air pollutant not covered by National Ambient Air Quality Standards that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness. The standards for a particular source category require the maximum degree of emission reduction that the EPA determines to be achievable, which is known as the Maximum Achievable Control Technology.

State Regulations

California Air Resources Board

The federal Clean Air Act gives states primary responsibility for directly monitoring, controlling, and preventing air pollution. CARB is responsible for coordination and oversight of federal, state, and local air pollution control programs in California and for implementing the requirements of the federal Clean Air Act and California Clean Air Act. The duties of CARB include coordinating air quality attainment efforts, setting standards, conducting research, and creating solutions to air pollution. The California Air Resources Board, which is a state agency located within the California Environmental Protection Agency, oversees regional or local air quality management or air pollution control districts that are charged with developing attainment plans for the areas over which they have jurisdiction. CARB grants these regional or local air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage the use of ridesharing, flexible work hours, or other measures that reduce the number of vehicle trips.

Air Quality Management Plans

The federal Clean Air Act requires areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans. State Implementation Plans are comprehensive plans that describe how an area will attain national ambient air quality standards. State Implementation Plans are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state

regulations, and federal controls. California grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage the use of ridesharing, flexible work hours, or other measures that reduce the number or length of vehicle trips. Local air districts prepare State Implementation Plan elements and submit them to CARB for review and approval. CARB forwards State Implementation Plan revisions to the EPA for approval and publication in the Federal Register.

California Air Toxics Program

CARB created a statewide air toxic program in the 1980s, and soon thereafter was the creation of the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807). The Toxic Air Contaminant Identification and Control Act established the California Air Toxic Program that was designed to lower all exposure to air pollutants. The Air Toxics “Hot Spots” Information and Assessment Act (AB 2588) adds on to AB 1807 by demanding an inventory for all air pollutants, a system where notices are provided to those who are unprotected by the air pollutant, and plans to lower these health risks. AB 1807 required CARB to implement standards for the ranking and control of the air pollutants. AB 1807 also requires CARB to use the data within the AB 2588 program.

California Ambient Air Quality Standards

The California Ambient Air Quality Standards were established in 1959 by the California Department of Public Health to set air quality standards and controls for vehicle emissions. The Office of Environmental Health Hazard Assessment reviews and updates the standards used today. A document called the *Initial Statement of Reasons* is a compilation of Office of Environmental Health Hazard Assessment recommendations and the previous review of literature. Updates are released for public review by the Air Quality Advisory Committee, which provides written comments on the draft Initial Statement of Reasons. Once the comments are addressed, the revised Initial Statement of Reasons is released for a public comment period of 45 days and then sent to a scheduled CARB meeting.

The California ambient air quality standards are often stricter than the national ambient air quality standards. When state thresholds are exceeded at regional monitoring stations, an “attainment plan” that outlines how an air quality district will achieve compliance with the state standards must be prepared.

Regional Regulations

Air Basin Attainment Status

In accordance with the Clean Air Act, CARB is required to designate regions of the state as attainment, non-attainment, or unclassified regarding that region’s compliance with criteria air pollutants standards. An “attainment” designation for a region signifies that pollutant concentrations do not violate the standard for that pollutant in that region. A “non-attainment” designation indicates that a pollutant concentration violated the standard at least once. An “unclassified” designation signifies that available data does not support either an attainment or non-attainment status. The air basin is currently designated as attainment for all ambient air quality standards except for ground-level ozone (O₃), respirable particulate matter (PM₁₀), and fine particulate matter (PM_{2.5}).

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Yolo-Solano Air Quality Management District

The City of Vacaville is within the boundaries of the Yolo-Solano Air Quality Management District (air district). The air district develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The air district's air quality management plans include control measures and strategies to be implemented to attain state and federal ambient air quality standards within the jurisdiction. The air district then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment. Air district attainment plans include:

- **Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (State Implementation Revisions):** The *Sacramento Regional 2008 NAAQS 8-Hour Ozone Attainment and Reasonable Further Program Plan (2017 Regional Ozone Attainment Plan)* describes measures to be implemented by the air districts in the Sacramento Federal Nonattainment Area to achieve the 2008 ozone federal standards. The 2017 Ozone Plan shows that the region continues to meet federal progress requirements and demonstrates that the region will meet the 2008 ozone federal standards by 2022. The 2017 Regional Ozone Attainment Plan updates the emissions inventory, provides photochemical modeling results, updates the reasonable further progress and attainment demonstrations, revises adoption dates for control measures, and sets new motor vehicle emission budgets for transportation conformity purposes.

The 2017 Regional Ozone Attainment Plan also includes a vehicle miles traveled (VMT) offset demonstration that showed the emissions reduction from transportation control measures are sufficient to offset the emissions increase due to VMT growth.

In 2015, the EPA promulgated a new 8-hour federal standard for ozone. The air district implementation plan analysis (for the 2015 standard) was approved by the air district Board of Directors on September 9, 2020. The air district is required to certify that program meets the requirements for the implementation of the most recent (2015) ozone federal standards (draft certification checklist). A public hearing for the certification was conducted by the District Board on June 9, 2021, and once approved, it will be submitted to CARB and the EPA.

- **Triennial Assessment and Plan Update:** The California Clean Air Act requires the submission of a plan for attaining and maintaining state ambient air quality standards for ozone with subsequent updates every three years. The air district originally adopted an Air Quality Attainment Plan in 1991 and has completed seven triennial plan updates since then.

The most recent adopted triennial plan (May 2019) covers the years 2015-2017. The document summarizes emission trends over this period, forecast future emissions, and reviews efforts made by the air district to improve air quality.

The air district issued its *Handbook for Assessing and Mitigating Air Quality Impacts* to assist lead agencies in determining when potential air quality impacts would be considered significant under CEQA.

Local Regulations

City of Vacaville General Plan

The City of Vacaville General Plan policies pertaining to improving air quality that are applicable to the project, are listed below:

- **Policy COS-P12.3:** Encourage project designs that protect and improve air quality and minimize direct and indirect air pollutant emissions by including components that reduce vehicle trips and promote energy efficiency.
- **Policy COS-P12.4:** Require that development projects implement best management practices (BMPs) to reduce air pollutant emissions associated with the construction and operation of the project.
- **Policy COS-P12.5:** Require dust control measures as a condition of approval for subdivision maps, site plans, and all grading permits.
- **Policy COS-P12.6:** Consistent with the air district's standards, require that any fireplaces in new and significantly renovated residential projects, or commercial projects are pellet-fueled heaters, EPA Phase II-certified wood burning heaters, or gas fireplaces.
- **Policy COS-P12.10:** Encourage the use of roadway materials that minimize particulate emissions.

4.6.1.2 EXISTING CONDITIONS

The City of Vacaville is located within the Sacramento Valley Air Basin ("air basin"), which includes all of Shasta, Tehama, Glenn, Colusa, Butte, Sutter, Yuba, Sacramento, and Yolo counties, the westernmost portion of Placer County and the northeastern half of Solano County. The regional climate can be generally characterized as Mediterranean, with hot, dry summers and cooler, wet winters. During the year, the temperature may range from 20 to 115 degrees Fahrenheit (°F) with summer highs usually in the 90s and winter lows occasionally below freezing. The high average summer temperatures, combined with very low relative humidity, produces hot, dry summers that contribute to ozone (O₃) buildup. Average annual rainfall is about 20 inches with snowfall being very rare. The prevailing winds are moderate in strength and vary from moist clean breezes from the south to dry land flows from the north.

The air basin is bound by the North Coast Ranges on the west and Northern Sierra Nevada Mountains on the east. The intervening terrain is relatively flat.

Mountain ranges tend to buffer the basin from the marine weather systems that originate over the Pacific. However, the Carquinez Strait creates a breach in the Coast Range on the west of this basin, which exposes the midsection of the air basin to marine weather. This marine influence moderates climatic extremes, such as the cooling that sea breezes provide in summer evenings. These breezes also help to move pollutants out of the valley. During about half of the days from July to September, however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the valley, the Schultz Eddy causes the wind

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pattern to circle back south. This effect exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards. The effect normally dissipates around noon when the delta sea breeze arrives.

The mountains surrounding the valley can also contribute to elevated pollutant concentrations during periods of surface or elevated surface inversions. These inversions are most common in late summer and fall. Surface inversions are formed when the air close to the surface cools more rapidly than the warm layer of air above it. Elevated inversions occur when a layer of cool air is suspended between warm air layers above and below it. Both situations result in air stagnation. Air pollutants accumulate under and within inversions, subjecting people in the region to elevated pollution levels and associated health concerns.

The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground.

Project Features

The following project features proposed by the project applicant would have mitigating effects related to the generation of pollutant emissions.

- Pedestrian network improvements that promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.
- For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- No woodstoves or natural gas hearths.
- Prohibition on use of natural gas in all residential units.
- Water efficient landscaping.

Following are the non-quantified project features proposed by the project applicant:

- Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.
 - All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.
 - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
 - Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.
 - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
 - Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.
 - Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
 - Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.

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- Construction phase equipment exhaust control measures that reduce NO_x and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include Tier 4 engines for construction equipment, minimizing construction equipment idling time, and using grid-supplied electricity to power both stationary and portable construction equipment.
- Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 20 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).
- Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.
- Energy demand reduction measures that include:
 - Cool roofs on all non-residential buildings to reduce building cooling needs;
 - Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;
 - Energy Star appliances in all non-residential buildings;
 - Programmable thermostats in residential units; and
 - Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years.

4.6.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant air quality impacts if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

4.6.3 IMPACT DISCUSSION

AIR-1	The project would conflict with or obstruct implementation of the applicable air quality plan.
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The Greentree Specific Plan project requires a general plan amendment to change from Commercial Recreation and Highway Commercial to designations facilitating development of a mixed-use residential and local serving retail project, including 199 single-family senior housing units south of Sequoia Drive and 950 workforce housing units with maximum densities of between 11 and 24 units per acre north of Sequoia Drive. As proposed, the entire residential component of the project would be all-electric (no natural gas). In addition, the project includes an extensive public trail network and a series of complete streets with widened, tree-lined sidewalks and protected bicycle lanes interconnecting the housing, recreation, and retail components. These amenities of the project serve to moderate and reduce vehicle travel, and to promote pedestrian and bicycle travel. Further, the project is an infill project situated within one-half mile of the City’s growing biomanufacturing and high-technology manufacturing center, located directly across I-80 from the project site. The higher density workforce housing and local serving retail components of the project are expected to be accessible to and supportive of employment growth in this area of Vacaville, thereby ultimately reducing vehicle miles traveled from home to work, a major contributor to air emissions.

A consistency determination with the air quality management plan (AQMP) plays an important role in local agency review by linking local planning and individual projects to the AQMP. It fulfills the CEQA goal of informing decision makers of the environmental effects of the proposed project under consideration early enough to ensure that air quality concerns are fully addressed. It also provides the local agency with ongoing information as to whether they are contributing to the clean air goals in the AQMP.

Growth projections form the foundation for the emissions inventory of the AQMP. The housing and population generated under the proposed project would be within the City’s growth projections for the year 2035 as determined by the City’s General Plan. As indicated below in Table 4.6-1, *Construction Criteria Air Pollutant Emissions*, projected construction emissions would not exceed Air District thresholds. While the proposed project would not exceed growth assumptions for the city, Table 4.6-2, *Unmitigated Operational Criteria Air Pollutant Emissions*, illustrates operational impacts would exceed significant thresholds. Specifically, annual ROG emissions are estimated to exceed the threshold, making this impact significant.

Level of Significance Before Mitigation: AIR-1 would be significant.

Mitigation Measures

No mitigation measures are available.

Level of Significance After Mitigation: AIR-1 would be significant and unavoidable.

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AIR-2	The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under applicable federal or State ambient air quality standard.
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Construction

Construction activities are temporary impacts that, depending on the size and type of project, commonly occur in limited time periods. Construction emissions have the potential to significantly impact local air quality. Construction emissions include mobile source exhaust emissions, emissions generated during the application of asphalt paving material and architectural coatings, as well as emissions of fugitive dust during demolition and grading.

The proposed project would include a construction emissions control plan as part of its stormwater pollution prevention plan to avoid or minimize emissions from construction activities. Measures in the plan would minimize dust generation and emissions from construction equipment as appropriate. The plan would include measures such as watering all exposed areas, not allowing the idling of diesel-fueled engines for more than two minutes, and powering portable equipment by electricity if available instead of diesel (EMC Planning 2021).

Construction emissions were modeled for the total construction period (2023-2031). The emissions volume was calculated based on the assumption that the measures in the construction control plan that would be incorporated into the proposed project and on an assumption that Tier 4 engines would be used in all construction equipment. Tier 4 refers to the latest emission milestone established by the US Environmental Protection Agency and CARB applicable to new engines found in off-road equipment, including construction equipment and that the construction control plan measures are incorporated into the proposed project.

Table 4.6-1, *Construction Criteria Air Pollutant Emissions*, summarizes criteria air pollutant emissions and compares them against the air district thresholds. As shown in Table 4.6-1, the construction criteria air emissions would not exceed air district thresholds of significance. Therefore, construction impacts would be less than significant.

TABLE 4.6-1 CONSTRUCTION CRITERIA AIR POLLUTANT EMISSIONS

Year	Total Annual Emissions (tons/year) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
2023	0.24	2.38	1.06	0.15
2024	1.70	1.05	0.50	0.06
2025	0.35	4.11	2.69	0.47
2026	1.69	8.24	7.48	1.19
2027	1.61	4.76	6.72	0.81
2028	2.30	2.81	3.12	0.33
2029	0.33	4.79	1.57	0.17
2030	3.26	1.53	0.68	0.08
2031	1.21	1.21	0.65	0.07
Air District Thresholds	10	10	10.4 80 pounds per day²	None
Exceeds Thresholds?	No	No	No	No³

Source: EMC Planning 2021

Notes:

¹ Results have been rounded, and may, therefore, vary slightly.

² PM₁₀ threshold is based on daily emissions of 80 pounds per day. Based on 260 construction days per year, this would equate to 10.4 tons pe year

³ The air district does not have a published PM_{2.5} threshold. However, PM_{2.5} emissions are below those used by other neighboring air districts, such as the Bay Area Air Quality Management District (54 pounds per day; based on 260 construction days per year, this would equate to 7.02 tons per year) and the Sacramento Metropolitan Air Quality Management District (82 pounds per day; based on 260 construction days per year, this would equate to 10.66 tons per year).

Operation

The majority of adverse impacts on air quality come from the long-term operations of a project. Table 4.6-2, *Unmitigated Operational Criteria Air Pollutant Emissions*, shows the annual emissions and the average daily emissions of ROG, NO_x, total PM₁₀ (i.e., direct emissions and fugitive road dust), and total PM_{2.5} during operation of the proposed project, and compares the emissions with the applicable air district thresholds.

TABLE 4.6-2 UNMITIGATED OPERATIONAL CRITERIA AIR POLLUTANT & DPM EMISSIONS

Emissions ¹	ROG	NO _x	PM ₁₀	PM _{2.5}
Operational Emissions (tons/year)	13.69	8.63	-	1.21
Air District Thresholds (tons/year)	10	10	-	10
Exceeds Thresholds?	Yes	No	-	No
Operational Emissions (pounds/day)			35.6	6.6
Air District Thresholds (pounds/day)			80	54²
Exceeds Thresholds?			No	No

Source: EMC Planning

¹ Results have been rounded, and may, therefore, vary slightly.

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² BAAQMD threshold is presented – the air district does not have a recommended threshold.

The proposed project is estimated to have annual and daily emissions below air district thresholds for each pollutant except for annual ROG emissions. Annual ROG emissions are estimated to exceed the 10 tons per year threshold by 3.69 tons per year. A majority of the ROG emissions (8.92 tons, or 65 percent) are associated with area sources such as architectural coatings and consumer products. ROG emissions from consumer products (i.e., solvents used in cleaning supplies, kitchen aerosols, cosmetics, and toiletries) make up most of the area source emissions (6.72 tons, approximately 75 percent). The CalEEMod ROG emissions factor for consumer products is based on statewide emissions data and statewide total building area. While CARB’s Consumer Products Regulatory Program has established tighter emissions limits on several types of products over the years, the emissions reductions are almost offset by increases in population and product usage. Therefore, adjustments to the consumer products emissions factor would not be significant enough to achieve the reductions needed.

Applicant-Proposed Emission Reduction Measures

The proposed project would include onsite emissions reduction measures such as improved connectivity and traffic calming. Emissions from several of the measures can be quantified using CalEEMod, while several cannot. Table 4.6-3, *Operational Criteria Air Pollutant and DPM Emissions with Implementation of Applicant-Proposed Measures*, shows the resulting reductions in emissions volumes.

TABLE 4.6-3 OPERATIONAL CRITERIA AIR POLLUTANT & DPM EMISSIONS WITH IMPLEMENTATION OF APPLICANT-PROPOSED MEASURES

Pollutant	Unmitigated Project Emissions Volumes	Emissions Volumes with Implementation of Applicant-Proposed Measures
ROG (tons per year)	13.69	12.54 ¹
NO _x (tons per year)	8.63	6.78
PM ₁₀ (tons per year)	35.6	34.90
PM _{2.5} (tons per year)	6.6	5.91

Source: EMC Planning 2021

¹ This value differs slightly from the mitigated value of 12.72 reported in Table 8 of the AG/GHG Modeling Assessment due to the effect of applicant-proposed GHG reduction measures (Appendix 4.6-1).

With reductions from applicant-proposed measures, the volume of operational criteria air pollutants is reduced. However, the ROG emissions volume of 12.54 tons per year would exceed the air district’s threshold of 10 tons per year. This impact would, therefore, be significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AIR-2 would be potentially significant.

Mitigation Measures

Following are the quantified applicant-sponsored mitigation measures for the project:

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- Pedestrian network improvements which promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.
- For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- No woodstoves or natural gas hearths.
- Prohibition on use of natural gas in all residential units.
- Water efficient landscaping.

Following are the non-quantified applicant-sponsored mitigation measures for the project:

- Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.
 - All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.
 - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.

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- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
- Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.
- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.
- Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Construction phase equipment exhaust control measures that reduce NOx and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include: Tier 4 engines for construction equipment, minimizing construction equipment idling time, and using grid-supplied electricity to power both stationary and portable construction equipment.
- Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 20 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).
- Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.
- Energy demand reduction measures that include:
 - Cool roofs on all non-residential buildings to reduce building cooling needs;

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- Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;
- Energy Star appliances in all non-residential buildings;
- Programmable thermostats in residential units; and
- Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years.

By design, the project inherently includes criteria air pollutant and GHG emissions reduction features. The project is intentionally planned with a mix of land uses. Such projects generally generate fewer vehicle trips and fewer vehicle miles traveled than those which do not include a mix of uses. Additionally, the infill location of the project site will result in reduced vehicle trip lengths relative to greenfield development on a site located at the edge of the city that must be annexed to the city. The mixed-use benefit of the project is not included here as an applicant-proposed measure to avoid double counting the reduction benefit. That benefit is largely captured in assumptions about reduced vehicle trip volume that are used to model air and GHG emissions.

The proposed project would also, by design, reduce energy demand for water management by providing on-site recycled water infrastructure to supply recycled irrigation water to the two proposed parks. This would occur once a recycled water supply becomes available through the City's planned recycled water project. However, since the recycled water supply is not yet certain, the GHG reduction benefit has conservatively not been assumed.

Level of Significance After Mitigation: Despite the application of proposed quantifiable and non-quantifiable mitigation measures, AIR-2 would remain significant and unavoidable after application of these measures.

AIR-3	The project would not expose sensitive receptors to substantial pollutant concentrations.
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Off-Site Receptors

The proposed project would introduce new sources of TACs during construction that could affect nearby off-site sensitive receptors. Under operational conditions, project traffic could generate emissions that, in combination with existing emissions sources, could adversely affect off-site sensitive receptors.

Construction Health Risk to Off-Site Receptors

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. The primary community risk impact issue associated with construction emissions is cancer risk. The AQ/GHG modeling assessment identified construction emissions volumes using CalEEMod, downwind concentrations of diesel particulate matter were calculated using AERMOD, and the location of the Maximally Exposed Individual (MEI) was also determined.

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Results of this assessment indicate that the construction MEI is located at a single-family residence in the Casa Grande Mobile Home Park adjacent to Leisure Town Road, east of the project boundary. The Health Risk Assessment (HRA) concluded that the maximum increased cancer risks as the MEI from all nine years of construction would be 6.04 per million (EMC Planning 2021). The non-cancer hazards from construction activities would be less than 0.01. Both values are below their respective thresholds of significance.

Operational Health Risk to Off-site Receptors

The AQ/GHG modeling assessment evaluated roadway TAC concentrations created by the traffic increase from the project at existing nearby single-family and multi-family residential sensitive receptors. Inputs from the traffic impacts were used as part of the analysis. The analysis involved modeling mobile source TAC emissions, roadway dispersion modeling, and cancer risk computations.

The analysis determined that the unmitigated maximum cancer risks would be approximately 6.6 per million and hazard risk would be approximately 0.03 (EMC Planning 2021). Both values are below their respective thresholds of significance.

Future On-Site Receptors

Under operational conditions, project traffic distributed onto existing roadways (TAC sources) could, in combination with existing TAC emissions sources, have the potential to adversely impact on-site sensitive receptors. The “Exposure of New Project Residents to Existing TAC Sources Memo” (Appendix C of Appendix 4.6-1) considers the effects of adding project traffic to existing single TAC sources (Interstate 80, Orange Drive, and Leisure Town Road), and consider the effect of adding project traffic to existing TAC sources that include the noted roadways plus two nearby stationary sources (Caliber Collision Center and Quik Stop). The analysis involved modeling mobile source TAC emissions, roadway dispersion modeling, and cancer risk computations.

Project Contribution to Single-Source TAC Impacts

Interstate 80 (I-80) is the most substantial existing single source of TACs that could affect future project residents. The planned residential units closest to I-80 would be apartments located at the north end of the project site in an area designated high-density residential. The air district’s single-source cancer risk threshold of 10 per million could be exceeded at up to four of the apartment buildings planned closest to I-80 and Orange Drive. The worst-case cancer risk would be up to 12.9 per million at the apartment building nearest the highway. Two of the four buildings are completely within the threshold exceedance area and two are partially within the exceedance area. No other receptor within the project site would be exposed to cancer risks from single TAC sources that exceeds the single-source threshold. The air district’s annual health index threshold of 1.0 or less would not be exceeded at any on-site receptor. Impacts would be potentially significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AIR-3 would be potentially significant.

Mitigation Measures

Mitigation Measure AIR-1: At the two apartment buildings that are completely within the area with 10 per million or greater cancer risk, the developer shall install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system shall include a properly installed and operated ventilation system with filters having a Minimum Efficiency Report Value of 13, which is expected to achieve an 80 percent reduction. A reduction of 80 percent in DPM would reduce cancer risk from I-80 at the closest of the two apartment buildings (the most sensitive receptor location) from 12.9 to 3.1 in a million, well below the single-source threshold of 10 in a million.

Mitigation Measure AIR-2: At the two apartment buildings that are partially within the area with 10 per million or greater cancer risk, the developer shall locate the air intakes as far outside the area with 10 per million or greater risk from I-80 as possible.

Level of Significance After Mitigation: AIR-3 would be less than significant.

AIR-4	The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.
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The type of facilities that are considered to have objectionable odors include wastewater treatment plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., autobody shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food manufacturing facilities. The proposed project does not include any of these uses.

Construction activities could also generate odors from construction equipment, such as diesel exhaust, and from VOCs from architectural coatings and paving activities. However, these odors would be temporary and confined to the immediate vicinity of the construction equipment. They are not expected to affect a substantial number of people. Therefore, impacts related to objectionable operational and construction-related odors would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AIR-4 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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4.6.4 CUMULATIVE IMPACTS

AIR-5	The proposed project would not result in cumulative impacts to air quality.
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Because the proposed project does not exceed the single-source significant thresholds, it would not be considered cumulatively significant. Additionally, the air district has not adopted a cumulative single-source threshold of significance and does not require a cumulative source analysis unless the single-source thresholds are exceeded. The air district's thresholds do not cover TACs from mobile sources.

Since the single-source threshold is exceeded at limited on-site receptor locations, and because the air district does not provide cumulative impact thresholds, the Bay Area Air Quality Management District's (BAAQMD) cumulative source thresholds for cancer risk and health index, which is a cumulative cancer risk threshold of 100 per million, are referenced. The highest cumulative cancer risk would range from 16.9 at the planned apartment building located at the north end of the project site along Leisure Town Road to 16.0 in one million at the apartment building planned nearest I-80. The cumulative risk at each location is the sum of the single-source risk. The BAAQMD cumulative cancer risk threshold of 100 per million would not be exceeded. Further the calculated cumulative hazard index of about 0.211 would not exceed the cumulative BAAQMD hazard index threshold of 10.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: AIR-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.6.5 REFERENCES

EMC Planning Group (EMC Planning). 2021, October 28. Air Quality/Energy/Greenhouse Gas Report. Appendix 4.6-1.

4.7 BIOLOGICAL RESOURCES

This chapter describes the regulatory framework and existing conditions on the project site related to biological resources and evaluates the potential impacts on biological resources associated with development of the proposed project.

The analysis in this section is based in part on the following technical reports:

- *Biological Assessment Greentree Development Project*, Moore Biological Consultants, June 2021. A complete copy of this report is included as Appendix 4.7-1 of this Draft EIR.
- *Arborist's Report*, Davey Resource Group, July 2021. A complete copy of this report is included as Appendix 4.7-2 of this Draft EIR.

4.7.1 ENVIRONMENTAL SETTING

4.7.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, state, and local regulations and programs related to biological resources for the proposed project.

Federal Regulations

Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, protects and conserves any species of plant or animal that is listed as endangered or threatened with extinction, as well as the designated critical habitats where these species are found. "Take" of endangered species is prohibited under Section 9 of the FESA. "Take" means to "harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Section 7 of the FESA requires federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) on proposed federal actions that may affect any endangered, threatened, or proposed (for listing) species or critical habitat that may support the species. Section 4(a) of the FESA requires that critical habitat be designated by the USFWS "to the maximum extent prudent and determinable, at the time a species is determined to be endangered or threatened." This provides guidance for planners/managers and biologists by indicating locations of suitable habitat and where preservation of a particular species has high priority. Section 10 of the FESA provides the regulatory mechanism for incidental take of a listed species by private interests and nonfederal government agencies during lawful activities. Habitat conservation plans (HCPs) for the impacted species must be developed in support of incidental take permits to minimize impacts to the species and formulate viable mitigation measures.

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Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) affirms and implements the United States' commitment to four international conventions—with Canada, Japan, Mexico, and Russia—to protect shared migratory bird resources. The MBTA governs the take, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. It prohibits the take, possession, import, export, transport, sale, purchase, barter, or offering of these items, except under a valid permit or as permitted in the implementing regulations. USFWS administers permits to take migratory birds in accordance with the MBTA.

Clean Water Act, Section 404

The United States Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into "waters of the United States." Waters of the United States," as applied to the jurisdictional limits of the USACE under the Clean Water Act. The terminology used by Section 404 of the Clean Water Act includes "navigable waters," which is defined at Section 502(7) of the act as "waters of the United States, including the territorial seas. Any filling or dredging within waters of the United States requires a permit, which entails assessment of potential adverse impacts to USACE wetlands and jurisdictional waters and any mitigation measures that the USACE requires. Section 7 consultation with USFWS may be required for impacts to a federally listed species. If cultural resources may be present, Section 106 review may also be required. When a Section 404 permit is required, a Section 401 Water Quality Certification is also required from the Regional Water Quality Control Board (RWQCB).

Clean Water Act, Section 401 and 402

Section 401(a)(1) of the Clean Water Act (CWA) specifies that any applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters shall provide the federal permitting agency with a certification, issued by the state in which the discharge originates, that any such discharge will comply with the applicable provisions of the CWA. As stated in Water Code section 13160 (b)(1), the applicable RWQCB must certify that the project will comply with applicable federal requirements or any other appropriate requirements of state law. Permits requiring Section 401 certification include USACE Section 404 permits and National Pollutant Discharge Elimination System (NPDES) permits issued by the Environmental Protection Agency (EPA) under Section 402 of the CWA. NPDES permits are issued by the applicable RWQCB. The City of Vacaville is in the jurisdiction of the Central Valley RWQCB (Region 5).

State Regulations

California Fish and Game Code

Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires that a Notification of Lake or Streambed Alteration be submitted to CDFW for any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake. The CDFW reviews the

4.7 BIOLOGICAL RESOURCES

proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by CDFW and the applicant is the SAA. Often, projects that require an SAA also require a permit from the USACE under Section 404 of the CWA. In these instances, the conditions of the Section 404 permit and the SAA may overlap.

Migratory Birds

The CDFW enforces the protection of nongame native birds in §§ 3503, 3503.5, and 3800 of the California Fish and Game Code. Section 3513 of the California Fish and Game Code prohibits the possession or take of birds listed under the MBTA. These sections mandate the protection of California nongame native birds' nests and make it unlawful to take these birds. All raptor species are protected from "take" pursuant to California Fish and Game Code § 3503.5 and are also protected at the federal level by the MBTA of 1918 (USFWS 1918).

California Endangered Species Act

The California Endangered Species Act (CESA) generally parallels the main provisions of the FESA and is administered by the CDFW. Its intent is to prohibit take and protect state-listed endangered and threatened species of fish, wildlife, and plants. Unlike its federal counterpart, CESA also applies the take prohibitions to species petitioned for listing (state candidates). Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species. Under certain conditions, CESA has provisions for take through a 2081 permit or memorandum of understanding (MOU). In addition, some sensitive mammals and birds are protected by the state as "fully protected species." California "species of special concern" are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's California Natural Diversity Database (CNDDDB), which maintains a record of known and recorded occurrences of sensitive species. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biological resources assessments.

Fully Protected Species

The state of California first began to designate species as "fully protected" prior to the creation of the federal and California Endangered Species Acts (ESAs). Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction, and included fish, amphibians, reptiles, birds, and mammals. Most fully protected species have been listed as threatened or endangered under federal and/or California ESAs. The regulations that implement the Fully Protected Species Statue (California Fish and Game Code § 4700) provide that fully protected species may not be taken or possessed at any time. Furthermore, CDFW prohibits any state agency from issuing incidental take permits for fully protected species, except for necessary scientific research.

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Native Plant Protection Act

The Native Plant Protection Act (NPPA) of 1977 (California Fish and Game Code §§ 1900-1913) was created with the intent to “preserve, protect and enhance rare and endangered plants in this State.” The NPPA is administered by CDFW. The Fish and Wildlife Commission has the authority to designate native plants as “endangered” or “rare” and to protect endangered and rare plants from take. The California ESA of 1984 (California Fish and Game Code § 2050-2116) provides further protection for rare and endangered plant species, but the NPPA remains part of the California Fish and Game Code.

Local Regulations

City of Vacaville General Plan

The General Plan provides the following policies that pertain to the protection and enhancement of habitats for sensitive species and natural communities:

- **Policy COS-P1.1:** Support the Solano County Water Agency and federal and State agencies’ efforts to prepare and implement the Solano Habitat Conservation Plan (HCP).
- **Policy COS-P1.2:** Manage natural open space lands, where feasible, in a manner consistent with wildlife protection.
- **Policy COS-P1.3:** Protection the existing wildlife movement corridors within he designated Vacaville-Fairfield Greenbelt area and create new wildlife corridors, including creek corridors and utility easements, where feasible, to enable free movement of animals to minimize wildlife-urban conflicts, and to establish open linkages.
- **Policy COS-P1.4:** Continue to protect mature trees and existing native non-agricultural trees.
- **Policy COS-P1.5:** Require new development proposals to provide baseline assessments prepared by qualified biologists. The assessment shall contain sufficient detail to characterize the resources on, and adjacent to, the development site. The assessment shall also identify the presence of important and sensitive resources, such as wetlands, riparian habitats, and rare, threatened, or endangered species affected by the development.
- **Policy COS-1.6:** Require that new development minimize the disturbance of natural habitats and vegetation. Require revegetation of disturbed natural habitat areas with native or non-invasive naturalized species.
- **Policy COS-1.7:** Encourage new development to incorporate native vegetation into landscape plans.
- **Policy COS-1.8:** Prohibit the use of invasive, non-native species, as identified by State or County Department of Agriculture or other authoritative sources, in landscaping on public property or in common areas in private developments.

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- **Policy COS-P1.9:** Require that new development include provisions to protect and preserve wetland habitats that meet one of the following conditions:
 - The wetlands contribute to the habitat quality and value of reserve/preserve lands established or expected to be established in perpetuity for conservation purposes.
 - The wetlands are contiguous to riparian or stream corridors, or other permanently protected lands.
 - The wetlands are located within or contiguous to other high value natural areas.
- **Policy COS-P1.10:** Where avoidance of wetlands is not practicable or does not contribute to long-term conservation of the resources, requires new development to provide for off-site mitigation that results in no net loss of wetland acreage and functional value within the watersheds draining to the Delta or Suisun Marsh.
- **Policy COS-P1.11:** Require that, as appropriate, new policy plans or specific plans contain a resource management component and associated funding mechanisms that includes policies to protect preserved natural communities.
- **Policy COS-P1.12:** Until the Solano Habitat Conservation Plan (HCP) is adopted, comply with all of the Avoidance, Minimization, and Mitigation Measures listed in the Draft Solano HCP (see Appendix A for a list of the Avoidance and Minimization Measures that are applicable to Vacaville). In addition, require that development projects provide copies of required permits, or verifiable statements that permits are not required, from the California Department of Fish and Wildlife (2081 Individual Take Permit) and US Fish and Wildlife Service (Section 7 Take Authorization) prior to receiving grading permits or other approvals that would permit land disturbing activities and conversion of habitats or impacts to protected species. In cases where environmental review indicates that such permits may not be required, the Community Development Director may establish time limits of not less than 45 days from the submission of an adequate request for concurrence response from an agency. If the agency has not responded, or requested a time extension of no more than 90 days to complete their assessment, within the established time frame, applicable grading permits or other authorizations may be provided, subject to other City requirements and review. However, the City's issuance of grading permits or other authorizations does not absolve the applicant's obligations to comply with all other State and federal laws and regulations.
- **Policy COS-P1.13:** Require that new development avoid the loss of special-status bat species as feasible.
- **Policy COS-P2.1:** Discourage undergrounding of creeks and encourage daylighting of existing culverted creeks.
- **Policy COS-P2.2:** Protect existing stream channels and riparian vegetation by requiring buffering or landscaped setbacks and storm runoff interception.

4.7 BIOLOGICAL RESOURCES

- **Policy COS-P2.3:** Require creekway and riparian area protection during construction, such as providing adequate setbacks from the creek bank and riparian areas, and creekway and riparian area and restoration after construction.
- **Policy COS-P2.4:** Implement the City's Creekways Policy in all new development approvals to balance recreation and conservation within creekway areas. Integrate creeks with trails and other recreational open space, and encourage public access along creek corridors where compatible with protection of the creek's natural resources and flood control functions.
- **Policy COS-P2.5:** Encourage restoration and expansion of riparian and floodplain habitat within channelized streams and flood channels where feasible, such as old Alamo Creek and old Ulatis Creek channels east of Leisure Town Road.
- **Policy COS-P2.6:** Promote invasive species control programs to reduce potential for infestations to occur and incorporate control programs as part of on-going operational and maintenance activities along creek corridors.
- **Policy COS-P2.7:** Require creek areas in new developments to be visible from the public right-of-way to ensure safety, maintenance, access, and integration into the neighborhood.

4.7.1.2 EXISTING CONDITIONS

The project site consists of disked grassland and scattered trees, many of which are in decline due to the cessation of irrigation since the Green Tree Golf Course was closed in 2016. There is a network of golf course ponds and ditches in the study area, as well as a few buildings, paved and gravel areas, fences to stop errant golf balls, and a network of golf course paths. Old Ulatis Creek spans the southern boundary of the project site and Horse Creek is located just north of the project site.

Soils

There are four different types of soil on the project site: Capay silty clay loam, 0 percent slopes, MLRA 17 (Map Unit Ca), Capay clay, 0 percent slopes, MLRA 17 (Map Unit Cc), Yolo loam, 0 to 4 percent slopes, MLRA 17 (Map Unit Yo), and Yolo loam, clay substratum (Map Unit Yr). All the soil types on the project site are considered well drained or moderately well drained.

Vegetation and Habitat Types

The project site is comprised of a mosaic of grassland areas, patches of trees, previously developed areas, and aquatic habitats. Except for two remnant sections of the Old Ulatis Creek channel along part of the south edge of the project site, all the habitats on the project site have been disturbed by historical agricultural uses, golf course construction and operation, surrounding development, and periodic disking and/or mowing for weed abatement.

4.7 BIOLOGICAL RESOURCES

Ruderal Grassland

The upland grasslands on the project site are disturbed and weedy, comprised of primarily non-native species, and best described as “ruderal grassland” vegetation. The project site contains approximately 153.34 acres of ruderal grassland vegetation. Wild oats (*Avena* sp.), hare barley (*Hordeum murinum subsp. leporinum*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*) are dominant grass species. Other grassland species such as black mustard (*Brassica nigra*), bristly ox-tongue (*Helminthotheca echioides*), prickly lettuce (*Lactuca serriola*), yellow starthistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus*), broad-leaf filaree (*Erodium botrys*), rose clover (*Trifolium hirtum*), bindweed (*Convolvulus arvensis*), and vetch (*Vicia villosa*) are intermixed with the grasses. A list of plant species observed on the project site is included in Appendix D of Appendix 4.7-1 to this Draft EIR.

Urban Woodland

The project site contains approximately 10.96 acres of clusters of primarily non-native and landscape trees and shrubs that are best described as “urban woodland” vegetation. The largest patch of urban woodland is located on the south edge of the project site, along the historical alignment of Old Ulaltis Creek. The urban woodland vegetation includes red and blue gum trees (*Eucalyptus* sp.), ornamental pines (*Pinus* sp.), white poplar (*Populus alba*), Fremont cottonwood (*Populus fremontii*), white mulberry (*Morus alba*), ash (*Fraxinus* sp.), valley oak (*Quercus lobata*), a variety of willows (*Salix* spp.), and other species of trees and shrubs. There are also 16 blue elderberry shrubs in the understory of the urban woodland vegetation along the south edge of the project site. The urban woodland habitat overlaps constructed perennial pond habitat by approximately 1.34 acres.

Urban

The project site contains approximately 17.21 acres of previously developed areas which include buildings, paved and gravel areas, and areas of rock.

Seasonal Wetland

The project site contains approximately 0.11 acres of highly disturbed seasonal wetlands. The seasonal wetlands are vegetated with hydrophytic species such as Mediterranean barley (*Hordeum marinum*), spinyfruit buttercup (*Ranunculus muricatus*), Baltic rush (*Juncus balticus*), stalked popcorn flower (*Plagiobothrys stipatus*), and dense flower willowherb (*Epilobium densiflorum*).

Constructed Seasonal Ponds

The project site contains approximately 4.51 acres of constructed ponds that are dry much of the year. Dominant vegetation in these ponds includes Mediterranean barley, curly dock (*Rumex crispus*), swamp prickle grass (*Crypsis schoenoides*), stalked popcorn flower, annual rabbit’s-foot grass (*Polypogon monspeliensis*), and perennial ryegrass (*Festuca perennis*). Only a few trees or shrubs surround these ponds.

4.7 BIOLOGICAL RESOURCES

Constructed Perennial Pond

The project site contains approximately 2.96 acres of constructed ponds that hold at least some water throughout the year during most years. Dominant vegetation within these ponds includes tules (*Schoenoplectus acutus*), cattails (*Typha latifolia*), and umbrella sedge (*Cyperus eragrostis*). Some of these ponds on the project site contain no surrounding trees or shrubs, while a few are surrounded by a more developed riparian corridor, containing willows (*Salix sp.*), cottonwoods (*Populus sp.*), and other ornamental tree species.

Remnant Channel

The project site contains 0.38 acres of remnant channel. The beds of the remnant channels contain a mixture of upland and wetland vegetation such as curly dock, soft chess, perennial ryegrass, and Mediterranean barley.

Ditch

The project site contains approximately 1.24 acres of constructed ditches, most of which are dry much of the year. The ditches contain a mixture of upland and wetland vegetation such as curly dock, perennial ryegrass, cut leaf geranium (*Geranium dissectum*), Mediterranean barley, and fireweed (*Epilobium brachycarpum*).

Wildlife

A variety of bird species were observed on the project site, most of which are common species occurring in agricultural and urban areas. Mallard (*Anas platyrhynchos*), great egret (*Casmerodias alba*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, California gull (*Larus californicus*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), western kingbird (*Tyrannus verticalis*), California scrubjay (*Aphelocoma californica*), black phoebe (*Sayornis nigricans*), Brewer's blackbird (*Euphagus cyanocephalus*), and red-winged blackbird (*Agelaius phoeniceus*) are representative of the avian species observed on the project site. A list of wildlife species observed on the project site is included in Appendix D of Appendix 4.7-1 to the Draft EIR.

Several stick nests were observed in some of the trees on and near the project site. Swainson's hawk and white-tailed kite were confirmed to be nesting on the project site in 2021. Burrowing owls were also confirmed to be nesting on the project site in 2021.

A few mammals common to agricultural and urban areas have potential to occur on the project site. Coyote (*Canis latrans*), black-tailed hare (*Lepus californicus*), California ground squirrels (*Spermophilus beecheyi*), and western gray squirrel (*Sciurus griseus*) were observed on the project site. Signs of raccoons (*Procyon lotor*) and Botta's pocket gopher (*Thomomys bottae*) were also observed.

Western fence lizard (*Sceloporus occidentalis*) was the only reptile observed on the project site, and Pacific chorus frog (*Pseudacris regilla*) was the only amphibian observed. Western pond turtle (*Emys marmorata*) was observed in Horse Creek, just north of the project site, but is not expected to occur on the project site.

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Aquatic Resources

A total of 9.20 acres of aquatic habitats were delineated within the project site. This total includes 0.11 acre of seasonal wetlands, 7.47 acres of constructed ponds, 1.24 acres of constructed ditches, and 0.38 acres of channels. The remainder of the project site is vegetated in ruderal upland grassland vegetation, with soils that appear well drained.

Seasonal Wetlands

There are six seasonal wetlands encompassing 0.11 acres on the project site. The seasonal wetlands are slightly low areas in formerly leveled fields in the north part of the project site, north of the former golf course. These wetlands are very small, shallow, and highly disturbed. Most of the seasonal wetlands appear to pond water only to depths of approximately two-inches during most years.

The seasonal wetlands are situated in the leveled fields and are surrounded by upland grassland. The seasonal wetlands are spatially and hydrologically isolated from perennial and intermittent streams. The seasonal wetlands on the project site do not meet the technical and regulatory criteria of Waters of the U.S. or wetlands under the jurisdiction of the USACE.

Constructed Ponds and Ditches

There are a total of 13 constructed ponds on the project site encompassing 7.47 acres. The ponds and ditches are associated with the former golf course, and originally built to accommodate the City of Vacaville's storm drainage system from the adjoining Leisure Town development to the west. There are also 10 ditches on the project site encompassing 1.24 acres.

The majority of the constructed ponds and ditches have been incorporated into the City of Vacaville's storm drain system, conveying storm water and nuisance landscape irrigation water from the developed areas west of the project site through the project site and into the Ulatis Creek and Old Ulatis Creek. The ponds are maintained to ensure the detention and conveyance functions of the City of Vacaville's storm drain system. The characteristics of the ponds vary, with some of the ponds being completely dry during the Spring 2021 surveys and a few still containing water. The constructed ponds that hold at least some water throughout the year during most years are best described as "Perennial Ponds" and 2.96 acres of the ponds on the project site fall into this classification. These ponds contain storm drain runoff from the developed areas west of the project site during the winter and stay wet through most or all of the summer and fall during most years due to nuisance landscape irrigation water from the adjacent developed areas.

The constructed ponds that are dry through the summer and fall during most years are best described as "Seasonal Ponds" and 4.51 acres of the ponds on the project site fall in this classification. The majority of ditches are also dry much of the year and all were dry during the Spring 2021 surveys.

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Remnant Channel

The project site area contains approximately 0.38 acres of Old Ulatis Creek that is best described as “Remnant Channel.” Ulatis Creek historically flowed along the south edge of the project site, but the creek was realigned and channelized to the south of the project site many decades ago. The most downstream historical creek channel (approximately 1,600 square feet of historical creek, i.e., “Old Ulatis Creek”) is still present, with the project site boundary being the approximate centerline of the channel. Approximately 1,000 feet of historic channel to the west has been filled and no evidence of the creek remains. There is a second section of the Old Ulatis Creek channel in the southwest corner of the project site, which receives water from the developed areas west of the project site after passing through one of the perennial ponds and conveying this water to Ulatis Creek, where it is discharged through an existing storm drain outfall. The segments of channel on the project site are described as “Remnant Channel” because they no longer function as flowing streams draining watersheds and are vegetated with a large number nonnative and ornamental trees and shrubs. The approximately 250-foot section of channel in the southwest corner of the project site primarily receives nuisance water from a pipe at the north tip of the channel, plus a limited amount of water from direct precipitation in a very small (approximately 1 acre watershed). When water is present, it flows north to south, in the opposite direction of its historical flow. The longer section of channel in the southeast part of the study area also receives little water from direct precipitation because it is a narrow channel situated in level ground. When water is present in the channel, it is derived from the network of ponds and ditches on the project site, including substantial volumes of water from the developed areas west of the project site. As the pond in the southeast corner of the project site fills, water flows discharge to the remnant channel through the existing storm drain outfall and backs up the remnant channel, flowing east to west in the opposite direction of its historical flow. As the water level in the pond recedes, the water drains, flowing west to east. This eastern section of remnant channel temporarily detains storm water, functioning in a similar manner as the network of ponds and ditches on the project site.

To the east of the project site, Old Ulatis Creek is a tributary to Ulatis Creek. The remnant channel in the southwest tip of the project site is also tributary to Ulatis Creek. Ordinary high-water marks are apparent along the banks of both features; the banks of the channels also support trees and shrubs. The sections of wetlands because they have water regimes that may be described as “intermittent” and are tributary to Ulatis Creek.

Off-Site Creeks

Horse Creek and Ulatis Creek, which are just north and south of the study area, respectively, are believed to be Waters of the U.S due to direct year-round hydrological connection to the Sacramento-San Joaquin Delta. Horse Creek and Ulatis Creek have been re-aligned and channelized with steep banks.

4.7 BIOLOGICAL RESOURCES

4.7.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant biological resources impacts if it would:

1. 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 plan, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
3. 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.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

4.7.3 IMPACT DISCUSSION

BIO-1	The project would 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 plan, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
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Special-Status Species

The likelihood of occurrence of listed, candidate, and other special-status plant and wildlife species on the project site is generally low. Table 4.7-1, *Special-Status Plant and Wildlife Species Documented or Potentially-Occurring in the Project Vicinity*, provides a summary of the listing status and habitat requirements of special-status species that have been documented in the greater project vicinity or for which there is potentially suitable habitat in the greater project vicinity. Table 4.7-1 also includes an assessment of the likelihood of occurrence of each of these species on the project site.

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Special-Status Plants

There are 21 species of special-status plants that have been identified in the California Natural Diversity Database (CNDDDB) search as shown in Table 4.7-1. Special-status plants generally occur in relatively undisturbed areas in vegetation communities such as vernal pools, marshes and swamps, chenopod scrub, seasonal wetlands, riparian scrub, and areas with unusual soils. In contrast, the ruderal grasslands on the project site have been disturbed by historical uses and periodic disking and/or mowing for weed abatement.

Focused special-status plant surveys were conducted on March 30 and 31, and April 16, 2021. Based on the results of the database searches, the disturbed condition of the habitat within the project site, and the results of the field surveys, pappose tarplant, dwarf downingia, Carquinez goldenbush, and legenera, bearded popcornflower, were the only species identified as having at least some potential, although unlikely, to occur within the project site. No high quality or even moderately suitable habitat for special-status plants were observed on the project site. Due to intensive disturbance and associated lack of habitat, it is unlikely any special-status plants occur on the project site.

Mass grading the project site would involve removal of vegetation throughout most of the project site. The ruderal grassland, ponds, ditches, and seasonal wetlands could potentially support special-status plants. However, all of the habitats on the project site are highly disturbed and special-status plants were not detected. Therefore, impacts would be less than significant.

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TABLE 4.7-1 SPECIAL-STATUS PLANT AND WILDLIFE SPECIES DOCUMENTED OR POTENTIALLY-OCCURRING IN THE PROJECT VICINITY

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
PLANTS					
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	None	None	1B	Alkali playas and vernal pools; elevations 3-197 feet; blooms March - June	Very Unlikely: there are no playas or vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for alkali milk vetch. The nearest occurrence of alkali milk vetch in the CNDDDB search is approximately 3.5 miles south of the project site.
Heartscale <i>Artiplex cordulata</i> var. <i>cordulata</i>	None	None	1B	Chenopod scrub, meadows and seeps, valley and foothill grasslands with sandy soils; elevations 0-1,800 feet; blooms April – October	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for heartscale. The nearest occurrence of this species in the CNDDDB search area is approximately 3 miles southwest of the project site.
Brittlescale <i>Atriplex depressa</i>	None	None	1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pool habitats within alkaline clay soils; elevations 3-1,050 feet; blooms April-October	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species; there are no playas or vernal pools on the project site. The nearest occurrence of brittlescale in the CNDDDB search area is approximately 6 miles southwest of the project site.
Pappose tarplant <i>Centromadia parryi</i> spp. <i>parryi</i>	None	None	1B	Coastal prairie and salt marsh, meadows and seeps, vernal mesic areas in valley and foothill grassland; often alkaline soils; elevations 0-1,380 feet; blooms May-November	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools on the project site. The nearest occurrence of this species in the CNDDDB search area is approximately 5 miles southwest of the project site.
Hispid salty bird's-beak <i>Chloropyron mole</i> spp. <i>hispidum</i>	None	None	1B	Meadows and seeps, playas, valley and foothill grassland, always in alkaline soils; elevations 3 - 510 feet; blooms June - September.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species; there are no meadows or playas on the project site. The nearest occurrence of hispid salty bird's-beak in the CNDDDB search area is approximately 8.5 miles southeast of the project site.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Recurved larkspur <i>Delphinium recurvatum</i>	None	None	1B	Valley and foothill grassland, chenopod scrub, cismontane woodland; in alkaline soils; elevations 10-2,600 feet; blooms March-June.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for recurved larkspur. The nearest occurrence of this species in the CNDDB search area is approximately 2.5 miles west of the project site.
Dwarf downingia <i>Downingia pusilla</i>	None	None	2	Vernal pools; elevations 3-1,460 feet; blooms March-May	Very Unlikely: there are no vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for this species. The nearest occurrence of dwarf downingia in the CNDDB search area is approximately 1 mile northwest of the project site.
San Joaquin Spearscale <i>Extriplex joaquinana</i>	None	None	1B	Chenopod scrub, alkali meadow, valley, and foothill grassland; elevations 3-2,740 feet; blooms April-October.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of San Joaquin spearscale in the CNDDB search area is approximately 3 miles southwest of the project site.
Adobe-lily <i>Frittilaria pluriflora</i>	None	None	1B	Chaparral, cismontane woodland, valley and footgill grassland; elevations 195-2,315 feet; blooms February-April.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for adobe-lily and the project site is below the elevation range of this species. The nearest occurrence of adobe lily in the CNDDB search area is approximately 2 miles west of the project site.
Carquinez goldenbush <i>Isocoma arguta</i>	None	None	1B	Valley and foothill grassland, in alkaline soils; elevations 3-64 feet; blooms August-December	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for Carquinez goldenbush. The nearest occurrence of this species in the CNDDB search area is approximately 6.5 miles southeast of the project site.
Contra Costa goldfields <i>Lasthenia conjugens</i>	E	None	1B	Valley and foothill grassland within vernal pools and swales; elevations 0-1,500 feet; blooms March-June.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for Contra Costa goldfields. There are also no vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for this species. The nearest occurrence of Contra Costa goldfields in the CNDDB is approximately 3 miles southwest of the project site. The project site is not in designated critical habitat of this species.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Coulter's goldfields <i>Lasthenia glabrata ssp. coulteri</i>	None	None	1B	Vernal pools in valley and foothill grassland habitats; usually found on alkaline soils, elevations 3-4,000 feet; blooms February-June.	Very Unlikely: there are no vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for this species. The nearest occurrence of Coulter's goldfields in the CNDDDB search area is approximately 6 miles southeast of the project site.
Legenere <i>Legenere limosa</i>	None	None	1B	Vernal pools within the Central Valley; elevations 3-2,890 feet; blooms April – June	Very Unlikely: there are no vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for legenere. The nearest occurrence of this species in the CNDDDB search area is approximately 2 miles southeast of the project site.
Baker's navarretia <i>Navarretia leucocephala ssp. bakeri</i>	None	None	1B	Vernal pools and swales within a variety of vegetation communities; elevations 10-5,710 feet; blooms April-July	Very Unlikely: there are no vernal pools or swales within the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for this species. The nearest occurrence of Baker's navarretia in the CNDDDB search area is approximately 1 mile north of the project site.
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	T	E	1B	Vernal pools; elevations 33-3,480 feet; blooms April-July.	Very Unlikely: there are no vernal pools on the project site and the marginal seasonal wetlands on the project site do not provide suitable habitat for San Joaquin Valley Orcutt grass. The nearest occurrence of recorded in the CNDDDB search area is approximately 7.5 miles southeast of the project site. The project site is not designated critical habitat for San Joaquin Valley Orcutt grass.
Bearded popcornflower <i>Plagiobothrys</i>	None	None	1B	Vernal pools, valley and foothill grassland; elevations 0-899 feet; blooms April-May.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species. The nearest occurrence of this species in the CNDDDB search area is approximately 2 miles northwest of the project site.
California alkali grass <i>Puccinellia simplex</i>	None	None	1B	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pool habitats; in alkaline, vernal mesic sinks, flats, and lake margins.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for this species; there are no vernal pools on the project site and the marginal seasonal wetlands do not provide suitable habitat for this species. The nearest occurrence of California alkali grass in the CNDDDB search area is approximately 8.5 miles southeast of the project site.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Keck's checkerbloom <i>Sidalcea keckii</i>	E	None	1B	Cismontane woodland, valley and foothill grassland, usually serpentine or clay soils; elevations 246-2,132 feet; blooms April-June.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for Keck's checkerbloom. The project site is also below elevation range of this species. The nearest occurrence of this species in the CNDDDB search area is approximately 3.5 miles northwest of the project site.
Suisun Marsh aster <i>Symphotrichum lentum</i>	None	None	1B	Freshwater and brackish marshes and swamps, usually along the edges of delta islands; elevations 0-10 feet; blooms May-November.	Very Unlikely: the project site does not contain suitable habitat for Suisun marsh aster, which is almost entirely restricted to tidal or brackish marshes. The project site is also above the elevation range of this species. The nearest occurrence of this species in the CNDDDB search area is approximately 6 miles southwest of the project site.
Two-fork clover <i>Trifolium amoenum</i>	E	None	1B	Valley and foothill grassland and coastal bluff scrub, sometimes on serpentine soils; elevations 15-1,360 feet; blooms April-June.	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for two-fork clover. The nearest occurrence of two-fork clover in the CNDDDB search area is approximately 2 miles southeast of the project area.
Saline clover <i>Trifolium hydrophilum</i>	None	None	1B	Marshes and swamps, mesic areas in valley and foothill grassland, vernal pools; elevations 0-960 feet; blooms April-June	Very Unlikely: the grasslands on the project site are highly disturbed and do not provide suitable habitat for two-fork clover. The nearest occurrence of two-fork clover in the CNDDDB search area is approximately 5 miles southwest of the project site.
WILDLIFE					
Birds					
Swainson's hawk <i>Buteo swainsoni</i>	None	T	N/A	Nests in large trees, usually within riparian corridors. Forages in agricultural fields and annual grasslands.	Present: there are several large trees on the project site that may be used by nesting Swainson's hawks and the grasslands on the project site provide suitable foraging habitat for this species. A pair of Swainson's hawks were observed in 2021 to be nesting in a eucalyptus tree just northwest of the intersection of Sequoia Drive and Leisure Town Road. There are several records of nesting Swainson's hawks in the CNDDDB within 1 to 2 miles of the project site; the nearest occurrence is a nest along Old Ulatis Creek approximately 500 feet east of the project site that was active from 2000 to 2004.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Tricolored blackbird <i>Agelaius tricolor</i>	None	T	N/A	Open water and protected nesting substrate, usually cattails and riparian scrub.	Unlikely: the few relatively small patches of willows and emergent vegetation on the project site could support nesting tricolored blackbirds and the grasslands on the project site provide potentially suitable foraging habitat. However, this species prefers to nest in expansive patches of emergent wetland vegetation and/or blackberry brambles in close proximity to open water. The nearest occurrence of tricolored blackbirds in the CNDDDB search area is approximately 3.5 miles south of the project site.
California clapper rail <i>Rallus longirostris obsoletus</i>	E	E	N/A	Saltwater and brackish marshes traversed by tidal sloughs in the San Francisco Bay; associated with pickleweed.	Very Unlikely: there is no suitable marsh habitat on the project site to support California clapper rail. There are no occurrences of this species in the CNDDDB search area.
White-tailed kite <i>Elanus leucurus</i>	None	FP	N/A	Herbaceous lowlands with variable tree growth and dense population of voles.	Present: there are several large trees on the project site that may be used by nesting white-tailed kite and the grasslands provide suitable foraging habitat. A pair of white-tailed kites attempted to nest in 2021 in a large ornamental conifer just north of the intersection of White Sands Drive and Bighorn Court. The nearest occurrence of white-tailed kite in the CNDDDB search area is approximately 1 mile northeast of the project site.
Grasshopper sparrow <i>Ammodramus savannum</i>	None	SC	N/A	Dense grasslands, lowland plains, and lower mountain slopes; prefers native grasses with scattered shrubs	Very Unlikely: the project site provides poor quality habitat for grasshopper sparrow. The nearest occurrence of the species in the CNDDDB search area is approximately 5 miles southeast of the project site.
Burrowing owl <i>Athene cunicularia</i>	None	SC	N/A	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Present: a total of 9 adult and juvenile burrowing owls were observed on the project site during Fall 2020. Two pairs were observed to be nesting in the north part of the project site in June 2021, within the ruderal grassland area north of the former golf course. The former golf course provided poor quality habitat for burrowing owl when it was irrigated and landscaped. Due to intensive disking for weed abatement, this area currently provides poor quality habitat for burrowing owls. There are several records of burrowing owls mapped in the CNDDDB search area, including two pair documented nesting in the north part of the project site in 2005.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Mammals					
American badger <i>Taxidea taxus</i>	None	SC	N/A	Drier open stages of most shrub, forest, and herbaceous habitats with friable soils.	Very Unlikely: the grasslands on the project site provide low quality habitat for this species; no American badger dens were observed during field surveys. The nearest occurrence of this species in the CNDDB search area is approximately 1.5 miles west of the project site.
Reptiles and Amphibians					
Giant garter snake <i>Thamnophis gigas</i>	T	T	N/A	Freshwater marsh and low gradient streams; adapted to drainage canals and irrigation ditches, primarily for dispersal or migration.	Very Unlikely: there is no suitable habitat on the project site for giant garter snake and this species is not known to occur in the area. There are no occurrences of this species recorded in the CNDDB search area.
California tiger salamander <i>Ambystoma californiense</i>	T	T	N/A	Seasonal water bodies without fish (i.e., vernal pools and stock ponds) and grassland/woodland habitats with summer refugia (i.e., burrows).	Very Unlikely: there is no potentially suitable breeding habitat in or near the project site for California tiger salamander and this species is not known to occur in the area. The closest occurrence of this species in the CNDDB search area is approximately 7.5 miles southeast of the project site. The project site is not designated critical habitat for this species.
California red-legged frog <i>Rana draytonii</i>	T	SC	N/A	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Very Unlikely: the project site does not contain suitable habitat for this species, which is also not known to occur in the area. There are no occurrences of California red-legged recorded in the CNDDB search area. The project site is not in designated critical habitat for this species.
Foothill yellow-legged frog <i>Rana boylei</i>	None	SC	N/A	Perennial water bodies (i.e., streams and ponds) with abundant riparian vegetation; not found on Central Valley floor.	Very Unlikely: there is no suitable aquatic habitat for foothill yellow-legged frog on the project site. The nearest occurrence of this species in the CNDDB search area is approximately 2.5 miles southwest of the project site.
Western pond turtle <i>Emys marmorata</i>	None	SC	N/A	Ponds, marshes, streams, and ditches with emergent aquatic vegetation and basking areas	Unlikely: Horse Creek and Ulatis Creek, just north and south of the project site, respectively, provide potentially suitable habitat for western pond turtle. Old Ulatis Creek is shaded and dry much of the year and does not provide suitable habitat for this species. Most of the former golf course ponds are dry much of the year and do not provide suitable habitat for western pond turtle; the more perennial ponds lack suitable basking habitat for this species. Western pond turtle was observed in Horse Creek during 2020-2021 surveys, as well as numerous red-eared sliders. The nearest occurrence of this species in the CNDDB search area is a 2016 record mapped in Horse Creek just north of the project site.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Fish					
Delta Smelt <i>Hypomesus transpacificus</i>	T	T	N/A	Shallow lower delta waterways with submersed aquatic plants and other suitable refugia.	None: there is no suitable aquatic habitat on the project site to support delta smelt. There are no occurrences of delta smelt recorded in the CNDDDB within the search area. The project site is not with designated critical habitat for delta smelt.
Invertebrates					
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E	None	N/A	Vernal pools	Very Unlikely: the seasonal wetlands on the project site are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support Conservancy fairy shrimp. The nearest occurrence of this species in the CNDDDB search area is approximately 6.5 mile southeast of the project site. The project site is not in Conservancy fairy shrimp designated critical habitat.
Vernal pool dairy shrimp <i>Branchinecta lynchi</i>	T	None	N/A	Vernal pools	Very Unlikely: the seasonal wetlands on the project site are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support vernal pool fairy shrimp. The nearest occurrence of vernal pool fairy shrimp in the CNDDDB search area is approximately 0.5 miles northwest of the project site. The project site is not in designated critical habitat of this species.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E	None	N/A	Vernal pools and seasonally wet depressions within the Central Valley	Very Unlikely: the seasonal wetlands on the project site are very small, shallow, highly disturbed, and do not appear to pond water for long enough to support this species. The nearest occurrence of vernal pool tadpole shrimp in the CNDDDB search area is approximately 1.5 miles southwest of the project site. The project site is not designated critical habitat for this species.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	None	N/A	Elderberry shrubs in the Central Valley and surrounding foothills	Unlikely: there are blue elderberry shrubs along the southerly edge of the project site. No valley elderberry longhorn beetles or shrubs with evidence of beetle occupancy were observed during May 2021 surveys. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDDB (2021) search area. The study area is not in designated critical habitat for this species (USFWS 1980a).
Delta green ground beetle <i>Elaphrus viridis</i>	T	None	N/A	Margins of vernal pools in grasslands.	Very Unlikely: the seasonal wetlands on the project site are very small, shallow, highly disturbed and do not provide suitable for delta green ground beetle. The nearest occurrence of delta green ground beetle in the CNDDDB search area is approximately 6.5 miles southeast of the project site. The project site is not within designated critical habitat for this species.

4.7 BIOLOGICAL RESOURCES

Name	Federal Status ¹	State Status ¹	CNPS List ²	Habitat	Potential for Occurrence on Project Site
Western bumble bee <i>Bombus occidentalis</i>	None	CE	N/A	Meadows and grasslands with abundant floral	Very Unlikely: the project site does not provide suitable habitat for western bumble bee. The nearest occurrence of this species in the CNDDDB search area is approximately 3 miles southwest of the project site.

Source: Moore 2021 (Appendix 4.7-1)

Notes:

¹ T = Threatened, E = Endangered

² T = Threatened, E = Endangered; CE = Candidate for Endangered; FP = Fully Protected Species; SC = State of California Species of Special Concern.

³ CNPS (California Native Plant Society) List 1B includes species that are rare, threatened, or endangered in California and elsewhere; List 2 includes plants that are rare, threatened or endangered in California but are more common elsewhere.

4.7 BIOLOGICAL RESOURCES

Special-Status Wildlife

The potential for intensive use of the project site by special-status wildlife species is also low. There were 14 special-status wildlife species that were recorded in the greater project vicinity in the CNDDDB query: Swainson's hawk, tricolored blackbird (*Agelaius tricolor*), white-tailed kite (*Elanus leucurus*), burrowing owl, grasshopper sparrow (*Ammodramus savannum*), American badger (*Taxidea taxus*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylei*), western pond turtle (*Emys marmorata*), Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), Delta green ground beetle (*Elaphrus viridis*), and western bumble bee (*Bombus occidentalis*). Giant garter snake (*Thamnophis gigas*), California red-legged frog (*Rana draytonii*), delta smelt (*Hypomesus transpacificus*), and valley elderberry longhorn beetle are not recorded in the CNDDDB within the search area, but are on the USFWS IPaC Trust Report.

Agriculture and development in and adjacent to the project site have modified the natural habitats and associated potential to support special-status wildlife species. Of the wildlife species in Table 4.7-1, Swainson's hawk, burrowing owl, and white-tailed kite were observed on the project site. Although considered unlikely to occur, the blue elderberry shrubs on the project site provide suitable habitat for valley elderberry longhorn beetle and the perennial creeks just north and south of the project site provide suitable habitat for western pond turtle. Finally, the seasonal wetlands on the project site provide potentially suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp, although the occurrence of either species is very unlikely.

Swainson's hawk

The project site is within the nesting range of Swainson's hawks and there are several records of nesting Swainson's hawks in the CNDDDB within 1 to 2 miles of the project site; the nearest occurrence is a nest along Old Ulatis Creek approximately 500 feet east of the project site that was active from 2000 to 2004. Disked ruderal grassland, such as that on the project site, provides lower quality Swainson's hawk foraging habitat. There are several large trees on the project site that are potentially suitable for nesting Swainson's hawk. A pair of Swainson's hawks was observed to be nesting in May 2021 in a eucalyptus tree just northwest of the intersection of Sequoia Drive and Leisure Town Road.

The seasonal aquatic habitats are dry during most years during much of the time Swainson's hawks are present on the project site. When dry, these habitats are primarily vegetated with grasses and support small mammals. There is a total of approximately 158.92 acres of Swainson's hawk foraging habitat on the project site. The project would result in the conversion of up to 158.92 acres of Swainson's hawk foraging habitat to developed uses and the removal of a known Swainson's hawk nest tree. Additionally, construction equipment could also result in direct impacts (i.e., take) of Swainson's hawks through removal of trees containing active nests or indirect impacts through construction disturbance resulting in the abandonment of eggs or young. As such, impacts would be potentially significant. However, Mitigation Measure BIO-1 and Mitigation Measure BIO-2 would reduce impacts to less than significant.

4.7 BIOLOGICAL RESOURCES

Burrowing Owl

The Migratory Bird Treaty Act (MBTA) and Fish and Game Code of California provide protections for burrowing owls year-round, as well as their nests during the nesting season (February 1 to August 31). There are several records of burrowing owls mapped in the CNDDDB search area, including two pairs documented nesting in the north portion of the project site in 2005. Despite high levels of disturbance, the ruderal grasslands on the project site provide suitable foraging habitat for burrowing owl and ground squirrel burrows on the project site are suitable for nesting.

The approximately 15 acres of ruderal grassland on the project site to the north of the former golf course provides suitable habitat for burrowing owls. Two pairs of burrowing owls used this area for nesting during 2021. One pair of burrowing owls utilizes a burrow just south of Gilley Way and the second pair utilized a burrow about 5 feet from the edge of Orange Drive.

During the surveys completed in the fall of 2020 (after the nesting season), as many as nine adult and juvenile burrowing owls were observed in the ruderal grassland on the project site to the north of the former golf course. During the fall, a few of the owls were notably smaller, and are believed to have been young from the 2020 nesting season. Two of the larger owls presumed to be adults were banded.

There is a total of 158.92 acres of potential foraging habitat for burrowing owl on the project site. The project would result in the conversion of up to 158.92 acres of potential foraging habitat for burrowing owl to developed uses. Construction equipment could also result in direct impacts (i.e., take) of burrowing owls through destruction of occupied burrows or indirect impacts through abandonment of eggs or young. Therefore, impacts would be potentially significant. However, Mitigation Measure BIO-3 and Mitigation Measure BIO-4 would reduce impacts to less than significant.

White-Tailed Kite

White-tailed kite is a State of California Species of Concern, but is not a listed species at the state or federal level. The MBTA and Fish and Game Code protect white-tailed kite year-round, as well as their nests during nesting season; nesting for this species peaks from May to August. White-tailed kite may nest in large trees in the general project vicinity and may forage in habitats nearby. Nesting usually commences in the early-spring, concurrent with other resident Central Valley raptors, and most young fledge by early-July. The nearest occurrence of white-tailed kite in the CNDDDB search area is approximately 1 mile northeast of the project site.

Despite high levels disturbance and urban location, the ruderal grasslands on the project site provide suitable foraging habitat for white-tailed kite and there are several large trees on the project site that are potentially suitable for nesting. A pair of white-tailed kites attempted to nest in a large ornamental conifer just north of the intersection of White Sands Drive and Bighorn Court in 2021. There is a total of 158.92 acres of potential foraging habitat for white-tailed kite on the project site. The same habitats on the project site that are foraging for Swainson's hawk also provide potential foraging for white-tailed kite. Similarly, most of the large trees on the project site that are suitable for nesting Swainson's hawk are also suitable for nesting white-tailed kite. Impacts would be potentially significant. However, Mitigation Measure BIO-1 and Mitigation Measure BIO-5 would reduce impacts to less than significant.

4.7 BIOLOGICAL RESOURCES

Western Pond Turtle

The western pond turtle is a state species of concern, but is not a listed species at the state or federal level. Western pond turtles are associated with permanent or nearly permanent bodies of water with adequate basking sites such as logs, rocks, or open mid banks. Western pond turtles construct nests in sandy banks along slow-moving streams and ponds in the spring and the young usually hatch in 2 to 3 months. The nearest occurrence of this species in the CNDDDB search area is a 2016 occurrence mapped in Horse Creek just north of the project site.

Horse Creek and Ulatis Creek, which are just north and south of the project site, respectively, are perennial streams that provide suitable habitat for western pond turtle. Although considered unlikely to occur on the project site, grading and other construction activities could result in direct impacts to western pond turtle. Therefore, impacts would be potentially significant. However, Mitigation Measure BIO-6 would reduce impacts to less than significant.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is listed as a federally threatened species and its host plant is the blue elderberry shrub. There are no occurrences of valley elderberry longhorn beetle recorded in the CNDDDB search area and no evidence of the beetle was found in the recent surveys on the project site.

There are 16 blue elderberry shrubs in the understory of the urban woodland vegetation along the south edge of the project site. The driplines of all the blue elderberry shrubs are situated more than 20 feet from the proposed limits of disturbance in an area that will remain open space. No valley elderberry longhorn beetles or evidence of past occupancy by the species were observed in the stems of the shrubs.

Grading close to the blue elderberry shrubs could result in changes in drainage patterns or generation of dust, indirectly impacting valley elderberry longhorn beetles by a reduction in habitat suitability. The project is not expected to result in direct impacts to valley elderberry longhorn beetle because there is no evidence of this species being present on the project site and because the blue elderberry shrubs would be fully avoided and would remain in an undeveloped strip of Open Space along the south edge of the project site. Although valley elderberry longhorn beetles are very unlikely to be present, the removal or damage to an occupied blue elderberry shrub could result in the take of valley elderberry longhorn beetle. Therefore, impacts would be potentially significant. However, Mitigation Measure BIO-7 would reduce impacts to less than significant.

Vernal Pool Branchiopods

Conservancy fairy shrimp and vernal pool tadpole shrimp are listed as federally endangered species and vernal pool fairy shrimp is a federally threatened species. Although the seasonal wetlands on the project site are highly disturbed, they provide potentially suitable habitat for vernal pool fairy shrimp, Conservancy fairy shrimp, and vernal pool tadpole shrimp. Some of the golf course ponds and constructed ditches also provide marginal, yet potentially suitable habitat for these species. The nearest occurrence of vernal pool fairy shrimp and vernal pool tadpole shrimp in the CNDDDB search area are approximately 0.5 mile northwest of the project site and approximately 1.5 miles southwest of the project site, respectively.

4.7 BIOLOGICAL RESOURCES

The nearest occurrence of the Conservancy fairy shrimp in the CNDDDB search area is approximately 6.5 miles southeast of the project site.

No federally listed large branchiopods were detected within the samples collected from the basins or soils from basins (during dry season). The aquatic habitats onsite could potentially support vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp. However, these aquatic habitats provide poor quality habitat for federally listed large branchiopods and there is no evidence of these species being present on the project site. The potential for direct impacts to vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp resulting from the fill of the seasonal wetlands is a potentially significant impact. However, Mitigation Measure BIO-8 would reduce impacts to less than significant.

Roosting Bats

Despite a lack of records in the CNDDDB search area, trees within the project site provide potentially suitable roosting habitat for pallid bat (*Antrozous pallidus*), western red bat (*Lasiurus blossevillii*), both of which are CDFW Species of Special Concern. Common bats such as silver-haired bat (*Lasionycteris noctivagans*) and hoary bat (*Lasiurus cinereus*) may also use trees on the project site for roosting. Approximately 10 acres of land along the south edge of the project site including the remnant channels of Old Ulatis Creek that provide the highest quality habitat for roosting bats would be preserved in open space. The remainder of the project site would be converted to developed uses resulting in the removal of trees providing potential roosting habitat for bats. The removal of trees that could result in the destruction of an occupied bat roost is a potentially significant impact. However, Mitigation Measure BIO-9 would reduce impacts to less than significant.

American Badger

The American badger is considered a “Species of Special Concern by CDFW. Due to intensive disking, the grasslands on the project site provides low quality habitat for this species, which is also unlikely in such an urban setting. No American badger dens were observed on the project site. The nearest occurrence of this species in the CNDDDB search area is approximately 1.5 miles west of the project site. The proposed project would result in the conversion of most of the project site to developed uses. Construction equipment could result in direct impacts (i.e, take) of American badgers through destruction of occupied dens or indirect impacts through abandonment of young. Therefore, impacts would be potentially significant. However, Mitigation Measure BIO-10 would reduce impacts to less than significant.

Other Nesting Birds

The study area provides suitable nesting habitat for numerous birds protected by the Migratory Bird Treaty Act (MBTA) and Fish and Game Code of California (FGCC). The study area provides suitable foraging and nesting habitat for common birds such as mourning dove, northern mockingbird, scrubjay, and other songbirds. The trees, shrubs, and other vegetation in the study area also provide potential foraging and nesting habitat for a few special-status birds such as tricolored blackbird, northern harrier (*Circus cyaneus*), and loggerhead shrike (*Lanius ludovicianus*). A few species of birds such as geese, ducks, and killdeer may also nest on the ground in the study area.

4.7 BIOLOGICAL RESOURCES

With the exception of approximately 10 acres of open space along the south edge of the study area, the project will result in the conversion of the study area to developed uses and associated loss of potential foraging and nesting habitat of birds protected by the MBTA and GGCC. Therefore, the conversion of approximately 180 of potential foraging and nesting habitat of protected birds to developed uses would be potentially significant. However, Mitigation Measure BIO-11 would reduce impacts to less than significant.

Other Special-Status Species

The project site does not provide highly suitable habitat for any special-status plant or wildlife species. A few special-status birds may fly over the area on occasion, but would not be expected to nest in or adjacent to the project site. The small patches of willows and emergent vegetation on the project site could support nesting tricolored blackbirds. However, this species prefers to nest in expansive patches of emergent wetland vegetation and/or blackberry brambles close to open water. Potential impacts to other special-status species would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-1 would be potentially significant.

*Mitigation Measures***Mitigation Measure BIO-1**

- Prior to grading, the applicant shall mitigate for the loss of Swainson's hawk foraging habitat by preserving similar or better habitat at an off-site location at a 1:1 ratio, consistent with CDFW's 1994 Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as the Burke Ranch Conservation Bank or the Elsie Gridley Mitigation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The applicant shall prepare and submit a plan of the proposed off-site mitigation to the City for approval. If the project is constructed in phases, the compensatory mitigation for impacted Swainson's hawk foraging habitat within each phase shall be provided prior to grading that phase.

Mitigation Measure BIO-2

- The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting Swainson's hawks.
- A qualified biologist shall present an "Environmental Awareness Program" (EAP) that shall be implemented to educate the contractors and construction personnel of the sensitive habitats and species in the study area. The EAP shall include a presentation on the life history and legal status of potentially occurring special-status species, potential consequences of impacting special-status species, and distribution of informational packages to each worker. Swainson's hawk, white-tailed

4.7 BIOLOGICAL RESOURCES

kite, burrowing owl, valley elderberry longhorn beetle, and western pond turtle will be the focal species of the EAP. The biologist shall present the program and allow time for questions and answers. The applicant shall provide translators, as needed, for workers that only speak other languages. Each worker shall sign a form acknowledging they attended the EAP.

- A pre-construction survey for nesting Swainson's hawks within 0.25 mile of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. The surveys shall incorporate methodologies from CDFW's 1994 Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California (CDFW 1994) and the Swainson's Hawk Technical Advisory Committee (SHTAC) survey guidelines (SHTAC 2000). A report describing the results of the survey shall be provided to the City. If no active nests are located, no further action to mitigate for this potential impact is required.
- If there is a lapse in project-related work of fifteen (15) days or longer during the nesting season, another focused survey shall be performed, and the results sent to the CDFW prior to resuming work.
- If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the Swainson's hawks are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

Mitigation Measure BIO-3

- Prior to grading, the applicant shall mitigate for the loss of 158.92 acres of potential burrowing owl habitat and two active nests by preserving similar or better habitat at an off-site location at a 1:1 ratio. The applicant shall prepare and submit a plan of the proposed off-site mitigation to the City for approval. The provision of compensatory mitigation may be accomplished through purchase of credits from an agency-approved mitigation bank such as Burke Ranch Conservation Bank. Alternately, the mitigation could be fulfilled through the enhancement, management, and preservation of other off-site mitigation lands that are protected in-perpetuity by a conservation easement. The mitigation for loss of burrowing owl habitat may be accomplished concurrent with the Swainson's hawk off-site mitigation conditional on the mitigation area being compatible with burrowing owl conservation and actively managed to encourage establishment of a year-round burrowing owl population. If the project is constructed in phases, the compensatory mitigation for impacted burrowing owl habitat within each phase shall be provided prior to grading that phase.

Mitigation Measure BIO-4

- Within 14 days prior to the commencement of construction of any phase of the project, a qualified biologist shall conduct an initial preconstruction survey for burrowing owls within the construction limits and adjacent lands within 250 feet, as access and visibility allow. The surveys

4.7 BIOLOGICAL RESOURCES

shall incorporate methodologies from CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). A follow-up survey shall be conducted within 24 hours of the commencement of construction. A preconstruction survey report describing the results of the survey shall be provided to the City. If no burrowing owls or active burrows are located, no further action for this potential impact is required.

- If there is a lapse in construction of fourteen (14) days or longer during the nesting season, a qualified biologist shall conduct another preconstruction survey for burrowing owls and follow-up survey within 24 hours of the commencement of construction focused survey shall be performed and the results sent to CDFW prior to resuming work.
- If burrowing owls or active burrows are documented in the study area during the non-breeding season (September 1 through January 31), an Environmentally Sensitive Area ("ESA") with a radius of 160 feet shall be established around the occupied burrow(s). The applicant shall prepare a passive relocation plan incorporating the methodologies of CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) for submittal to the City and CDFW. The applicant shall implement passive relocation following approval by the City. The ESA shall remain in place until the City concurs the burrow is no longer active.
- If burrowing owls or active burrows are documented within 250 feet of the study area during the breeding season (February 1 through August 31), an ESA with a radius of 250 feet shall be established around the occupied burrow(s). The ESA shall remain in place throughout the breeding season, or until the City concurs the burrow is no longer active. Passive relocation may then proceed as described above.

Mitigation Measure BIO-5

- The applicant shall remove trees during the fall and winter, if feasible, to minimize the potential for take of nesting white-tailed kite.
- A pre-construction survey for nesting white-tailed kite within 500 feet of the study area shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. A report describing the result of the survey shall be provided to the City. If no active nests are located, no further action is required.
- If there is a lapse in project-related work of fifteen (15) days or longer during the nesting season, another focused survey shall be performed, and the results sent to CDFW prior to resuming work.
- If active nests are found, a biologist experienced with raptor behavior shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals any may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to the white-tailed kite are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

4.7 BIOLOGICAL RESOURCES

Mitigation Measure BIO-6

- Pre-construction surveys for western pond turtle and their nests shall be conducted by a qualified biologist within 48 hours prior to onset of staging and construction activities and again if there is a lapse in activity longer than 2 weeks. This will involve a search for nests in grasslands within 300 feet of Horse Creek and Ulatis Creek. If nest sites are located, the applicant will notify the City and a 50-foot buffer area around the nest shall be staked and work will be delayed until hatching is complete and the young have left the nest site.
- Prior to the commencement of construction, an Environmentally Sensitive Area (“ESA”) shall be established along the north edge of the study area adjacent to Horse Creek. An ESA shall also be established in the southwest corner of the study area near Ulatis Creek. A qualified biologist will oversee the ESA fencing. The ESAs will be delineated by silt fencing keyed below ground at least 4 inches. The ESA fencing shall be installed as close to the limits of grading as possible.
- If a western pond turtle is observed within the project area, it shall be left alone to move out of the area on its own.
- If a western pond turtle nest is observed within the project area, the nest shall be fenced off and avoided if possible. If avoidance is not possible, the project applicant and the biologist shall consult with CDFW to determine appropriate avoidance and minimization measures and then implement those measures.

Mitigation Measure BIO-7

- The project shall not involve the removal or damage to an occupied blue elderberry shrub that could result in the take of valley elderberry longhorn beetle.
- Prior to the commencement of construction within 100 feet of blue elderberry shrubs, an Environmentally Sensitive Area (“ESA”) shall be established around the blue elderberry shrubs and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by orange safety fencing and will prevent disturbance to the blue elderberry shrubs by construction crews and equipment. The ESA fencing shall delineate the minimal “buffer zone” and shall be installed as close to the limits of grading as possible and at least 20 feet from the driplines of each of the shrubs.
- Signs shall be installed every 50 feet along the edge of the ESA stating: *“This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Federal Endangered Species Act. Violators are subject to prosecution, fines, and imprisonment.”* Signs shall be easily read from a distance of 20 feet and shall remain in place for the duration of construction.
- Mass-grading along the south edge of the study area shall be scheduled between August 1 through February 28 when any valley elderberry longhorn beetle that may be present would be within the stems of the shrubs.

4.7 BIOLOGICAL RESOURCES

- Following completion of construction along the south edge of the study area, buffer zones of at least 20 feet around the blue elderberry shrubs shall be protected from adverse effects of the adjacent development project. The applicant shall prepare a plan outlining protective measures such as fencing and signage, as well as maintenance activities such as use of herbicides, fertilizers, or other chemicals, or weed abatement within the buffer zones. The plan shall be subject to City approval and shall be included in the final project plans.

Mitigation Measure BIO-8

- Prior to the commencement of construction within 250 feet of the seasonal wetlands, the applicant shall submit the large branchiopod dry-season and wet-season sampling reports to USFWS with a request for concurrence on negative findings. If USFWS provides concurrence on negative findings, no further action is needed.
- If USFWS does not readily concur on the negative findings, the applicant shall consult further with USFWS to determine if additional surveys are needed, such as a second year of wet-season surveys during a more normal rainfall year. If USFWS provides concurrence on negative findings following further surveys or consultation, no further action is needed. If USFWS does not provide concurrence on negative findings following the completion of wet-season surveys during a more normal rainfall year or USFWS does not provide on-site evidence of presence within 6 months of the completion of wet-season surveys during a more normal rainfall year, no further action is needed.
- In the unlikely event vernal pool fairy shrimp, Conservancy fairy shrimp, or vernal pool tadpole shrimp are documented in the study area, or the applicant elects to assume species presence, the applicant shall consult with USFWS to obtain authorization for take. The applicant shall provide compensatory mitigation for impacted occupied habitat at a minimum ratio of 3:1 (i.e., 2:1 preservation and 1:1 creation).

Mitigation Measure BIO-9

- A qualified biologist who is experienced with the identification of local bat species shall conduct pre-construction roosting bat surveys within 14 days prior to any tree removal during the breeding season (April through August). If no active roosts of special-status bats are found, no further mitigation is required.
- If special-status bats or roosts are detected during the surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The plan shall prescribe measures to minimize the potential for take of bats, such as undertaking tree removal during certain times of the year, undertaking tree removal when daytime temperatures are high enough to allow individuals to leave on their own, implementing a two-step tree removal process of limbs followed by trunks, and monitoring during construction. The applicant shall implement the take avoidance plan following approval by CDFW.

4.7 BIOLOGICAL RESOURCES

Mitigation Measure BIO-10

- A qualified biologist shall conduct pre-construction surveys for American badgers and their dens within 14 days of the commencement of grading. If no American badgers or their dens are found, no further mitigation is required.
- If American badgers or their dens are detected during the pre-construction surveys, the qualified biologist shall prepare a take avoidance plan for submittal to the City and CDFW. The Plan shall prescribe measures to minimize the potential for take of American badgers, such as establishing temporary Environmentally Sensitive Areas (“ESAs”) around occupied dens or relocating badgers. The applicant shall implement the take avoidance plan following approval by CDFW.

Level of Significance After Mitigation: Impact BIO-1 would be less than significant with the incorporation of mitigation.

BIO-2	The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, or state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
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Construction of the proposed project would involve the fill of the existing network of golf course ponds and ditches on the project site. The seasonal wetlands in the north part of the project would also be filled. The proposed project would not involve any work in the segments of remnant channels on the project site. The proposed project would also not involve any work in Horse Creek and Ulatis Creek. The potential for direct impacts to jurisdictional Waters of the U.S. or wetlands or Waters of the State would be a potentially significant impact of the proposed project. However, Mitigation Measure BIO-11 would reduce impacts to less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-2 would be potentially significant.

Mitigation Measures

Mitigation Measure BIO-11

- The Aquatic Resources Delineation shall be submitted to the USACE for verification to firmly establish the boundaries and current jurisdictional status of the aquatic features on the project site. The verified Aquatic Resources Delineation shall be used to quantify the project impacts to aquatic resources. If the USACE verifies the golf course ponds, ditches, and seasonal wetlands are non-jurisdictional, no further interface with the USACE is needed.

4.7 BIOLOGICAL RESOURCES

- A permit from the USACE shall be secured prior to the placement of any fill material (e.g., culverts, fill dirt, rock) within jurisdictional Waters of the U.S. or wetlands. As a condition of the USACE permit, 401 Water Quality Certification shall also be secured from Regional Water Quality Control Board (RWQCB).
- Waste Discharge Requirements (WDRs) shall be secured from RWQCB prior to the placement of any material regulated by the Regional Board in Waters of the State.
- Prior to the commencement of construction, an Environmentally Sensitive Area (“ESA”) shall be established along the north edge of the remnant channels in the study area and a qualified biologist will oversee the ESA fencing. The ESAs will be delineated by silt fencing and orange safety fencing and will prevent disturbance to potentially jurisdictional Waters of the U.S. by construction crews and equipment. The ESA fencing shall be installed as close to the limits of grading as possible and outside the driplines of the trees and shrubs along the banks of the channels.
- The applicant shall comply with all conditions of any USACE permit(s) or WDRs including the provision of compensatory mitigation for impacts to regulated aquatic resources. The compensatory mitigation shall be at a minimum ratio of 1:1 and would be best accomplished through the purchase of credits from an agency approved mitigation bank.

Level of Significance After Mitigation: Impact BIO-2 would be less than significant with the incorporation of mitigation.

BIO-3	The project would 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.
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Riparian corridors are often utilized as movement corridors for species such as mule (black-tail) deer (*Odocoileus hemionus columbianus*), coyote, red fox (*Vulpes vulpes*), and bobcat (*Felis rufus*), as well as a variety of amphibians, reptiles, and fish. Other swaths of unusual or unique habitats such as ridges and valleys may also be used by wildlife as movement corridors.

The project site is primarily disturbed grassland with scattered trees and is surrounded by residential and commercial development, paved roads, and intensively cultivated agricultural lands. The body of the site would not serve as a wildlife corridor for terrestrial species. The remnant channels of Old Ulatis Creek may be used by mammals and other wildlife species for movement. Despite the levels of disturbance, the ruderal grasslands on the project site could provide foraging habitat and resting areas for migratory waterfowl; resident ducks and geese may also breed on the project site. However, there are no tidal wetlands or expansive freshwater marshes on the project site that would be used as nursery sites for breeding resident and migratory birds.

4.7 BIOLOGICAL RESOURCES

The project site provides suitable nesting habitat for numerous birds protected by the MBTA and Fish and Game Code of California (FGCC). The project site provides suitable foraging and nesting habitat for common birds such as mourning dove, northern mockingbird, scrubjay, and other songbirds. The trees, shrubs, and other vegetation on the project site also provide potential foraging and nesting habitat for a few special-status birds such as tricolored blackbird, northern harrier (*Circus cyaneus*), and loggerhead shrike (*Lanius ludovicianus*). A few species of bird such as geese, ducks, and killdeer may also nest on the ground on the project site.

Except for approximately 10 acres of open space along the south edge of the project site, the proposed project would result in the conversion of the project site to developed uses and associated loss of potential foraging and nesting habitat of birds protected by the MBTA. The conversion of approximately 180 acres of potential foraging and nesting habitat for protected birds to developed uses is a potentially significant impact. However, implementation of Mitigation Measure BIO-1 and Mitigation Measure BIO-12 would reduce impacts to less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-3 would be potentially significant.

Mitigation Measures

Implement Mitigation Measure BIO-1.

Mitigation Measure BIO-12

- A qualified biologist shall present an “Environmental Awareness Program” (EAP) as described in Recommended Mitigation Measure BIO-2.
- The applicant shall remove vegetation during the fall and winter, if feasible, to minimize the potential for take of birds.
- A pre-construction survey for nesting birds on and within 100 feet of the project site shall be conducted within 15 days prior to the commencement of construction between March 1 and August 31. A report describing the result of the survey shall be provided to the City. If no active nests are located, no further action is required.
- If during the nesting season there is a lapse in project-related work for each respective phase of construction of fifteen (15) days or longer, another focused survey shall be performed and the results sent to CDFW prior to resuming work.
- If active nests are found, a biologist experienced with protected birds shall prepare a take avoidance plan for review and approval by CDFW and the City. The plan shall include an analysis of the potential for nest abandonment or take of individuals and may include recommendations for construction setbacks and monitoring. Construction shall cease immediately if the biologist concludes potentially adverse effects to protected birds or their nest are imminent. Construction shall not resume until the biologist prepares a modified take avoidance plan for review and approval by CDFW and the City, or until the nesting is no longer active.

4.7 BIOLOGICAL RESOURCES

Level of Significance After Mitigation: Impact BIO-3 would be less than significant with mitigation incorporated.

BIO-4 The project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The purpose of Chapter 14.09.131, Supplemental Standards, Tree Preservation, of the Vacaville Municipal Code is to control the preservation and removal of trees on private and public property to promote public health, safety, and general welfare of citizens. Chapter 14.09.131 states that prior to removing or destroying any tree, on public or private property, an application must be submitted to the City before a tree removal permit can be issued. The application must include, but is not limited to, a map indicating the number, species, size, and location of affected tree(s); and a brief statement indicating the reason or justification for removal of the tree(s). The project applicant would be required to comply with the City’s tree removal ordinance, and therefore, impacts would be less than significant.

The proposed project includes an amendment to the language in General Plan Policy COS-P1.12 to utilize the specific analysis and mitigation included in this EIR as the basis for avoidance, minimization, and mitigation of impacts to biological resources. The amended policy language would read as follows:

Policy COS-P1.12 Until the Solano Habitat Conservation Plan (HCP) is adopted, comply with all of the Avoidance, Minimization, and Mitigation Measures listed in the Draft Solano HCP (see Appendix A for a list of the Avoidance and Minimization Measures that are applicable to Vacaville), unless the project is an infill project, or potential project impacts are otherwise evaluated in an Environmental Impact Report. ~~In addition, require that development projects provide copies of required permits, or verifiable statements that permits are not required, from the California Department of Fish and Wildlife (2081 Individual Take Permit) and US Fish and Wildlife Service (Section 7 Take Authorization) prior to receiving grading permits or other approvals that would permit land disturbing activities and conversion of habitats or impacts to protected species. In cases where environmental review indicates that such permits may not be required, the Community Development Director may establish time limits of not less than 45 days from the submission of an adequate request for concurrence response from an agency. If the agency has not responded, or requested a time extension of no more than 90 days to complete their assessment, within the established time frame, applicable grading permits or other authorizations may be provided, subject to other City requirements and review.~~ However, the City’s issuance of grading permits or other authorizations does not absolve the applicant’s obligations to comply with all other State and federal laws and regulations.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-4 would be less than significant.

4.7 BIOLOGICAL RESOURCES

Mitigation Measures

No mitigation measures are required.

BIO-5	The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.
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The project site is not within a Natural Community Conservation Plan or Habitat Conservation Plan. Therefore, no impact would occur.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-5 would not be significant.

Mitigation Measures

No mitigation measures are required.

4.7.4 CUMULATIVE IMPACTS

BIO-6 Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to biological resources.

The area considered for cumulative impacts to biological resources is the project site and the city. Many other projects in the City could impact sensitive species directly and/or indirectly through impacts on those species' habitats. Other projects would be required to comply with existing laws and regulations protecting biological resources. The proposed project would have a potentially significant impact on sensitive species and habitats; however, with the implementation of mitigation measures, impacts to biological resources would be reduced to less than significant. Therefore, the project's contribution to cumulative biological resources would not be cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact BIO-6 would be less than significant.

Mitigation Measures

No additional mitigation measures are required.

4.7.5 REFERENCES

Moore Biological Consultants (Moore). 2021, June. Biological Assessment Greentree Development Project (Appendix 4.7-1).

4.8 CULTURAL RESOURCES

This chapter describes the regulatory framework and existing conditions on the project site related to cultural resources, and the potential impacts of the project to these resources. Cultural resources consist of archaeological and historical resources. Archaeology is the branch of paleontology that studies human artifacts, such as places, objects, and settlements that reflect group or individual religious, cultural, or everyday activities. Historic resources include sites, structures, objects, or places that are at least 50 years old and are significant for their engineering, architecture, cultural use, or association. In California, historic resources cover human activities over the past 12,000 years. Cultural resources provide information on scientific progress, environmental adaptations, group ideology, or other human advancements.

The analysis in this section is based in part on the following technical report:

- *Historic Evaluation of the Green Tree Golf Course, Vacaville, California*, JRP Historical Consulting, LLC, June 18, 2019. A complete copy of this report is included as Appendix 4.8-1, Historical Evaluation, of this Draft EIR.
- *Archaeological Investigation Report, Greentree Development Project*, EMC Planning Group, September 4, 2019. A complete copy of this report is included as Appendix 4.8-2, Historical Evaluation, of this Draft EIR.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to Cultural Resources for the proposed project.

Federal Regulations

National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) coordinates public and private efforts to identify, evaluate, and protect the nation's historic and archaeological resources. The act authorized the National Register of Historic Places, which lists districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture.

Section 106 (Protection of Historic Properties) of the NHPA requires federal agencies to consider the effects of their undertakings on historic properties. Section 106 Review ensures that historic properties are considered during federal project planning and implementation. The Advisory Council on Historic Preservation, an independent federal agency, administers the review process with assistance from state historic preservation offices.

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National Register of Historic Places

The National Register of Historic Places (NRHP) is authorized by the National Historic Preservation Act of 1966 (Code of Federal Regulations, Title 36, Chapter I, Part 60). It is the nation's official list of buildings, structures, objects, sites, and districts worthy of preservation because of their significance in American history, architecture, archaeology, engineering, and culture. The NRHP recognizes resources of local, state, and national significance that have been documented and evaluated according to uniform standards and criteria.

The NRHP includes districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The NRHP is administered by the National Park Service. Properties are nominated to the NRHP by the State Historic Preservation Officer of the state in which the property is located, by the Federal Preservation Officer for properties under federal ownership or control, or by the Tribal Historic Preservation Officer if a property is on tribal lands.

To be eligible for listing in the National Register, a resource must meet at least one of the following criteria:

- Are associated with events that have made a significant contribution to the broad patterns of history.
- Are associated with the lives of persons significant in our past.
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction.
- Have yielded, or may be likely to yield, information important in prehistory or history.

A final critical component of eligibility is "integrity." Integrity refers to the ability of a property to convey its significance and the degree to which the property retains the identity, including physical and visual attributes, for which it is significant under the four basic criteria. The NRHP criteria recognize seven aspects or qualities of integrity: location, design, setting, materials, workmanship, feeling, and association.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act of 1979 regulates the protection of archaeological resources and sites on federal and Indian lands.

Preservation of American Antiquities

The Federal Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the United States. As such, it explicitly prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" on lands owned or controlled by the federal government without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines and/or imprisonment, for these acts. Neither the Antiquities Act itself nor its implementing regulations specifically mention paleontological resources.

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However, several federal agencies—including the National Park Service, the Bureau of Land Management, and the US Forest Service—have interpreted objects of antiquity to include fossils. Consequently, the Antiquities Act also represents an early cornerstone for efforts to protect the nation’s paleontological resources.

Native American Graves Protection and Repatriation Act

NAGPRA is a federal law passed in 1990 that mandates museums and federal agencies to return certain Native American cultural items—such as human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants or culturally affiliated Indian tribes.

Paleontological Resources Preservation Act

The federal Paleontological Resources Preservation Act of 2002 codifies the generally accepted practice of limited vertebrate fossil collection and limited collection of other rare and scientifically significant fossils by qualified researchers. Researchers must obtain a permit from the appropriate State or federal agency and agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and to other researchers.

State Regulations

California Environmental Quality Act

Public Resources Code Section 21083.2 provides for protection of unique archaeological resources. Preservation of unique archaeological sites is the preferred treatment (21083.2[b]) however, if sites are not be preserved in place, mitigation measures shall be required as provided in 21083.2(c).

Section 21084.1 addresses the issue of historical resources, which includes prehistoric Native American resources, historical-era archaeological deposits, buildings, structures, objects, and districts. Historical resources are defined as resources that are listed in or determined to be eligible for listing in the California Register of Historical Resources. It also includes resources included in a local register of historical resources or otherwise determined to be historically significant under section 5024.1.

Section 15064.5 of the CEQA Guidelines states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. The CEQA Guidelines define four ways that a property can qualify as a historical resource for purposes of CEQA compliance:

- The resource is listed in or determined eligible for listing in the California Register of Historical Resources, as determined by the State Historical Resources Commission.
- The resource is included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code, or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

4.8 CULTURAL RESOURCES

- The lead agency determines the resource to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, as supported by substantial evidence in light of the whole record.
- The lead agency determines that the resource may be a historical resource as defined in Public Resources Code Sections 5020.1(j) or 5024.1 (CEQA Guidelines Section 15064.5) which means, in part, that it may be eligible for the California Register.

In addition, Public Resources Code Section 21083.2 and Sections 15064.5(c), 15064(f), and 15126.4(b) of the CEQA Guidelines specify lead agency responsibilities to determine whether a Project may have a significant effect on unique archaeological resources. If it can be demonstrated that a Project would damage a unique archaeological resource, the lead agency may require reasonable efforts for the resources to be preserved in place or left in an undisturbed state. Preservation in place is the preferred approach to mitigation. The Public Resources Code also details required mitigation if unique archaeological resources are not preserved in place.

Section 15064.5(d) and (e) of the CEQA Guidelines specifies procedures to be used in the event of a discovery of Native American human remains on non-federal land. Section 15064.5(d) addresses procedures when an initial study identifies the existence or probable likelihood of Native American human remains within a project area. Section 15064.5(e) provides guidance for accidental discovery of any human remains after a project is already under way. These provisions protect such remains from disturbance, vandalism, and inadvertent destruction, establish procedures to be implemented if Native American skeletal remains are discovered during construction of a Project, and establish the Native American Heritage Commission (NAHC) as the authority to identify the Most Likely Descendant (MLD) and mediate any disputes regarding disposition of such remains.

California Register of Historical Resources (CRHR)

The State Historical Resources Commission has designed this program for use by state and local agencies, private groups, and citizens to identify, evaluate, register, and protect California's historical resources. The CRHR is the authoritative guide to the state's significant historical and archaeological resources.

The CRHR program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance; identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under CEQA.

To be eligible for listing in the CRHR, a resource must meet at least one of the following criteria:

- Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- Associated with the lives of persons important to local, California or national history.
- Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possess high artistic values.

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- Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation. (PRC Section 5024.1[c])

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance. Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. In summary, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR of, under Criterion D, it maintains the potential to yield significant scientific or historical information or specific data.

California Public Resources Code

Archaeological and historical sites are protected under a wide variety of state policies and regulations in the California Public Resources Code (PRC). In addition, cultural and paleontological resources are recognized as nonrenewable resources and receive protection under the PRC and CEQA.

PRC Sections 5020 to 5029.5 continued the former Historical Landmarks Advisory Committee as the State Historical Resources Commission. The commission oversees the administration of the California Register of Historical Resources and is responsible for designating State Historical Landmarks and Historical Points of Interest.

PRC Sections 5079 to 5079.65 define the functions and duties of the Office of Historic Preservation (OHP), which administers federal- and state-mandated historic preservation programs in California as well as the California Heritage Fund.

PRC Sections 5097.9 to 5097.991 provide protection to Native American historical and cultural resources and sacred sites; identify the powers and duties of the Native American Heritage Commission (NAHC); require that descendants be notified when Native American human remains are discovered; and provide for treatment and disposition of human remains and associated grave goods.

Local Regulations

City of Vacaville General Plan

The Conservation and Open Space Element of the City of Vacaville General Plan provides the following policies to protect and enhance cultural resources:

- **Policy COS-P6.1:** Consult with those Native American Tribes with ancestral ties to the Vacaville city limits regarding proposed new development projects and land use policy changes.
- **Policy COS-P6.2:** Require that a records search of the California Historical Resources Information System be conducted and reviewed by a cultural resources professional for proposed

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development areas to determine whether the site contains known prehistoric or historic cultural resources and the potential for as-yet-undiscovered cultural resources.

- **Policy COS-P6.3:** Require that areas found to contain significant historic or prehistoric artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation.
- **Policy COS-P6.4:** Require that is cultural resources, including archaeological or paleontological resources, are uncovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented.
- **Policy COS-P6.5:** Require that any archaeological or paleontological resources on a development project site be either preserved in their sites or adequately documented as a condition of removal. When a development project has sufficient flexibility, avoidance and preservation of the resource shall be the primary mitigation measure, unless the City identifies superior mitigation. If resources are documented, coordinate with descendants and/or stakeholder groups, as warranted.
- **Policy COS-P6.6:** Treat human remains discovered during implementation of public and private projects within the City with respect and dignity.
- **Policy COS-P6.7:** Continue to preserve historic resources by delineating historic preservation districts in the Land Use and Development Code and requiring design review of proposals affecting historic buildings.
- **Policy COS-P6.8:** Continue to require new buildings in historic districts to be complementary to the character of the existing buildings.

4.8.1.2 EXISTING CONDITIONS

History of Vacaville

In 1850, an American land agent purchased nine square miles from Manuel Vacca, who was fighting to retain Rancho Los Putos, one of the first Mexican land grants in Solano County. The town of Vacaville was laid out upon a single square mile of this purchase, about two and a half miles southwest of what would become the Green Tree Golf Course. The new town was on the main Solano County route between the growing cities of San Francisco and Sacramento and served as a commercial center for the surrounding agricultural land. The city incorporated in 1892. The population exploded from approximately 1,000 people in 1941 to nearly 10,000 people in 1961. Today, Vacaville is one of the fastest growing areas in the nation with a population of approximately 85,000 (Vacaville 2021).

Leisure Town

Leisure Town is an active senior housing development where residency is limited to households where at least one member is 50 or older, and there are no permanent residents under 19. This age restriction, included in the original covenants, remains in place. The Green Tree Golf Course is not a part of the

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Leisure Town development. However, some Leisure Town residences back up to the former golf course, as do existing residences within the Golf Course Estates development adjoining White Sands Drive, so the development history of both is provided here. Leisure Town, formed in February 1958, purchased most of the land between what is now Leisure Town Road and Nut Tree Road, and Ulatis Creek and Interstate 80. The company took several years to devise plans for a new retirement community development on the property and the Vacaville City Council approved plans for Leisure Town in the summer of 1962.

Archaeological Resources

Solano County is known for having had a relatively high population density in prehistoric times. The Patwin peoples controlled the area west of the Sacramento River to the crest of the Coast Ranges. The Patwin lived by hunting, fishing, and gathering, and inhabited semi-permanent villages, the remnants of which have been found in the hills around Vacaville. The California Historical Resources Information System (CHRIS) identifies dozens of recorded prehistoric archaeological resources in Vacaville. These resources consist of the following: habitation sites, containing evidence of resource procurement and social organization; burial sites; bedrock mortars, representing use of technology in food processing; and isolated stone tools, found in contexts other than typical archaeological sites (Vacaville 2015).

However, an archival search through the Northwest Information Center, file #18-2005, of the CHRIS, revealed no recorded archaeological resources within the project site, but three previous studies have been recorded overlapping parts of the property site, and date from 1965-1996. There is one recorded archaeological resource within a quarter mile of the site; an historic site recorded in 1992, and nine studies within a quarter mile of the project site, ranging from 1984-2016 (EMC Planning Group 2019).

Historic Resources

The Vacaville area contains over 200 identified historic resources, including the Peña Adobe, Will H. Buck House, Vacaville Town Hall, the site of the First Vacaville Buddhist Church, Pleasants/Hoskins Ranch district, and Vaca Adobe, which are all listed in the National Register (Vacaville 2015).

4.8.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant cultural resources impacts if it would:

1. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

For purposes of CEQA, to determine whether a cultural resource could be significantly affected by a proposed project, the significance of the resource itself must first be determined. Section 15065 of the CEQA Guidelines mandates that a finding of significance must be made if a project would eliminate important examples of major periods of California history or prehistory. Additionally, pursuant to Section

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15064.5 of the CEQA Guidelines, a project could have a significant effect on the environment if it could result in a substantial adverse change in the significance of the historical resource. A “substantial adverse change” means the physical demolition, destruction, relocation, or alteration of the resource or the disturbance of the immediate surroundings such that the significance of the historical resource is impaired in any way. “Material impairment” means altering a resource in an inadvertent way in which the characteristics of a historical resource, that is integral in conveying its historical significance, reduces its eligibility for inclusion in the California Register of Historical Resources. Impacts to those cultural resources not determined to be significant according to the significance criteria described above are not considered significant for the purposes of CEQA.

4.8.2.1 HISTORICAL RESOURCES

Section 15064.5 of the CEQA Guidelines notes that a historical resource (both built environment and prehistoric archaeological resources) is presumed significant if the resource is listed on the California Register of Historical Resources, or if it has been found to be eligible for listing by the State Historical Resources Commission. Historical resources may also be deemed significant if the lead agency finds that, based on substantial evidence, that the resource meets criteria for inclusion in the California Register of Historic Resources. The criteria include:

- The resource is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- The resource is associated with lives of persons important in our past;
- The resource embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- The resource has yielded, or may be likely to yield, information important to prehistory or history.

4.8.2.2 UNIQUE ARCHAEOLOGICAL RESOURCES

Section 15064.5 of the CEQA Guidelines states that archaeological resources not determined to be historical resources may still be deemed significant if they are found to be unique. Public Resources Code Section 21083.2 states that a unique archaeological resource is defined as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets one of the following criteria:

- The resource contains information needed to answer important scientific questions and there is a demonstrable public interest in that information;
- The resource has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- The resource is directly associated with a scientifically recognized important prehistoric or historic event or person.

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A non-unique archaeological resource means an archaeological artifact, object, or site that does not meet the above criteria. Non-unique archaeological resources do not receive consideration under CEQA.

4.8.2.3 HUMAN REMAINS

According to Section 15064.5 of the CEQA Guidelines, all human remains are a significant resource. Section 15064.5 of the CEQA Guidelines also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are spelled out under Public Resources Code Section 5097.

4.8.3 IMPACT DISCUSSION

CULT-1	The project would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
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The project site currently contains the former Green Tree Golf Course, closed in 2016. According to Historical Evaluation, the project site does not contain cultural resources. The project site contains facilities from the previous golf course and is identified as a modest example of post-war course design but does not meet the criteria for listing in the National Register or the California Register.

The project site is not eligible as a historic resource for the purposes of CEQA because it does not have historically important associations with events or trends of development at the local, state, or national level, nor does the course have a direct association with a historically important individual. Therefore, the impact would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: CULT-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

CULT-2	The project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
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According to the Archaeological Investigation Report, no evidence of unique archaeological resources was found at the project site (EMC Planning Group 2019). Since the project site has been developed in the past, associated ground disturbing activities are likely to have already disturbed or resulted in the discovery of any archeological resources that may exist on the site. However, although no known archaeological resources or ethnographic sites have been recorded at the project site, ground-disturbing activities may result in unanticipated discoveries of cultural resources and could be damaged or destroyed by ground-disturbing construction activities (e.g., site preparation, grading, excavation, and trenching for utilities) associated with the proposed Project. Therefore, earth-disturbing activities conducted for the

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proposed project would have the potential to expose previously undiscovered subsurface archaeological resources. As such, the impact to archaeological resources is considered potentially significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: CULT-2 would be potentially significant.

Mitigation Measures

Mitigation Measure CULT- 1: Prior to the issuance of grading permits for all phases of project development, the City shall confirm the applicant has required all construction crews to undergo adequate training for the identification of federal- or State-eligible cultural resources, and that the construction crews are aware of the potential for previously undiscovered archaeological resources on-site, of the laws protecting these resources and associated penalties, and of the procedures to follow should they discover cultural resources during project-related work.

Mitigation Measure CULT- 2: In the event that unanticipated discoveries of potentially sensitive cultural resources are encountered during construction activities, all activity should cease within 100 feet of the find until a qualified archaeologist, who meets federal criteria under 36 CFR 61, can determine the significance of the find and determine the appropriate mitigation. If the deposits are determined to not be significant by a qualified archaeologist, avoidance is not necessary. If the deposits are determined to be potentially significant by the qualified archaeologist, the resources shall be avoided if feasible. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the archaeologist, in coordination with the City, local tribes, and the CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan.

The data recovery plan shall include provisions for adequately recovering all scientifically consequential information from and about any discovered archaeological or paleontological materials and include recommendations for the treatment of these resources. In-place preservation of the archaeological or paleontological resources is the preferred manner of mitigating potential impacts, as it maintains the relationship between the resource and the archaeological or paleontological context. In-place preservation also reduces the potential for conflicts with the religious or cultural values of groups associated with the resource. Other mitigation options include, but are not limited to, the full or partial removal and curation of the resource.

The City shall confirm that the project applicant has retained a qualified archeologist for the preparation and implementation of the data recovery plan. The recovery plan shall be submitted to the project applicant, the City, and the Northwest Information Center. A data recovery plan shall not be required for resources that have been deemed by the Northwest Information Center as adequately recorded and recovered by studies already completed. Once the recovery plan is reviewed and approved by the City and any appropriate resource recovery completed, project construction activity within the area of the find may resume.

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Level of Significance After Mitigation: CULT-2 would be less than significant.

CULT-3	The project would/would not disturb any human remains, including those interred outside of formal cemeteries.
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As described above, the project site does not contain cultural resources and no evidence of unique archaeological resources was found at the project site. However, human remains associated with pre-contact archaeological deposits could exist on the project site and could be encountered at the time potential future development occurs. The associated ground-disturbing activities, such as site grading and trenching for utilities, have the potential to disturb human remains interred outside of formal cemeteries. Therefore, potential impacts related to the discovery or disturbance of any human remains accidentally unearthed during construction activities associated with the proposed Project would be considered **potentially significant**.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: CULT-3 would be potentially significant.

Mitigation Measures

Mitigation Measure CULT-3: If archaeological resources are discovered during construction, then work should be halted within 50 meters (165 feet) of the find until a qualified professional archaeologist can evaluate it. If the find is determined to be significant, then appropriate mitigation measures will be formulated and implemented.

Mitigation Measure CULT-4: If human remains are found during construction, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Solano County is contacted to determine that no investigation of the cause of death is required.

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

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

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by the Native American Heritage Commission fails to provide measures acceptable to the landowner.”

Level of Significance After Mitigation: CULT-3 would be less than significant.

4.8.4 CUMULATIVE IMPACTS

CULT-4	The proposed project would not result in cumulative impacts with respect to cultural resources.
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Cumulative cultural resource impacts would occur when a series of actions leads to the loss of a substantial type of site, building, or resource. For example, while the loss of a single historic building may not be significant to the character of a neighborhood or streetscape, continued loss of such resources on a project-by-project basis could constitute a significant cumulative effect. This is most obvious in historic districts, where destruction or alteration of a percentage of the contributing elements may lead to a loss of integrity for the district overall. For example, changes to the setting or atmosphere of an area by adding modern structures on all sides of a historically significant building, thus altering the aesthetics of the streetscape, would create a significant impact. Destruction or relocation of historic buildings would also significantly impact the setting.

The project site is not located within a historic district, nor are there significant historic structures or known subsurface cultural resources on the project site. Additionally, there is no have evidence of unique archaeological resources was found at the project site Mitigation Measures CULT-1, CULT-2, CULT-3, and CULT-4 would ensure that, in the event that unknown cultural resources are discovered during project construction, work is stopped and proper procedures are followed. With these mitigation measures, the project would not contribute to any cumulative loss or damage to cultural resources.

Other development in the vicinity of the project site would have the same potential as the proposed project to unearth previously undiscovered resources during construction. These projects would be expected to avoid impacts to cultural resources through similar procedures to protect potential unearthing or disturbing significant resources. In addition, adherence to existing federal, State, and local regulations and policies as cumulative development projects are implemented would help to protect any as-yet-undiscovered cultural resources in the city.

These measures would ensure that the project would not contribute to any potential cumulative impacts. Therefore, in combination with past, present, and reasonably foreseeable projects, the project would result in a less than significant cumulative impact with respect to all cultural resources.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: CULT-4 would be less than significant.

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Mitigation Measures

Implementation of Mitigation Measures CULT-1, CULT-2, CULT-3 and CULT-4 identified above would ensure that archaeological and paleontological resources, if discovered on the Project site, are protected, and that discovered human remains and TCR are handled appropriately.

Level of Significance After Mitigation: CULT-4 would be less than significant.

4.8.5 REFERENCES

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JRP Historical Consulting, LLC. 2019, June 18. *Historic Evaluation of the Green Tree Golf Course*. (Appendix 4.8-1)

EMC Planning Group. 2019, September 4. *Archaeological Investigation Report*. (Appendix 4.8-2)

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4.9 ENERGY

This chapter describes the regulatory framework, existing conditions on the project site, and potential impacts of the proposed project related to energy.

The analysis in this section is based in part on the following technical report:

- *Air Quality/Energy/Greenhouse Gas Report*, EMC Planning Group, October 28, 2021. A complete copy of this report is included as Appendix 4.6-1.

4.9.1 ENVIRONMENTAL SETTING

4.9.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, state, and local regulations and programs related to energy for the proposed project.

Federal Regulations

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (Public Law 110-140) seeks to provide the nation with greater energy independence and security by increasing the production of clean renewable fuels; improving vehicle fuel economy; and increasing the efficiency of products, buildings, and vehicles. It also seeks to improve the energy performance of federal government. The Act sets increased Corporate Average Fuel Economy Standards; the Renewable Fuel Standard; appliance energy efficiency standards; building energy efficiency standards; and accelerated research and development tasks on renewable energy sources (e.g., solar energy, geothermal energy, and marine and hydrokinetic renewable energy technologies), carbon capture, and sequestration (USEPA 2019).

State Regulations

California Energy Commission

The California Energy Commission (CEC) is California's primary energy policy and energy planning agency. Created by the California Legislature in 1974, the California Energy Commission has five major responsibilities: 1) forecasting future energy needs and keeping historical energy data; 2) licensing thermal power plants 50 megawatts or larger; 3) promoting energy efficiency through appliance and building standards; 4) developing energy technologies and supporting renewable energy; and 5) planning for and directing state response to energy emergencies. Under the requirements of the California Public Resources Code, the California Energy Commission, in conjunction with the Department of Conservation's Division of Oil, Gas, and Geothermal Resources, is required to assess electricity and natural gas resources on an annual basis or as necessary. The Systems Assessment and Facilities Siting Division of the California Energy Commission provides coordination to ensure that needed energy facilities are authorized in an expeditious, safe, and environmentally acceptable manner.

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Integrated Energy Policy Report

Senate Bill (SB) 1389 required the California Energy Commission to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The information is to be used to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. This work culminated in preparation of the first Integrated Energy Policy Report (IEPR).

The California Energy Commission adopts an IEPR every two years and an update every other year. The most recent 2019 IEPR summarizes priority state energy issues and provides strategies and recommendations to further the state goals for of ensuring reliable, affordable, and environmentally responsible energy sources. The report addresses progress toward statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the state's energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to statewide energy policies; and issues facing California's nuclear power plants (California Energy Commission 2019).

California 2008 Energy Action Plan Update

The state adopted the Energy Action Plan in 2003, followed by the Energy Action Plan II in 2005. The current plan, the California 2008 Energy Action Plan Update, is California's principal energy planning and policy document. The updated document examines the state's ongoing actions in the context of global climate change, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy resources are adequate, affordable, technologically advanced, and environmentally sound. The California 2008 Energy Action Plan Update establishes energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods) as the first-priority actions to address California's increasing energy demands.

Additional priorities include the use of renewable sources of power and distributed generation (e.g., the use of relatively small power plants near or at centers of high demand).

To the extent that these actions are unable to satisfy the increasing energy demand and transmission capacity needs, clean and efficient fossil-fired generation is supported. The California 2008 Energy Action Plan Update examines policy changes in the areas of energy efficiency, demand response, renewable energy, electricity reliability and infrastructure, electricity market structure, natural gas supply and infrastructure, research and development, and climate change (California Energy Commission 2008).

California Building Codes

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were first established in 1978 to reduce California's energy consumption. The California Energy Code is updated every three years by the California Energy Commission as the Building Energy Efficiency Standards to allow consideration and possible incorporation of new energy efficiency technologies and construction methods. In May 2018, the California Energy Commission adopted the

2019 Building Energy Efficiency Standards that go into effect on January 1, 2020. The 2019 Building Energy Efficiency Standards are structured to achieve the state's goal that all new low-rise residential buildings (single-family and multi-family homes) be zero net energy. Single-family homes built with the 2019 Building Energy Efficiency Standards will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 Building Energy Efficiency Standards. Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades (California Energy Commission 2018).

The Green Building Standards Code (also known as CALGreen), which requires all new buildings in the state to be more energy efficient and environmentally responsible, took effect in January 2011 and was most recently updated in January 2016. These comprehensive regulations are intended to achieve major reductions in interior and exterior building energy consumption.

Energy Efficiency Act of 2006

Assembly Bill (AB) 2021 encourages all investor-owned and municipal utilities to aggressively invest in achievable, cost-effective, energy efficiency programs in their service territories.

California Assembly Bill No. 1493 ("Pavley I Rule")

AB 1493 was enacted on July 22, 2002. It requires the California Air Resources Board (CARB) to develop and adopt regulations that improve fuel efficiency of vehicles and light-duty trucks. Pavley I requirements apply to these vehicles in the model years 2009 to 2016.

Advanced Clean Cars

In January 2012, CARB adopted an Advanced Clean Cars program, which is aimed at increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies.

Renewable Energy Legislation/Orders

The California Renewable Portfolio Standard Program, which requires electric utilities and other entities under the jurisdiction of the California Public Utilities Commission to meet 20 percent of their retail sales with renewable power by 2017, was established by SB 1078 in 2002. The renewable portfolio standard was accelerated to 20 percent by 2010 by SB 107 in 2006. The program was subsequently expanded by the renewable electricity standard approved by CARB in September 2010, requiring all utilities to meet a 33 percent target by 2020. The Legislature then codified this mandate in 2011 with SB X1-2. SB 350, adopted in September 2015, increases the standard to 50 percent by 2030. This same legislation includes statutes directing the California Energy Commission and California Public Utilities Commission to regulate utilities producing electricity so that they will create electricity generation capacity sufficient for the widespread electrification of California's vehicle fleet, as a means of reducing GHG emissions associated with the combustion of gasoline and other fossil fuels. The Legislature envisioned a dramatic increase in the sales and use of electric cars, which will be recharged with electricity produced with increasingly cleaner power sources.

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On September 10, 2018, former Governor Brown signed into law SB 100 and Executive Order B-55-18. SB 100 raises California's Renewable Portfolio Standard requirement to 50 percent renewable resources target by December 31, 2026, and to a 60 percent target by December 31, 2030. Executive Order B-55-18 establishes a carbon neutrality goal for California by 2045 and sets a goal to maintain net negative emissions thereafter.

Local Regulations

The City of Vacaville has adopted energy-related policy as part of its general plan and further addressed issues of energy conservation as part of its Energy and Conservation Action Strategy (ECAS). Key policies/actions in these documents that are applicable to the proposed project are summarized below.

City of Vacaville General Plan

The Conservation and Open Space Element contains the following fundamental energy policies which are applicable to the proposed project:

- **Policy COS-P9.1:** Maintain the Energy and Conservation Action Strategy.
- **Policy COS-P9.2:** Promote land use patterns that reduce the number and length of motor vehicle trips.
- **Policy COS-P9.3:** To the extent feasible, encourage a balance and match between jobs and housing.
- **Policy COS-P9.4:** Encourage higher density residential and mixed-use development adjacent to commercial centers and transit corridors – the land along or within walking distance of a street served by transit.
- **Policy COS-P9.5:** Encourage employment areas to include a mix of support services to minimize the number of employee trips.
- **Policy COS-P9.6:** Encourage retail and office areas to be located within walking and biking distance of existing and proposed residential developments.
- **Policy COS-P9.7:** Continue to work with the Solano Transportation Authority on regional transportation solutions that will reduce vehicle miles traveled and greenhouse gas emissions.
- **Policy COS-P9.8:** Promote green building practices in new development.
- **Policy COS-P10.1:** Encourage the development of energy generated by renewable fuel sources within the city, provided that significant adverse environmental impacts associated with such development can be successfully mitigated.

- **Policy COS-P10.2:** Encourage solar-oriented and renewable design and grid-neutral development – development that generates enough energy to off-set its demands – by encouraging streets that are oriented east-west to facilitate the maximization of south-facing roofs that best accommodate solar panels.
- **Policy COS-P10.3:** Encourage the installation of solar voltaic panels on new home and businesses through reduced building permit fees or other incentives.
- **Policy COS-P10.4:** Encourage the use of solar water and pool heaters.
- **Policy COS-P11.1:** Require that new development incorporate energy-efficient design features for HVAC, lighting systems, and insulation that exceed Title 24.
- **Policy COS-P11.2:** Require that site and structure designs for new development promote energy efficiency.

City of Vacaville Energy and Conservation Action Strategy

The ECAS is a strategic roadmap for the City to meet the State’s GHG reduction targets established by Senate Bill (SB) 32 and demonstrate substantial progress towards meeting Executive Order (EO) S-3-05. This plan was last updated in 2021. The ECAS plays a strategic role in reducing GHG emissions for the City as a whole. The ECAS includes a range of energy-related strategies whose implementation would result in reduced energy consumption. These include measures aimed at reducing GHG emissions from transportation, residential energy, non-residential energy, water and wastewater, solid waste disposal, and off-road equipment sources. Chapter 4.8 of this document discusses greenhouse gas emissions and the City ECAS in greater detail.

4.9.1.2 EXISTING CONDITIONS

Electricity

The City of Vacaville is in Pacific Gas and Electric’s (PG&E) service area which spans much of northern California from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. The CEC’s Electricity Consumption Database reports the total electricity consumption in PG&E’s service area in gigawatt-hours (GWh) was 102,246 in 2020 (CEC 2020a).¹ Sources of electricity sold by PG&E in 2020, the latest year for which data are available, were:

- 30.6 percent eligible renewable
 - 15.9 percent solar
 - 8.3 percent wind

¹ One GWh is equivalent to one million kilowatt-hours.

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- 2.6 percent geothermal
- 2.7 percent biomass and waste
- 1.2 percent eligible hydroelectric
- 16.4 fossil fuel-fired
- 42.8 percent nuclear
- 10.1 percent large hydroelectric (PG&E 2021)

Gas

PG&E provides gas service in the City of Vacaville and has facilities throughout the city. Total natural gas supplies available to PG&E for 2020 was 2,600 million cubic feet per day (MMcf/day) (PG&E 2022). The CEC's Gas Consumption Database reports the total natural gas consumption in PG&E's service area was 4,534 million therms which is equivalent to 1,211 MMcf/day (CEC 2020b).

Project Features

The following project features proposed by the project applicant would have mitigating effects related to the generation of pollutant emissions.

- Pedestrian network improvements that promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.
- For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking "cash out" for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking "cash out" for a minimum of 50 percent of the employees (ECAS measure).
- No woodstoves or natural gas hearths.
- Prohibition on use of natural gas in all residential units.
- Water efficient landscaping.

Following are the non-quantified project features proposed by the project applicant:

- Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.
 - All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.
 - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
 - Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.
 - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
 - Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.
 - Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
 - Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.

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- Construction phase equipment exhaust control measures that reduce NOx and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include Tier 4 engines for construction equipment, minimizing construction equipment idling time, and using grid-supplied electricity to power both stationary and portable construction equipment.
- Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 20 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).
- Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.
- Energy demand reduction measures that include:
 - Cool roofs on all non-residential buildings to reduce building cooling needs;
 - Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;
 - Energy Star appliances in all non-residential buildings;
 - Programmable thermostats in residential units; and
 - Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years.

4.9.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant energy impacts if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.9.3 IMPACT DISCUSSION

ENE-1	The project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
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Short-Term Construction Impacts

Construction of the proposed project would create temporary increased demands for electricity and vehicle fuels compared to existing conditions and would result in short-term transportation-related energy use.

Electrical Energy

Electricity use during construction would vary during different phases of construction: the majority of construction equipment during grading would be gas- or diesel-powered, and the later construction phases would require electricity-powered equipment for interior construction and architectural coatings. Overall, the use of electricity would be temporary during construction and would fluctuate according to the phase of construction. Additionally, it is anticipated that electric-powered construction equipment would be hand tools (e.g., power drills, table saws, compressors) and lighting, which would result in minimal electricity usage during construction activities. Electrical equipment would draw energy from the grid that follows the state requirements for renewable energy. The equipment itself is commercially available and subject to energy requirements of the state and federal government. Because the electrical construction equipment is commercially available, and the power grid must comply with state renewable energy requirements, construction activities would not result in wasteful or unnecessary electricity demands, and impacts would be less than significant.

Natural Gas Energy

It is not anticipated that construction equipment used for the proposed project would be powered by natural gas, and no natural gas demand is anticipated during construction. Therefore, there would be no impact related to natural gas consumption during construction.

Transportation Energy

Transportation energy use depends on the type and number of trips, vehicle miles traveled, fuel efficiency of vehicles, and travel mode. Transportation energy use during construction would come from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction employee vehicles that would use diesel fuel and/or gasoline. The use of energy resources by these vehicles would fluctuate according to the phase of construction and would be temporary. It is anticipated that off-road construction equipment, such as those used during grading (e.g., graders, bulldozers, backhoes, trenching equipment, pickup trucks), would be gas- or diesel-powered. In addition, all the use of construction-equipment would cease upon completion of project construction. Therefore, impacts related to transportation energy use during construction would be temporary and would not require

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expanded energy supplies or the construction of new infrastructure. Furthermore, to limit wasteful and unnecessary energy consumption, the construction contractors are anticipated to minimize nonessential idling of construction equipment during construction, in accordance with Section 2449 of the California Code of Regulations, Title 13, Article 4.8, Chapter 9.

Because it is in the contractor's economic interest to minimize fuel and maintenance costs, is anticipated that the construction equipment would be well maintained and meet the appropriate tier ratings per CALGreen or EPA emissions standards, so that adequate energy efficiency level is achieved. Construction trips would not result in unnecessary use of energy since the project area is served by I-80 which would provide the most direct route from various areas of the region. Electrical energy would be available for use during construction from existing power lines and connections. Therefore, energy use during construction of the proposed project would not be considered inefficient, wasteful, or unnecessary. Impact would be less than significant.

Long-Term Operational Impacts

Operation of the proposed project would create additional demands for electricity and natural gas compared to existing conditions and would result in increased transportation energy use. Operational use of energy would include heating, cooling, and ventilation of buildings; water heating; operation of electrical systems; use of on-site equipment and appliances; and indoor, outdoor, perimeter, and parking lot lighting.

Electrical Energy

The proposed electricity consumption for the proposed project would be increased compared to existing conditions. According to the System California Energy Commission (2021), in 2019, total electricity consumption in Solano County was about 3,226,597,752 kWh. Electricity demand from the proposed project, would total approximately 9,701,000 kWh/year, which would represent approximately 0.03 percent of total 2019 Solano County electricity consumption. However, several emissions/energy reduction measures included in the Building Energy Efficiency Standards are directed at reducing electricity consumption. These measures include cool roofs on all non-residential buildings to reduce building cooling needs, Energy Star appliances in all non-residential buildings, programmable thermostats in residential units, and landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years. As the proposed project would be consistent with the requirements of the Building Energy Efficiency Standards and CALGreen in place at the time of construction, it would not result in wasteful or unnecessary electricity demands. Therefore, operation of the proposed project would result in less than significant impacts with respect to electricity usage.

Natural Gas Energy

The proposed natural gas consumption for the proposed project would be increased compared to existing conditions. According to the CEC's Gas Consumption Database, in 2019, total natural gas consumption in Solano County was 236,122,955 therms (California Energy Commission 2022). Natural gas demand from the proposed project, would total about 20,527,470 BTU/year (205,275 therms/year) which would represent approximately 0.08 percent of Solano County's 2019 natural gas demand. However, the

proposed project prohibits natural gas use in all residential units. Consequently, this will reduce natural gas demand by approximately 197,200 BTU/year, or 89 percent. As the proposed project would be built to meet the Building Energy Efficiency Standards, it would not result in wasteful or unnecessary natural gas demands. Therefore, operation of the proposed project would result in less than significant impacts with respect to natural gas usage.

Transportation Energy

The proposed project would consume energy at build-out from the use of motor vehicles. The efficiency of motor vehicles in use, such as the average miles per gallon for motor vehicles involved with the proposed project, are unknown. Therefore, estimates of transportation energy use is assessed based on the overall vehicle miles traveled (VMT) generated by the project. As described in Appendix 4.19-2, annual project VMT is projected at 32,676,963 miles. However, since the proposed project would involve development of commercial and residential uses, its implementation would provide more opportunities for employment of residents in the city and opportunities to reside within an urbanized area with nearby amenities and public transit options. Furthermore, the proposed project includes a number of design features and proposed measures that would result in reduced VMT and reduced fuel consumption. Therefore, it is expected that operation-related fuel usage associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than similar development projects. Therefore, impacts to transportation energy would be less than significant with respect to operational impacts.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: ENE-1 would be less than significant.

Mitigation Measures

See Mitigation Measure GHG-1. No mitigation measures are required.

ENE-2	The project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency.
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The state's electricity grid is transitioning to renewable energy under California's Renewable Portfolio Standard Program. Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The RPS goals have been updated since adoption of SB 1078 in 2002. In general, California has RPS requirements of 40 percent by 2024 (SB 350), 50 by 2026 (SB 100), 60 percent by 2030 (SB 100), and 100 percent by 2045 (SB 100). SB 100 also establishes RPS requirements for publicly owned utilities that consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. The statewide RPS requirements do not directly apply to individual development projects, but to utilities and energy providers such as PG&E, whose compliance with RPS requirements would contribute to the State objective of transitioning to renewable energy. The residential and commercial development as part of the proposed project would comply with the current and future iterations of the Building Energy Efficiency Standards and CALGreen. The City enforces the California Building Standards Code through the development review process. That enforcement is the primary mechanism through which the project will be required to implement state and locally mandated energy efficiency/conservation

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measures that are within the control of the applicant and the City. Further, the proposed project includes a range of energy saving/efficiency measures as discussed in Chapter 4.8 of this document.

The City of Vacaville does not have its own renewable energy plan; however, the City does encourage the use of renewable energy via solar panels, recycling, etc. Future development would be subject to Title 24, Part 6, which sets standards that improve energy efficiency of newly constructed buildings. Additionally, all contractors and waste haulers are required to comply with the Countywide Integrated Waste Management Plan, which requires minimum diversion of 50 percent of waste project materials from disposal. The proposed project includes the GHG reduction measures from the ECAS that are applicable to the project, thus ensuring project consistency with the GHG reduction measures contained in the City's primary plan for reducing GHG emissions. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: ENE-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.9.4 CUMULATIVE IMPACTS

ENE-3 The proposed project would not result in cumulative impacts to energy.

The areas considered for cumulative impacts to electricity and natural gas supplies are the service area of PG&E. Other projects would generate increased electricity and natural gas demands, requiring their own separate CEQA analysis. However, all projects within the PG&E service area would be required to comply with the Building Energy Efficiency Standards and CALGreen, which would minimize wasteful energy consumption. Therefore, cumulative impacts would be less than significant, and projects impacts would not be cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: ENE-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.9.5 REFERENCES

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4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

This chapter describes the regulatory framework and existing conditions on the project site related to geology and soils and evaluates the potential to impact these resources, including paleontological resources or unique geologic features in the City, as well as impacts to mineral resources.

The information and analysis in this section is based in part on the following technical studies:

- *Preliminary Geotechnical Exploration, Greentree, Solano County, California* prepared by ENGEO Inc., dated June 6, 2019. A complete copy of this report is included as Appendix 4.10-1, Geotechnical Report, of this Draft EIR.
- *Paleontological Evaluation Report, Greentree, Vacaville, California* prepared by ENGEO Inc., dated May 20, 2021. A complete copy of this report is included as Appendix 4.10-2, Paleontological Report, of the Draft EIR.

4.10.1 ENVIRONMENTAL SETTING

4.10.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to geology and soils and mineral resources for the proposed Specific Plan.

GEOLOGY AND SOILS

Federal Regulations

International Building Code

The International Building Code (IBC) has been adopted throughout the United States and has been in use since 2007. The purpose of the IBC is to establish minimum regulations for building systems, including fire safety, building safety, foundation, wall and roof constructions, materials used in construction, elevators and escalators, and existing structures.

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the United States Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. Please see Chapter 4.10, *Hydrology and Water Quality*, of this Draft EIR for more detail.

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National Pollution Discharge Elimination System

The National Pollution Discharge Elimination System (NPDES) permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems.

Paleontological Resources Preservation Act

The federal Paleontological Resources Preservation Act of 2002 limits the collection of vertebrate fossils and other rare and scientifically significant fossils to qualified researchers who have obtained a permit from the appropriate state or federal agency. Additionally, it specifies these researchers must agree to donate any materials recovered to recognized public institutions, where they will remain accessible to the public and other researchers. The Paleontological Resources Preservation Act incorporates key findings of a report, *Fossils on Federal Land and Indian Lands*, issued by the Secretary of Interior in 2000, which establishes that most vertebrate fossils and some invertebrate and plant fossils are considered rare resources (U.S. Department of the Interior 2000).

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” To accomplish this, the act established the National Earthquake Hazard Reduction Program (NEHRP), which refined the description of agency responsibilities, program goals, and objectives. NEHRP’s mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. NEHRP designates the Federal Emergency Management Agency as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards.

Antiquities Act of 1906

The Antiquities Act of 1906 (Public Law [P.L.] 59-209; 16 United States Code [USC] 431-433, 34 Statute 225) has been cited in past efforts to protect paleontological resources on federal lands, and requires protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands. The Antiquities Act of 1906 forbids disturbance of any object of antiquity on federal land without a permit issued by the responsible managing agency.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

State Regulations

California Alquist-Priolo Earthquake Fault Zoning Act

The California Alquist-Priolo Earthquake Fault Zoning Act was signed into state law in 1972, and amended, with its primary purpose being to mitigate the hazard of fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. This act (or state law) was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. The act requires the State Geologist (California Geologic Survey, CGS) to delineate regulatory zones known as “earthquake fault zones” along faults that are “sufficiently active” and “well defined” and to issue and distribute appropriate maps to all affected cities, counties, and state agencies for their use in planning and controlling new or renewed construction. Pursuant to this act and as stipulated in Section 3603(a) of the California Code of Regulations, structures for human occupancy are not permitted to be placed across the trace of an active fault. The act also prohibits structures for human occupancy within 50 feet of the trace of an active fault, unless proven by an appropriate geotechnical investigation and report that the development site is not underlain by active branches of the active fault, as stipulated in Section 3603(a) of the California Code of Regulations. Furthermore, the act requires that cities and counties withhold development permits for sites within an earthquake fault zone until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting, as stipulated in Section 3603(d) of the California Code of Regulations.

Seismic Hazard Mapping Act

The Seismic Hazard Mapping Act was adopted by the state in 1990 for the purpose of protecting the public from the effects of nonsurface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The CGS prepares and provides local governments with seismic hazard zones maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures.

California Building Code

Current law states that every local agency enforcing building regulations, such as cities and counties, must adopt the provisions of the California Building Code (CBC) within 180 days of its publication. The publication date of the CBC is established by the California Building Standards Commission, and the code is under Title 24, Part 2, of the California Code of Regulations. The CBC provides minimum standards to protect property and public safety by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions. The CBC contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock onsite, and the strength of ground shaking with a specified probability at a site. The 2016 CBC took effect on January 1, 2017, including requirements for performing Geotechnical Investigations.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

Requirements for geotechnical investigations are included in CBC Appendix J, Grading, Section J104; additional requirements for subdivisions requiring tentative and final maps and for other specified types of structures are in California Health and Safety Code Sections 17953 to 17955 and in CBC Section 1802. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness. CBC Section J106 sets forth requirements for inspection and observation during and after grading.

Storm Water Pollution Prevention Plans

Pursuant to the CWA, in 2012, the State Water Resources Control Board issued a statewide general NPDES Permit for stormwater discharges from construction sites (National Pollutant Discharge Elimination System No. CAS000002). Under this Statewide General Construction Activity permit, discharges of stormwater from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or be covered by the General Permit. Coverage by the General Permit is accomplished by completing and filing a Notice of Intent with the State Water Resources Control Board and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). Each applicant under the General Construction Activity Permit must ensure that a SWPPP is prepared prior to grading and is implemented during construction. The SWPPP must list best management practices (BMPs) implemented on the construction site to protect stormwater runoff and must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a monitoring plan if the site discharges directly to a water body listed on the state’s 303(d) list of impaired waters.

The project will be required to meet the requirements of the City’s NPDES permit with the State Regional Water Quality Control Board to mitigate storm water pollution and erosion. The Phase II permit requires installation of Post Construction facilities.

California Public Resources Code

The State of California Public Resources Code, Chapter 1.7, Sections 5097.5 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological “sites” or “features” from state lands as a misdemeanor, and prohibit the removal of any paleontological “site” or “feature” from State land without permission of the jurisdictional agency. These protections apply only to State of California land.

Statewide General Construction Permit

Construction projects of one acre or more are regulated under the General Construction Permit, Order No. 2012-0006-DWQ, issued by the State Water Resources Control Board in 2012. Projects obtain coverage by developing and implementing a Stormwater Pollution Prevention Plan estimating sediment

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

risk from construction activities to receiving waters and specifying Best Management Practices (BMPs) that would be used by the project to minimize pollution of stormwater.

Local Regulations

City of Vacaville General Plan

The Safety Element of the General Plan provides the following policies pertaining to minimizing the exposure to geologic hazards:

- **Policy SAF-P1.1:** Consider geologic conditions when designating land use and designing development in Vacaville. Where potential geologic or seismic risks are high and unmitigable, retain low-occupancy or open space forms of use.
- **Policy SAF-P1.2:** Prohibit development on ridges and slopes at or exceeding 25 percent, as shown in Figure SAF-4.
- **Policy SAF-P1.3:** Evaluate and consider the geologic and soil hazards for any proposed extension of urban or suburban land uses into areas that are characterized by slopes from 15 to 25 percent, as shown in Figure SAF-4.
- **Policy SAF-P1.4:** Determine the geologic suitability of proposed development sites during the earliest stages of the planning process. Such analyses should consider the potential structural engineering needs of the project and the impacts development activities may have on adjacent lands.
- **Policy SAF-1.5:** Require geotechnical studies prior to approving rezoning requests, specific plans, or subdivision maps in areas that have experienced landslides in the past, as shown in Figure SAF-3, and that are within ¼ mile of a fault.
- **Policy SAF-1.6:** Require preparation of a soils report prior to issuing a building permit, except where the Building Official determines that the report is not needed.
- **Policy SAF-1.7:** Require comprehensive geologic and engineering studies of critical structures such as hospitals, fire and police stations, utility centers and substations, emergency communications facilities, overpasses, and bridges, regardless of location.
- **Policy SAF-P1.8:** To the extent practical, do not locate structures intended for human occupancy over the trace of an inactive fault. Allow roads to be built over active faults only where alternatives are impractical.
- **Policy SAF-P1.10:** Limit cut slopes to 2:1 (50 percent slope) except where an engineering geologist can establish that a steeper slope would perform satisfactorily over the long term. Where practicable, require more gentle slopes than the 2:1 standard. Encourage use of retaining walls, rock-filled crib walls, or stepped-in buildings as alternatives to high cut slopes.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

The maximum slope within the City right-of-way is 5:1.

- **Policy SAF-P1.11:** Require contour rounding and revegetation to preserve natural qualities of sloping terrains, mitigate the artificial appearance of engineered slopes, and control erosion. Encourage the use of native trees and shrubbery in revegetation areas.
- **Policy SAF-P1.12:** Require financial protection for public agencies and individuals as a condition of development approval for projects that are located in areas where geologic conditions indicate a potential for high maintenance or repair costs.
- **Policy SAF-P1.13:** Require the formation of geological hazard abatement districts or other methods to reduce potential exposure to geologic hazards prior to development approval in a high risk area. Such measures ensure that geotechnical mitigation measures are maintained over the long term and that financial risks are equitably shared among owners rather than borne by the City.

The Conservation and Open Space Element of the General Plan provides the following goal and policies pertaining to paleontological resources:

- **Goal COS-6:** Protect and enhance cultural resources for their aesthetic, scientific, educational, and cultural values.
 - **Policy COS-P6.4:** Requires that if cultural resources, including archaeological or paleontological resources, are uncovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented.
 - **Policy COS-P6.5:** Requires that any archaeological or paleontological resources on development project site be either preserved in their sites or adequately documented as a condition of removal. When a development project has sufficient flexibility, avoidance and preservation of the resource shall be the primary mitigation measure, unless the City identifies superior mitigation. If resources are documented, coordinate with descendants and/or stakeholder groups, as warranted.

MINERAL RESOURCES

State Regulations

Surface Mining and Reclamation Act (SMARA)

California's Surface Mining and Reclamation Act of 1975, referred to as SMARA, was enacted to address the need for a continuing supply of mineral resources, and to prevent or minimize the negative impacts of surface mining to public health, property, and the environment. Requirements for SMARA are codified under PRC §§ 2710 et. seq. Under state law, all mining operations are required to obtain permits prior to commencing operations and abide by local and state operating requirements. Mining operations are also required to have appropriate reclamation plans in place, provide financial assurances, and abide by state and local environmental laws.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

Classification

The California Geological Survey Mineral Resources Project provides information about California's non-fuel mineral resources. The Mineral Resources Project classifies lands throughout the State that contain regionally significant mineral resources per SMARA. Non-fuel mineral resources include metals such as gold, silver, iron, and copper; industrial metals such as boron compounds, rare-earth elements, clays, limestone, gypsum, salt and dimension stone; and construction aggregate including sand, gravel, and crushed stone. Development generally results in a demand for minerals, especially construction aggregate. Urban preemption of prime deposits and conflicts between mining and other uses throughout California led to passage of the SMARA which requires all cities and counties to incorporate in their General Plans the mapped designations approved by the State Mining and Geology Board.

The classification process involves the determination of Production-Consumption (P-C) Region boundaries, based on identification of active aggregate operations (Production) and the market area served (Consumption). The P-C regional boundaries are modified to include only those portions of the region that are urbanized or urbanizing and are classified for their aggregate content. An aggregate appraisal further evaluates the presence or absence of significant sand, gravel, or stone deposits that are suitable sources of aggregate. The classification of these mineral resources is a joint effort of the state and the local governments. It is based on geologic factors and requires that the State Geologist classify the mineral resources area as one of the four Mineral Resource Zones (MRZs), Scientific Resource Zones (SZ), or Identified Resource Areas (IRAs), described below.

- MRZ-1: A Mineral Resource Zone where adequate information indicates that no significant mineral deposits are present or likely to be present.
- MRZ-2: A Mineral Resource Zone where adequate information indicates that significant mineral deposits are present, or a likelihood of their presence and development should be controlled.
- MRZ-3: A Mineral Resource Zone where the significance of mineral deposits cannot be determined from the available data.
- MRZ-4: A Mineral Resource Zone where there is insufficient data to assign any other MRZ designation.
- SZ Areas: Containing unique or rare occurrences of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.
- IRA Areas: County or State Division of Mines and Geology Identified Areas where adequate production and information indicates that significant minerals are present.

As part of the classification process, an analysis of site-specific conditions is utilized to calculate the total volume of aggregates within individually identified Resource Sectors. Resource Sectors are those MRZ-2 areas identified as having regional or statewide significance. Anticipated aggregate demand in the P-C Regions for the next 50 years is then estimated and compared to the total volume of aggregate reserves identified within the P-C Region.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

Designation

Once a classification report has been completed, the State Mining and Geology Board may choose, based on recommendations from the State Geologist, to proceed with the second step in SMARA's mineral land identification process, designation of those mineral deposits that are of regional or statewide significance. In contrast to classifications, which inventories mineral deposits without regard to land use or land ownership, the purpose of a designation is to identify those deposits that are potentially available from a land-use perspective and are of prime importance in meeting future needs of the region or State.

4.10.1.2 EXISTING CONDITIONS

Geology And Soils

Faults and Ground Shaking

Vacaville is located in a seismically active region and earthquakes have the potential to cause groundshaking of significant magnitude. The Great Valley Fault and the Vaca-Kirby Hills Fault system are the only fault systems that pass through Vacaville. The Great Valley Fault is a blind thrust fault with areal limits overlapping with the project site. This fault is considered capable of a moment magnitude earthquake of 6.8 and has experience displacement within the past 11,700 years. The California Geological Survey (formerly California Division of Mines and Geology) attributed the 1892 Vacaville-Winters earthquake sequence to this fault (Bennett 1987). However, a blind thrust fault poses a negligible risk of surface rupture.

The Vaca Fault has not experienced displacement within the past 11,700 years, and there is no evidence for displacement along the Kirby Hills Fault during the last 700,000 years. The Vaca Fault is approximately 2.8 miles southwest of the project site (DOC 2019).

Liquefaction

Liquefaction occurs when loosely packed sandy or silty materials saturated with water are shaken hard enough to lose strength and stiffness. Liquefied soils behave like a liquid and are responsible for tremendous damage in an earthquake. Vacaville is generally characterized by areas of very low, low, and moderate risk of liquefaction. According to Figure SAF-2, Liquefaction Potential, of the General Plan, the project site is within a low and medium liquefaction potential.

Landslides and Ground Failure

Landslides and slope instability are characterized by the movement of soils and bedrock down steep slopes. This movement results from wet weather, seismic shaking, and/or improper construction, grading, and drainage. According to Figure SAF-3, Historic Mapped Landslides, and Figure SAF-4, Percent Slope, of the General Plan, the project site is not within an area known to have landslides and has slopes of less than 5 percent.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

Expansive Soils

Certain types of soils have characteristics that make them more susceptible to geotechnical hazards, such as erosion and expansion. Soils subject to expansion expand when water is added and shrink when water dries out. The primary types of soils in the Vacaville area are silty, sandy, and clay loams, with a smaller portion being made up of purely clay soils. Based on observations of test pits on the project site, potentially expansive clay was encountered near the surface (ENEGO 2019).

Subsidence

Land subsidence is the sinking of a large area of ground surface with little or no horizontal movement. Subsidence areas are associated with land over areas where groundwater or natural gas is extracted, and can also occur from seismic activity. Subsidence can occur throughout Vacaville, but particularly in any areas where groundwater has been extracted.

Groundwater

The project site is above the Solano Groundwater Basin; the recent groundwater levels near the site range from 15 to 18 feet below ground surface (bgs) between 2019 and 2021 (DWR 2021). Based on on-site observations, groundwater has been encountered at 7 feet bgs on the site and may vary between 7 and 15 feet bgs (ENEGO 2019).

Paleontological Resources

Paleontological resources (fossils) are the remains and/or traces of prehistoric plant and animal life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, and wood are found in the geologic deposits (rock formations) in which they were originally buried. Paleontological resources represent a limited, nonrenewable, sensitive scientific and educational resource.

The potential for fossil remains at a location can be predicted through previous correlations that have been established between fossil occurrence and the geologic formations in which they are buried. For this reason, knowledge of the geology of a particular area and the paleontological resource sensitivity of particular rock formations makes it possible to predict where fossils will or will not be encountered.

The project site overlays a portion of the Modesto Formation, which has produced significant fossils at numerous localities. In the North Sequoia area, Modesto Formation is expected to be found in shallow subsurface. In the Southern Sequoia area, Modesto Formation is expected to be found at depths of 10 feet to over 20 feet (ENEGO 2021).

Mineral Resources

According to the California Department of Conservation, there are no mines in the City of Vacaville (DOC 2016). According to Chapter 4, Resources, of the Solano County General Plan, the project site is not mapped as having a mineral resource zone (MRZ) classification (Solano County 2008).

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

4.10.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant geology and soils and mineral resources impacts if it would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; iv) Landslides, mudslides, or other similar hazards.
2. Result in substantial soil erosion or the loss of topsoil.
3. 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.
4. Be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
5. 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.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
7. Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.
8. 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.

4.10.3 IMPACT DISCUSSION

GEO-1 The project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; ii) Strong seismic ground shaking; iii) Seismic-related ground failure, including liquefaction; iv) Landslides, mudslides, or other similar hazards.

4.10.3.1 RUPTURE OF A KNOWN EARTHQUAKE FAULT

Project development would not create or exacerbate fault rupture because no development is proposed in the path of a known surface earthquake fault or Alquist-Priolo Earthquake Fault Zone. Impacts would be less than significant.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

4.10.3.2 STRONG SEISMIC GROUND SHAKING

During large earthquakes, strong ground shaking will be produced. An earthquake of moderate to high magnitude generated within the San Francisco Bay Region, similar to those that have occurred in the past, could cause considerable ground shaking at the site. To mitigate the shaking effects, all structures would be designed using, at a minimum, the latest California Building Code (CBC) requirements. Impacts would be less than significant.

4.10.3.3 SEISMIC-RELATED GROUND FAILURE

Soil liquefaction results from loss of strength during cyclic loading, such as during an earthquake. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. Empirical evidence indicates that loose to medium-dense gravels, silty sands, low-plasticity silts, and some low-plasticity clays are also potentially liquefiable.

The preliminary liquefaction analysis results indicated intermittent layers of the clay and silty clay encountered on-site has potential for liquefaction (ENGEO 2019). However, based on the previously described depositional environment and the likely presence of the high plasticity basin and Delta mud deposits, the hazard from liquefaction-induced settlement is considered low. Impacts would be less than significant.

4.10.3.4 LANDSLIDES, MUDSLIDES, OR OTHER SIMILAR HAZARDS

Based on site topography, which is relatively flat, the risk of landslides and mudslides on the site is low (USGS 2021). The site is not currently mapped within a California Geologic Survey (CGS) Seismic Hazard Zone for landslides (CGS 2021).

Lateral spreading involves lateral ground movements caused by seismic shaking. These lateral ground movements are often associated with a weakening or failure of an embankment or soil mass overlying a layer of liquefied sands or weak soils. Ulati Creek along the southeast edge of the site has an approximate embankment height of 5 feet. Horse Creek, an unlined channelized creek along the northern edge of the site has an approximate embankment height of 15 to 17 feet (ENGEO 2019). Additional analysis is recommended to determine the extent of the risk for lateral spreading on the project site, as part of the design-level analysis for site improvement and building plans. Therefore, impacts would be potentially significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-1 would be potentially significant.

Mitigation Measures

Mitigation Measure GEO-1: All grading operations and construction shall be conducted in conformance with the recommendations included in the geotechnical evaluations for the project site prepared by ENGEO, Inc., specifically the Preliminary Geotechnical Exploration for Greentree, Solano County, California dated June 6, 2019, and subsequent geotechnical reports prepared for this project. Specific

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

recommendations in the geotechnical evaluations shall be incorporated into the final project plans and construction-level geotechnical report.

Level of Significance After Mitigation: GEO-1 would be less than significant.

GEO-2	The project would not result in substantial soil erosion or the loss of topsoil.
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Project development could result in an increase in impervious surfaces. This in turn could result in an increase in stormwater runoff, higher peak discharges to drainage channels, the potential to cause erosion or siltation in drainage swales and streams, and potential loss of topsoil. Increases in tributary flows can exacerbate creek bank erosion or cause destabilizing channel incision.

Project activities such as grading, trenching, paving, tree and plant removal, and other soil disturbances can increase the potential for soil erosion on-site. The Vacaville General Plan includes the Safety Element which discusses goals and policies affecting soils including those established to minimize soil erosion, sedimentation, and topsoil removal by regulating development, excavation, grading, fillings, and land clearing activities.

As described in further detail in Chapter 4.10, *Hydrology and Water Quality*, of this Draft EIR, the proposed project would be required to implement construction phase best management practices (BMPs) as well as post-construction site design, source control, and treatment control measures in accordance with permit requirements. The proposed project would also be required by the State Water Resources Control Board to develop and implement a Stormwater Pollution Prevention Plan to control discharges from construction sites.

Runoff generated by the proposed project would be collected in a storm drain and detention basin that meets the requirements of the Municipal Regional Stormwater NPDES Permit. The storm drain for the development would empty into the proposed drainage features. Furthermore, implementation of all site-specific designs stipulated in the geotechnical report and compliance with the Municipal Regional Stormwater NPDES Permit would minimize runoff generated by the proposed project. As a result, operation of the proposed project would not result in substantial soil erosion or the loss of topsoil, and impacts would be less than significant.

Level of Significance

Level of Significance Before Mitigation: GEO-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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GEO-3	The project 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 landslide, lateral spreading, subsidence, liquefaction, or collapse.
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Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. As described under impact discussion GEO-1, project development would not exacerbate liquefaction hazards. With the implementation of the geotechnical report's recommendations, impacts related to ground lurching and lateral spreading would be less than significant.

As described under impact discussion GEO-1, the project site and surroundings are nearly level and are not subject to landslides. The field exploration conducted for the project geotechnical report encountered approximately ½ foot to 3 feet of fill material. The fill material was primarily clay with some locations containing sand and pea sized gravel, likely from previous sand bunker in the golf course. The major cause of ground subsidence is the excessive withdrawal of groundwater. Project construction would not result in the permanent lowering of groundwater. Therefore, project development would not exacerbate subsidence hazards and the impact would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

GEO-4	The project would be located on expansive soil, as defined by Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
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The predominant soil type at the ground surface across all of the project site is expansive clay. Laboratory testing indicates the expansion potential of the clay soils vary from moderate to high shrink/swell potential. Therefore, development of the proposed project would have the potential to expose people to hazards associated with expansive soils and the impact would be potentially significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-4 would be potentially significant.

Mitigation Measures

Mitigation Measure GEO-4: Implement mitigation measure GEO-1.

Level of Significance After Mitigation: GEO-4 would be less than significant.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

GEO-5	The project would not 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.
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The proposed project would not require the use of septic tanks or alternative wastewater disposal systems. The project would be connected to and discharged into the existing public sanitary sewer system for the City of Vacaville, which is serviced by the Easterly Valley Wastewater Treatment Plant. As such, implementation of the proposed project at sites where soils might otherwise not be capable of supporting the use of septic tanks or alternative wastewater disposal system would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

GEO-6	The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
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Although paleontological resources have not been identified on the project site, the paleontological report identified the potential for occurrence of fossils within the Modesto Formation, which could occur in the shallow subsurface or at depths of 10 feet to over 20 feet (ENGEO 2021). Because the proposed project requires ground disturbing activities in the Modesto Foundation area, there could be fossils of potential scientific significance and other unique geologic features. Therefore, ground-disturbing construction associated with development permitted under the proposed project could cause damage to, or destruction of, paleontological resources or unique geologic features. Therefore, impacts related to paleontological resources would be potentially significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-6 would be potentially significant.

Mitigation Measures

Mitigation Measure GEO-6: In the event that fossils or fossil-bearing deposits are discovered during construction, excavations within 50 feet of the find shall be temporarily halted or diverted. The contractor shall notify a qualified paleontologist to examine the discovery. The paleontologist shall document the discovery, as needed, in accordance with Society of Vertebrate Paleontology standards, evaluate the potential resource, and assess the significance of the finding under the criteria set forth in CEQA Guidelines Section 15064.5. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the project proponent determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project based on the qualities that make the resource

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

important. The plan shall be submitted to the City of Vacaville for review and approval prior to implementation.

Any paleontological materials encountered during project excavation shall be salvaged and treated as described by SVP (2010). This treatment shall include preparation, identification, determination of significance, and curation into a public museum. Should sediments be discovered during monitoring that may yield microvertebrate fossils, sediment samples should be wet screened (either on- or off-site) to recover a representative sample of the microvertebrates present per SVP standard procedures.

Level of Significance After Mitigation: GEO-6 would be less than significant.

4.10.4 CUMULATIVE IMPACTS

GEO-7	The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to geology and soils.
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Geology, soils, and paleontological impacts are site specific and generally do not combine to result in cumulative impacts. Additionally, CEQA is concerned with whether project implementation exacerbates existing hazards on-site. Similar to the proposed project, future cumulative development projects would be required to comply with applicable State and local building regulations, including the CBC and the City of Vacaville Municipal Code. Site-specific geologic hazards would be addressed in each project's design and adherence to applicable regulations and building standards. Therefore, no significant cumulative impact would occur. The impact is less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GEO-7 would be less than significant.

Mitigation Measures

No mitigation measures are required.

MIN-1	The project would not result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state.
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The proposed project would not result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state. According to the Solano County General Plan, there are no known mineral resources on the project site. Therefore, implementation of the proposed project would not result in the loss of availability of any mineral resources that could be of value to the region.

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LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: MIN-1 would not be significant.

Mitigation Measures

No mitigation measures are required.

MIN-2	The project would not 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.
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The proposed project would not 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. There are no locally important mineral resource recovery sites in the area.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: MIN-2 would not be significant.

Mitigation Measures

No mitigation measures are required.

4.10.5 CUMULATIVE IMPACTS

MIN-3	The proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less-than-significant cumulative impacts with respect to mineral resources.
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Portions of the City are either within an MRZ-3, where the significance cannot be evaluated, or are not within MRZ. As the proposed project would not impact mineral resources, and future projects are not likely to impact mineral resources due to the unknown significance of mineral deposits, no significant cumulative impact would occur.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: MIN-3 would not be significant.

Mitigation Measures

No mitigation measures are required.

4.10 GEOLOGY AND SOILS AND MINERAL RESOURCES

4.10.6 REFERENCES

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4.11 GREENHOUSE GAS EMISSIONS

4.11 GREENHOUSE GAS EMISSIONS

This chapter describes the regulatory framework and existing conditions on the project site related to greenhouse gas (GHG) emissions.

The analysis in this section is based in part on the following technical report:

- *Air Quality/Energy/Greenhouse Gas Report*, EMC Planning Group, October 28, 2021. A complete copy of this report is included as Appendix 4.6-1.

4.11.1 ENVIRONMENTAL SETTING

4.11.1.1 TERMINOLOGY

The following are definitions for terms used throughout this section.

- **Greenhouse gases (GHG).** Gases in the atmosphere that absorb infrared light, thereby retaining heat in the atmosphere and contributing to a greenhouse effect.
- **Global warming potential (GWP).** Metric used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1.
- **Carbon dioxide-equivalent (CO₂e).** The standard unit to measure the amount of GHGs in terms of the amount of CO₂ that would cause the same amount of warming. CO₂e is based on the GWP ratios between the various GHGs relative to CO₂.
- **MTCO₂e.** Metric tons of CO₂ Equivalent.
- **MMTCO₂e.** Million metric tons of CO₂ Equivalent.

4.11.1.2 GREENHOUSE GASES AND CLIMATE CHANGE

Human activities contribute to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. The primary source of GHGs is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHGs—water vapor, carbon dioxide (CO₂), methane (CH₄), and ozone (O₃)—that may cause an increase in global average temperatures observed within the 20th and 21st centuries. Water vapor (H₂O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant because it is considered part of the feedback loop of changing radiative forcing rather than a primary cause of change. Other GHGs identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC *Third Assessment Report: Climate Change* 2001).

4.11 GREENHOUSE GAS EMISSIONS

Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017). However, State and national GHG inventories do not include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

The major GHGs are briefly described as follows:

- **Carbon dioxide (CO₂)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide (N₂O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.

GHGs are dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Some GHGs have a stronger greenhouse effect than others. These are referred to as high global warming potential (GWP) gases. The GWP of applicable GHG emissions are shown in Table 4.11-1. The GWP is used to convert GHGs to CO₂-equivalence (CO₂e) to show the relative potential that different GHGs have to contribute to the greenhouse effect. CO₂ equivalence is used to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. The global warming potential of a GHG is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, under IPCC's Fourth Assessment Report (AR4), a project that generates 10 metric tons (MT) of methane (CH₄) would be the same as 250 MT of CO₂.

California's GHG Sources and Relative Contribution

The California Air Resources Board (CARB) is a governmental agency that oversees the air quality standards and sets rules and regulations to maintain those set standards. In 2018, the s CARB'sGHG emissions inventory (CARB 2018)was updated for 2000 to 2016 emissions using the GWPs in IPCC's AR4, the methodology for which is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32. Based on these GWPs, California produced 429.4 MMTCO₂e GHG emissions in 2016. California's transportation sector was the single largest generator of GHG emissions, producing 40.5 percent of the state's total emissions. Industrial sector emissions made up 23.4 percent, and electric power generation made up 16.1 percent of the state's emissions inventory. Other major

4.11 GREENHOUSE GAS EMISSIONS

sectors of CARB’s GHG emissions inventory include commercial and residential (12.0 percent), agriculture and forestry (7.9 percent) and other (solvents and chemicals) at 0.2 percent (CARB 2018).

TABLE 4.11-1 GHG EMISSIONS AND THEIR RELATIVE GLOBAL WARMING POTENTIAL COMPARED TO CO₂

GHGs	Second Assessment Report Atmospheric Lifetime (Years)	Fourth Assessment Report Atmospheric Lifetime (Years)	Second Assessment Report Global Warming Potential Relative to CO ₂ ^a	Fourth Assessment Report Global Warming Potential Relative to CO ₂ ^a
Carbon Dioxide (CO ₂)	50 to 200	50 to 200	1	1
Methane ^b (CH ₄)	12 (±3)	12	21	25
Nitrous Oxide (N ₂ O)	120	114	310	298

Notes: The IPCC has published updated global warming potential (GWP) values in its Fifth Assessment Report that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO₂ (radiative forcing is the difference of energy from sunlight received by the earth and radiated back into space).

a. Based on 100-year time horizon of the GWP of the air pollutant relative to CO₂.

b. The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO₂ is not included.

Source: Intergovernmental Panel on Climate Change, 1995, Second Assessment Report: Climate Change 1995; Intergovernmental Panel on Climate

Change. 2007. Fourth Assessment Report: Climate Change 2007. New York: Cambridge University Press.

The data presented from CARB’s GHG emissions inventory reports a declining trend since 2007. In 2016, emissions from routine GHG emitting activities statewide were 429 MMTCO₂e or 12 MMTCO₂e lower than 2015 levels. When comparing 2016’s GHG emissions to peak levels in 2004 of 490.8 MMTCO₂e there is an overall decrease of 13 percent. During the 2000 to 2016 period, per capita GHG emissions in California dropped from a peak in 2001 of 14.0 MTCO₂e per capita to 10.8 MTCO₂e per capita in 2016, a 23 percent decrease. The inventory also demonstrates a decline in carbon intensity from California’s economy (the amount of CO₂e pollution per million dollars of gross domestic product (GDP)) is declining. From 2000 to 2016, there is a 41 percent decline in carbon intensity while the state’s GDP has grown 46 percent during this period (CARB 2018).

Human Influence on Climate Change

In the past, gradual changes in the earth’s temperature changed the distribution of species, availability of water, etc. over long periods of time. However, human activities are accelerating this process so that environmental impacts associated with climate change no longer occur in a geologic time frame but within a human lifetime. Projections of climate change depend heavily upon future human activity. Therefore, climate models are based on different emission scenarios that account for historical trends, observations of the climate record that assess human influence, and extreme weather events. Climate-change scenarios are affected by varying degrees of uncertainty.

4.11 GREENHOUSE GAS EMISSIONS

Potential Climate Change Impacts for California

Observed changes over the last several decades across the western United States reveal clear signs of climate change. Statewide average temperatures increased by about 1.7 degrees Fahrenheit (°F) from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). The years from 2014 through 2016 have shown unprecedented temperatures with 2014 being the warmest (OEHHA 2018). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels (CCCC 2012). According to the California Climate Action Team—a committee of state agency secretaries and the heads of agencies, boards, and departments, led by the Secretary of the California Environmental Protection Agency—even if actions could be taken to immediately curtail climate change emissions, the potency of emissions that have already built up, their long atmospheric lifetimes (see Table 4.11-1), and the inertia of the Earth’s climate system could produce as much as 0.6 degrees Celsius (°C) (1.1°F) of additional warming. Consequently, some impacts from climate change are now considered unavoidable. Global climate change risks to California are described below and shown in Table 4.11-2.

- **Water Resources Impacts.** By late this century, all projections show drying, and half of the projections suggest 30-year average precipitation will decline by more than 10 percent below the historical average. Even in projections with relatively little or no decline in precipitation, central and southern parts of the state are expected to be drier from the warming effects alone because the spring snowpack will melt sooner, and the moisture in soils will evaporate during long dry summer months (CCST 2012).
- **Wildfire Risks.** Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. Human activities will continue to be the biggest factor in ignition risk. The number of large fires statewide is estimated to increase by 58 percent to 128 percent above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57 percent to 169 percent, depending on location (CCST 2012).
- **Health Impacts.** Many of the gravest threats to public health in California stem from the increase of extreme conditions, principally more frequent, more intense, and longer heat waves. Particular concern centers on the increasing tendency for multiple hot days in succession, and simultaneous heat waves in several regions throughout the state. Public health could also be affected by climate change impacts on air quality, food production, the amount and quality of water supplies, energy pricing and availability, and the spread of infectious diseases. Higher temperatures also increase ground-level ozone levels. Furthermore, wildfires can increase particulate air pollution in the major air basins of California (CCST 2012).
- **Increase Energy Demand.** Increases in average temperature and higher frequency of extreme heat events combined with new residential development across the state will drive up the demand for cooling in the increasingly hot and longer summer season and decrease demand for heating in

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the cooler season. Warmer, drier summers also increase system losses at natural gas plants (reduced efficiency in the electricity generation process at higher temperatures) and hydropower plants (lower reservoir levels). Transmission of electricity will also be affected by climate change. Transmission lines lose 7 percent to 8 percent of transmitting capacity in high temperatures while needing to transport greater loads. This means that more electricity needs to be produced to make up for the loss in capacity and the growing demand (CCST 2012).

TABLE 4.11-2 SUMMARY OF GHG EMISSIONS RISK TO CALIFORNIA

Impact Category	Potential Risks
Public Health Impacts	<ul style="list-style-type: none"> ▪ Heat waves will be more frequent, hotter, and longer ▪ Poor air quality made worse ▪ Higher temperatures increase ground-level ozone (i.e., smog) levels
Water Resource Impacts	<ul style="list-style-type: none"> ▪ Decreasing Sierra Nevada snow pack ▪ Challenges in securing adequate water supply ▪ Potential reduction in hydropower ▪ Loss of winter recreation
Agricultural Impacts	<ul style="list-style-type: none"> ▪ Increasing temperature ▪ Increasing threats from pests and pathogens ▪ Expanded ranges of agricultural weeds ▪ Declining productivity ▪ Irregular blooms and harvests
Coastal Sea Level Impacts	<ul style="list-style-type: none"> ▪ Accelerated sea level rise ▪ Increasing coastal floods ▪ Shrinking beaches ▪ Worsened impacts on infrastructure
Forest and Biological Resource Impacts	<ul style="list-style-type: none"> ▪ Increased risk and severity of wildfires ▪ Lengthening of the wildfire season ▪ Movement of forest areas ▪ Conversion of forest to grassland ▪ Declining forest productivity ▪ Increasing threats from pest and pathogens ▪ Shifting vegetation and species distribution ▪ Altered timing of migration and mating habits ▪ Loss of sensitive or slow-moving species

Sources: California Climate Change Center, 2012, Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California; California Energy Commission, 2006, Our Changing Climate: Assessing the Risks to California, 2006 Biennial Report, CEC-500-2006-077; California Energy Commission, 2009, The Future Is Now: An Update on Climate Change Science, Impacts, and Response Options for California. CEC-500-2008-0077; California Natural Resources Agency, 2014, Safeguarding California: Reducing Climate Risk, An Update to the 2009 California Climate Adaptation Strategy.

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4.11.1.3 REGULATORY FRAMEWORK

This section summarizes key federal, state, regional, and local regulations and programs related to GHG emissions applicable to the proposed project.

Federal Regulations

The United States Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings did not themselves impose any emission reduction requirements but allowed the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (EPA 2009a). To regulate GHGs from passenger vehicles, the EPA was required to issue an endangerment finding, which identifies emissions of six key GHGs: CO₂, CH₄, N₂O, HCFCs, PFCs, and SF₆ (EPA 2009b). The first three are applicable to the project's GHG emissions inventory because they constitute the majority of GHG emissions and, per BAAQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory. These are as follows:

- **US Mandatory Report Rule for Greenhouse Gases (2009).** In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 metric tons (MT) or more of CO₂e per year are required to submit an annual report.
- **Update to Corporate Average Fuel Economy Standards (2010 to 2012).** The current Corporate Average Fuel Economy (CAFE) standards (for models 2011 to 2016) incorporate stricter fuel economy requirements into one uniform standard. Additionally, automakers are required to cut GHG emissions in new vehicles by roughly 25 percent by 2016 (resulting in a fleet average of 35.5 miles per gallon by 2016). Rulemaking to adopt these new standards was completed in 2010. The federal government issued new standards in 2012 for model years 2017 to 2025, which will require a fleet average of 54.5 miles per gallon in 2025. The EPA is reexamining the 2017 to 2025 emissions standards.
- **EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing).** Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new stationary sources such as power plants, refineries, and other large sources of emissions. Pursuant to the 2013 Climate Action Plan, the EPA was directed to also develop regulations for existing stationary sources. However, the EPA is reviewing the Clean Power Plan under the current Energy Independence Executive Order.

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State Regulations

Assembly Bill 32 (Global Warming Solutions Act)

In September 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006, also known as Assembly Bill 32 (AB 32). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that was phased in starting 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

Senate Bill 32

Effective January 1, 2017, Senate Bill 32 (SB 32) added a new section to the Health and Safety Code. It provides that “[i]n adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by [Division 25.5 of the Health and Safety Code], [CARB] shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030.” In other words, SB 32 requires California, by the year 2030, to reduce its statewide GHG emissions so that they are 40 percent below those that occurred in 1990.

Between AB 32 (2006) and SB 32 (2016), the Legislature has codified some of the ambitious GHG reduction targets included within certain high-profile Executive Orders issued by the last two governors. The 2020 statewide GHG reduction target in AB 32 was consistent with the second of three statewide emissions reduction targets set forth in former Governor Arnold Schwarzenegger’s 2005 Executive Order known as S-3-05, which is expressly mentioned in AB 32. The Executive Branch document included the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; by 2050 reduce GHG emissions to 80 percent below 1990 levels. To meet the targets, the Governor directed several state agencies to cooperate in the development of a climate action plan. The Secretary of Cal-EPA leads the Climate Action Team, whose goal is to implement global warming emission reduction programs identified in the Climate Action Plan and to report on the progress made toward meeting the emission reduction targets meeting the emission reduction targets established in the executive order.

In 2015, former Governor Brown issued another Executive Order, B-30-15, which created a “new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 is established in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.” SB 32 codified this target.

The Legislature has not yet set a 2050 target in the manner done for 2020 and 2030 through AB 32 and SB 32, though references to a 2050 target can be found in statutes outside the Health and Safety Code. In the 2015 legislative session, the Legislature passed Senate Bill 350 (SB 350). This legislation added to the Public Utilities Code language that essentially puts into statute the 2050 GHG reduction target already identified in Executive Order S-3-05, albeit in the limited context of new state policies (i) increasing the

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overall share of electricity that must be produced through renewable energy sources, and (ii) directing certain state agencies to begin planning for the widespread electrification of the California vehicle fleet. Section 740.12(a)(1)(D) of the Public Utilities Code now states that “[t]he Legislature finds and declares [that]...[r]educing emissions of [GHGs] to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification.” Furthermore, Section 740.12(b) now states that the California Public Utilities Commission, in consultation with California Air Resources board and the California Energy Commission, must, “direct electrical corporations to file applications for programs and investments to accelerate widespread transportation electrification to reduce dependence on petroleum, meet air quality standards, and reduce emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.”

California Renewables Portfolio Standard

In September 2002, the Legislature enacted Senate Bill 1078, which established the Renewables Portfolio Standard program, requiring retail sellers of electricity, including electrical corporations, community choice aggregators, and electric service providers, to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources such as wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas. The legislation set a target by which 20 percent of the State’s electricity would be generated by renewable sources.

In September 2006, the Legislature enacted Senate Bill 107, which modified the Renewables Portfolio Standard to require that at least 20 percent of electricity retail sales be served by renewable energy resources by year 2010. In April 2011, the Legislature enacted Senate Bill X1-2, which set an even more aggressive statutory targets for renewable electricity of 33 percent by 2020.

In 2015, the Legislature enacted Senate Bill 350, requiring a substantial increase in the use of electric vehicles and increasing the Renewable Portfolio Standard to require 50 percent of electricity generated to be from renewables by 2030. On September 10, 2018, former Governor Brown signed into law SB 100 an executive Order B-55-18. SB 100 raises California’s Renewable Portfolio Standard requirement to 50 percent renewable resources target by December 31, 2026, and 60 percent targeted by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for California by 2045; and sets a goal to maintain net negative emissions thereafter.

In March 2012, former Governor Brown issued an Executive Order, B-16-12, which embodied a vision of a future in which embodied a vision of a future in which zero-emission vehicles will play a big part in helping the state meet its GHG reduction targets. Executive Order B-16-12 directed state government to accelerate the market in California through fleet replacement and electric vehicle infrastructure. The Executive Order set the following targets:

- By 2015, all major cities in California will have adequate infrastructure and be “zero-emission vehicles ready;”
- By 2020, adequate infrastructure to support one million zero-emission vehicles;
- By 2025, 1.5 million zero-emission vehicles on the road in California; and

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- By 2050, virtually all personal transportation in the State will be based on zero-emission vehicles, and greenhouse gas emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

Assembly Bill 1493, Pavley Clean Cars Standards

In July 2002, the Legislature enacted Assembly Bill 1493 (“Pavley Bill”), which directed CARB to develop and adopt regulations that achieve the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks beginning with model year 2009. In September 2004, CARB approved regulations to reduce GHG emissions from new motor vehicles beginning with the 2009 model year. These regulations created what are commonly known as the “Pavley standards.” In September 2009, CARB adopted amendments to the Pavley standards to reduce GHG emissions from new motor vehicles through the 2016 model year. These regulations created what are commonly known as the “Pavley II standards.”

In January 2012, CARB adopted an Advanced Clean Cars program aimed at reducing both smog-causing pollutants and GHG emissions for vehicles model years 2017-2025. This historic program combined the control of smog-causing (criteria) pollutants and GHG emissions into a single coordinated set of requirements. The regulations focus on substantially increasing the number of plug-in hybrid cars and zero-emission vehicles in the vehicle fleet and on making fuels such as electricity and hydrogen readily available for these vehicle technologies. The components of the Advanced Clean Cars program are the low-emission vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the zero-emission vehicle regulation, which requires manufacturers to produce an increasing number of pure zero-emission vehicles (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years.

It is expected that the Advanced Clean Car regulations will reduce GHG emissions from California passenger vehicles by about 34 percent below 2016 levels by 2025, all while improving fuel efficiency and reducing motorists’ costs.

Cap-and-Trade Program

On October 20, 2011, in a related action, CARB adopted the final cap-and-trade program for California. The California cap-and-trade program creates a market-based system with an overall emissions limit for affected sectors. The program is intended to regulate more than 85 percent of California’s emissions and staggers compliance requirements according to the following schedule: (1) electricity generation and large industrial source; (2) fuel combustion and transportation. The statewide cap for GHG emissions from major sources commenced in 2013. This cap declines over time, achieving GHG emission reductions throughout the program’s duration. The program expanded in 2015 to include fuel distributors (natural gas propane fuel providers and transportation fuel providers) to address emissions from transportation fuels, and from combustion of other fossil fuels not directly covered at large source in the program’s initial phase.

In early 2017, former Governor Brown signed AB 398, which extended the life of the existing Cap-and-Trade Program through December 2030.

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California Senate Bill 375 (Sustainable Communities Strategy)

This 2008 legislation built on AB 32 by setting forth a mechanism for coordinating land use and transportation on a regional level for the purpose of reducing GHGs. The focus is to reduce miles traveled by passenger vehicles and light trucks. CARB is required to set GHG reduction targets for each metropolitan region. Each of California's metropolitan planning organizations then prepares a sustainable communities strategy that demonstrates how the region will meet its GHG reduction target through integrated land use, housing, and transportation planning. Once adopted by the metropolitan planning organizations, the sustainable communities strategy is to be incorporated into that region's federally enforceable regional transportation plan. If a metropolitan planning organization is unable to meet the target through the sustainable communities strategy, then an alternative planning strategy must be developed that demonstrates how targets could be achieved, even if meeting the targets is deemed to be infeasible.

Local agencies that adopt land use, housing, and transportation policies that are consistent with and facilitate implementation of the related GHG reduction strategies in a sustainable communities strategy benefit through potential CEQA streamlining for qualifying projects proposed within their boundaries.

AB 32 Scoping Plan

In December 2008, California Air Resources Board adopted the Climate Change Scoping Plan, which contains the main strategies California planned to implement to achieve reduction of approximately 118 million metric tons (MMT) CO₂e, or approximately 22 percent from the state's projected 2020 emission levels of 545 MMT of CO₂e under a business-as-usual scenario. This is a reduction of 47 MMT CO₂e, or almost 10 percent, from 2008 emissions. The Scoping Plan also include CARB recommended GHG reductions for each emissions sector of the state GHG inventory.

2014 Scoping Plan Update

In response to comments on the 2008 Scoping Plan, and AB 32's requirement to update the Scoping Plan every five years, CARB revised and reapproved the Scoping Plan in 2014. The 2014 Scoping Plan contains the main strategies California would implement to achieve a reduction of 80 MMT of CO₂e emissions, or approximately 16 percent, from the state's projected 2020 emission level of 507 MMT of CO₂e under the business-as-usual scenario defined in the 2014 Scoping Plan. The 2014 Scoping Plan also includes a breakdown of the amount of GHG reductions CARB recommends for each emissions sector of the state's GHG inventory. Several strategies to reduce GHG emissions are included: the Low Carbon Fuel Standard, the Pavley Rule, the Advanced Clean Cars program, the Renewable Portfolio Standard, and the Sustainable Communities Strategy.

2017 Scoping Plan

With the passage of SB 32, the Legislature also passed companion legislation AB 197, which provides additional direction for updating the prior scoping plan. The 2017 Scoping Plan represents a second update to the scoping plan to reflect the 2030 target of reducing statewide GHG emissions by 40 percent

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below 1990 levels codified by SB 32. The GHG reduction strategies in the 2017 Scoping Plan proposed to implement to meet the target include:

- SB 350 – achieve 50 percent Renewables Portfolio Standard (RPS) by 2030 and doubling of energy efficiency saving by 2030;
- Low Carbon Fuel Standard – increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020);
- Mobile Source Strategy (Cleaner Technology and Fuels Scenario) – maintaining existing GHG standards for light- and heavy-duty vehicles, put 4.2 million zero-emission vehicles on the roads, and increase zero-emission buses, delivery, and other trucks;
- Sustainable Freight Action Plan – improve freight system efficiency, maximize use of near-zero emission vehicles and equipment powered by renewable energy, and deploy over 100,000 zero-emissions trucks and equipment by 2030;
- Short-Lived Climate Pollutant Reduction Strategy – reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030 and reduce emissions of black carbon 50 percent below 2013 levels by 2030;
- SB 375 Sustainable Communities Strategies – increased stringency of 2035 targets;
- Post-2020 Cap-and-Trade Program – declining caps, continued linkage with Quebec, and linkage to Ontario, Canada;
- 20 percent reduction in greenhouse gas emissions from the refinery sector; and
- By 2018, develop an Integrated Natural and Working Lands Action Plan to secure California’s land base as a net carbon sink.

California Energy Code

The California Energy Code (California Code of Regulations, Title 24, Part 6), which is incorporated into the California Building Standards Code, was first established in 1978 in response to a legislative mandate to reduce California’s energy consumption. The California Energy Code is updated every three years by the California Energy Commission as the Building Energy Efficiency Standards (BEES) to allow consideration and possible incorporation of new energy efficiency technologies and construction methods. Although the BEES were not originally intended to reduce GHG emissions, increased energy efficiency results in decreased GHG emissions because energy efficiency buildings require less electricity. The BEES apply to new construction of, and additions and alterations to, residential and nonresidential buildings.

In May 2018, the California Energy Commission adopted the 2019 Building Energy Efficiency Standards (building standards), effective January 1, 2020. Residential and non-residential buildings permitted after January 1, 2020, are required to comply with the 2019 building standards. The 2019 building standards are structured to achieve the state’s goal that all new low-rise residential buildings (single- and

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multifamily-homes) be zero net energy. That is, the amount of energy provided by onsite renewable energy sources is equal to the amount of energy used by the homes.

Single-family homes built with the 2019 building standards will use about seven percent less energy due to energy efficiency measures versus those built under the 2016 building standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 building standards will use about 53 percent less energy than those under the 2016 building standards. Non-residential buildings will use about 30 percent less energy due mainly to lighting upgrades.

California Green Building Standards Code

The purpose of the California Green Building Standards Code (California Code of Regulations Title 24, Part 11) is to improve public health and safety and to promote the general welfare by enhancing the design and construction of building through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories: 1) planning and design; 2) energy efficiency; 3) water efficiency and conservation; 4) material conservation and resource efficiency; and 5) environmental quality. The California Green Building Standards, which became effective on January 1, 2011, instituted mandatory minimum environmental performance standards for all ground-up new construction of commercial, low-rise residential uses, and state-owned buildings, as well as schools and hospitals. The mandatory standards require the following:

- 20 percent mandatory reduction in indoor water use relative to baseline levels;
- 50 percent construction/demolition waste must be diverted from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particle boards.

The voluntary standards require the following:

- Tier I: 15 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 65 percent reduction in construction waste, 10 percent recycled content, 20 percent permeable paving, 20 percent cement reduction, and cool/solar reflective roof.
- Tier II: 30 percent improvement in energy requirements, stricter water conservation requirements for specific fixtures, 75 percent reduction in construction waste, 15 percent recycled content, 30 percent permeable paving, 30 percent cement reduction, and cool/solar reflective roof.

Regional Regulations

Yolo-Solano Air Quality Management District

The City of Vacaville is within the boundaries of the Yolo-Solano Air Quality Management District (“air district”). To date, the air district has not adopted guidance for assessing the impacts of GHGs from land use projects located within its boundary.

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Local Regulations

City of Vacaville Energy Conservation and Action Strategy

The City of Vacaville Energy Conservation and Action Strategy (“ECAS”), adopted in 2021, is qualified for reducing GHG emissions pursuant to CEQA Guidelines Section 15183.5(b)(1). The City of Vacaville Energy Conservation and Action Strategy includes a range of GHG reduction measures whose implementation would enable the City to meet its 2035 GHG emissions reduction target.

Pursuant to CEQA Guidelines Sections 15064(h)(3) and 15130(d), if a proposed project is consistent with the requirements of an adopted plan, such as a qualified GHG reduction plan that is prepared consistent with CEQA Guidelines Section 15183.5(b), as described in 15183.5(b)(2), the lead agency may determine that the project GHG impacts are less than significant if the project incorporates the applicable GHG reduction measures in the plan or the measures are otherwise required as mitigation measures. In this case, no further analysis is required. Qualified GHG reduction plans can be used to streamline the review of GHG impacts an individual land development project if the project is consistent with the qualified plan. If the project is not consistent with the qualified plan, further analysis is required to determine whether the project impact is significant.

Existing Conditions

City of Vacaville GHG Emissions Inventory

The City has adopted a qualified plan for reducing GHGs. The City of Vacaville Energy Conservation and Action Strategy includes baseline and projected GHG emissions inventories for the City. Baseline 2019 emissions are estimated to be 84,198 MT CO₂e. Transportation sources constitute about 72 percent of the emissions, while energy demand constitutes about 22 percent. For the City’s target horizon year of 2035, emissions are projected at 1,033,227 MT CO₂e. Transportation sources would constitute 72 percent, while energy sources would increase to 24 percent.

Project Features

The following project features proposed by the project applicant would have mitigating effects related to the generation of pollutant emissions.

- Pedestrian network improvements that promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.
- For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).

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- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- No woodstoves or natural gas hearths.
- Prohibition on use of natural gas in all residential units.
- Water efficient landscaping.

Following are the non-quantified project features proposed by the project applicant:

- Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.
 - All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.
 - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
 - Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.
 - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

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- Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.
- Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Construction phase equipment exhaust control measures that reduce NOx and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include Tier 4 engines for construction equipment, minimizing construction equipment idling time, and using grid-supplied electricity to power both stationary and portable construction equipment.
- Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 20 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).
- Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.
- Energy demand reduction measures that include:
 - Cool roofs on all non-residential buildings to reduce building cooling needs;
 - Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;
 - Energy Star appliances in all non-residential buildings;
 - Programmable thermostats in residential units; and
 - Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years.

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4.11.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant greenhouse gas emission impacts if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

4.11.3 IMPACT DISCUSSION

GHG-1	The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
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Construction Activities

Construction emissions were modeled at 12,244 MT CO₂e for the total construction period between 2023 and 2031. These are the emissions from construction equipment, vendor and hauling truck trips, and worker trips. The emissions volume was calculated based on an assumption that Tier 4 engines would be used in all construction equipment. Tier 4 refers to the latest emission milestone established by the US EPA and CARB applicable to new engines found in off-road equipment, including construction equipment.

Neither the City nor the air district have adopted a threshold of significance for construction GHG emissions. In such cases, it is common practice for CEQA impact analysis purposes to amortize the total construction emissions over a 30-year period to derive an annual construction emissions volume. The annual volume is then added to the annual operational emissions volume to account for the construction emissions component. At a total of 12,244 MT CO₂e, annual construction emissions would be approximately 408 MT CO₂e per year over 30 years.

Operational Activities

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with the proposed project's operational activities at buildout in 2032. Annual operational GHG emissions are projected at 15,076 MT CO₂e in 2032.

Annual GHG Emissions

The projected annual project GHG emissions are the sum of the annual operational emissions and the annual amortized construction emissions. Table 4.11-3, *Annual Project GHG Emissions*, summarizes the total GHG emissions during construction and operational activities.

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TABLE 4.11-3 ANNUAL PROJECT GHG EMISSIONS

Emissions Source	Annual GHG Emissions (MT CO ₂ e)
Amortized Construction	408
Operational	15,076
Total	15,484

Source: EMC Planning 2021

The proposed project would include onsite emissions reduction measures, such as improved connectivity and traffic calming. CalEEMod was used to evaluate the GHG emissions reductions that would accrue from implementing the applicable measures. Table 4.11-4, *Annual Operational GHG Emissions with Implementation of Applicant-Proposed Measures*, shows the emissions reduction volume from the measures and the reduced total project emissions volume.

TABLE 4.11-4 ANNUAL OPERATIONAL GHG EMISSIONS WITH IMPLEMENTATION OF APPLICANT-PROPOSED MEASURES

Emissions Source	Proposed Project	Proposed Project with Applicant-Proposed Measures
Area	834	14
Energy	2,019	1,505
Mobile	11,655	11,090
Solid Waste	426	426
Water Use	142	142
Total (MT CO₂e/year)	15,076	13,167
GHG Reduction (MT CO₂e/year)		1,909

Source: EMC Planning 2021

The proposed project, by design, inherently includes a major GHG reduction feature. The proposed project has intentionally been designed to include a range of land uses, including local serving commercial uses. Projects containing a mix of uses generally generate fewer vehicle trips and fewer vehicle miles traveled than those that do not. Additionally, the infill location of the project site will result in reduced vehicle trip lengths relative to a site that must be annexed and results in expanding the city limits. The mixed-use character of the proposed project was not included here as an applicant-proposed measure to avoid double counting the reduction benefit.

Further, the project site is located directly across I-80 from the City’s California Biomanufacturing Center, a major existing and future employment center. This locational feature of the proposed project would serve to reduce vehicle miles traveled for future residents by placing housing of varying densities and product types very near an employment center.

Project Service Population

The project service population is the sum of the new population and employment it would generate. The proposed project includes buildout population and employment projections. These are summarized in Table 4.11-5, *Projected Project Service Population*.

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TABLE 4.11-5 PROJECTED PROJECT SERVICE POPULATION

Project Service Population	
Population	2,963
Employment ¹	667
Service Population (Population + Employment)	3,630

Source: EMC Planning 2021

¹ Based on employment density of 1 employee per 450 square feet, and a conservatively estimated total 300,000 square feet of commercial use.

Table 4.11-6, *Project GHG Emissions Impact Summary*, shows the composite set of GHG variables. With reductions from applicant-proposed measures, the proposed project rate of GHG emissions of 3.74 MT CO₂e/SP exceeds the threshold of significance of 3.48 MT CO₂e/SP by 0.26 MT CO₂e/SP. This equates to about 943 MT CO₂e per year. Therefore, the proposed project would have a significant impact from generating GHG emissions.

TABLE 4.11-6 PROJECT GHG EMISSIONS IMPACT SUMMARY

Emissions Source	Annual GHG Emissions (MT CO ₂ e)
Amortized Construction	408
Operational	15,076
Total	15,484
Emissions Reductions from Applicant-Proposed Measures	1,909 ¹
Total Emissions with Applicant-Proposed Measures	13,575
Service Population	3,629
Project Emissions Per Service Population	3.74
Service Population Threshold of Significance	3.48
Rate of Project Emissions Exceeds Threshold?	Yes
Emissions Volume by which Threshold is Exceeded	943 MT CO ₂ e per year

Source: EMC Planning 2021

¹ Indicates deductions.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GHG-1 would be potentially significant.

Mitigation Measures

Mitigation Measure GHG-1: Applicant proposed mitigation measures include:

- Pedestrian network improvements which promote a shift from vehicles to nonmotorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement.

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- For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).
- For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- No woodstoves or natural gas hearths.
- Construction phase control measures to reduce particulate (PM10) dust. Applicable measures include:
 - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered at least twice daily based on the construction activity, soil, and wind conditions.
 - All haul trucks transporting soil, sand, or other loose material shall maintain at least two feet of freeboard.
 - All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.
 - All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.
 - All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph and visible dust extends beyond site boundaries.
 - Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction adjacent to sensitive receptors. Wind breaks should have at maximum fifty percent air porosity.
 - Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
 - Construction activities shall be phased to reduce the area of disturbed surfaces at any one time.
 - Avoid tracking of visible soil material on to public roadways by treating site accesses to a distance of 100 feet from public paved roads with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.

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- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- Construction phase equipment exhaust control measures that reduce NOx and PM emissions, but also have the co-benefit of reducing GHG emissions. Applicable control measures include:
 - All diesel construction equipment larger than 25 horsepower used at the site for more than two continuous days or 20 hours total shall meet U.S. EPA Tier 4 final emission standards for PM (PM10 and PM2.5), if feasible, otherwise,
 - i. If Tier 4 Final equipment is not available, alternatively use equipment that meets U.S. EPA emission standards for Tier 4 Interim or Tier 3 engines with particulate matter emissions control equivalent to CARB Level 3 verifiable diesel emission control devices that altogether achieve an 85 percent reduction in particulate matter exhaust in comparison to uncontrolled equipment;
 - ii. The construction contractor shall demonstrate to the City of Vacaville that Tier 4 Interim equipment is not available if Tier 3 equipment is used; and
 - iii. Use alternatively fueled equipment with lower NOx emissions that meet the NOx and PM reduction requirements above.
 - Diesel engines, whether for off-road equipment or on-road vehicles, shall not be left idling for more than two minutes, except as provided in exceptions to the applicable state regulations (e.g., traffic conditions, safe operating conditions). The construction sites shall have posted legible and visible signs in designated queuing areas and at the construction site to clearly notify operators of idling limit.
 - Provide line power to the site during the early phases of construction to minimize the use of diesel-powered stationary equipment, such as generators, concrete/industrial saws, welders, and air compressors.
 - Portable equipment shall be powered by electricity if available, instead of diesel generators. If grid electricity is not available, batteries or fuel cell systems for backup power shall be considered before using fossil-fueled generators.
- Bicycle network improvements for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).

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- Electric vehicle support infrastructure that exceeds minimum requirements in the California Green Building Standards Code. This includes level 2 charging stations at each single-family home (Tier 1), charging stations at 15 percent of parking spaces within multi-family residential development (Tier 1), charging stations at 15 percent of commercial building parking spaces (Tier 1), and designated parking spaces for fuel efficient vehicles (Tier 1).
- Bus stops/shelters to be constructed as deemed necessary by City Coach through required consultations between developers of individual projects and City Coach.
- Energy demand reduction measures that include:
 - Cool roofs on all non-residential buildings to reduce building cooling needs;
 - Electrical outlets on all exterior walls of residential units to promote using electric landscape equipment;
 - Energy Star appliances in all non-residential buildings;
 - Programmable thermostats in residential units; and
 - Landscape trees in all non-residential parking lots to achieve 50 percent shading of parking areas within 10 years.

Level of Significance After Mitigation: Even after application of the foregoing project-sponsored measures, GHG-1 would remain significant and unavoidable.

GHG-2	The project would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.
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The City of Vacaville Energy Conservation and Action Strategy is a qualified climate action plan pursuant to CEQA Guidelines 15183.5(b) that functions as the applicable plan for reducing GHGs. The applicant has included GHG reduction strategies from the City of Vacaville Energy Conservation and Action Strategy that are applicable to the proposed project as applicant-proposed GHG reduction measures in Mitigation Measure GHG-1. Therefore, the proposed project would not conflict with the applicable measures included in the GHG reduction plan. Impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GHG-2 would be less than significant.

Mitigation Measures

No mitigation measures would be required.

4.11 GREENHOUSE GAS EMISSIONS

4.11.4 CUMULATIVE IMPACTS

GHG-3	The proposed project would result in cumulative greenhouse gas emissions impacts.
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Project-related GHG emissions are not confined to a particular air basin but are dispersed worldwide. Therefore, Impact 4.8-1 is not a project-specific impact, but the proposed project's contribution to a cumulative impact. Implementation of the proposed project would exceed emissions per service population thresholds. Therefore, project-related GHG emissions and their contribution to global climate change would be cumulatively considerable, and GHG impacts would be significant and unavoidable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: GHG-3 would be potentially significant.

Mitigation Measures

There are no feasible mitigation measures.

Level of Significance After Mitigation: GHG-3 would be significant and unavoidable.

4.11.5 REFERENCES

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US Environmental Protection Agency (EPA). 2009b. EPA: Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act.

<https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean>.

4.11 GREENHOUSE GAS EMISSIONS

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4.12 LAND USE AND PLANNING

This section of the DEIR describes the regulatory framework and existing conditions on the project site related to land use and planning, and the potential impacts to land use in the city of Vacaville from the proposed project.

4.12.1 ENVIRONMENTAL SETTING

4.12.1.1 REGULATORY FRAMEWORK

This section summarizes key State, regional, and local regulations and programs related to land use and planning for the proposed project.

State Regulations

California Government Code

The California Government Code (Title 7, Division 1, Chapter 3, Article 8, Sections 65450–65457 [Specific Plans]) provides authority for a city/county to adopt a specific plan by ordinance (as a regulatory plan) or resolution (as a policy plan). When a specific plan is adopted by ordinance, the specific plan effectively replaces portions or all of the current zoning regulations for specified parcels and becomes an independent set of zoning regulations that provide specific direction to the type and intensity of uses permitted or define other types of design and permitting criteria.

Regional Regulations

Association of Bay Area Governments

The Association of Bay Area Governments (ABAG) is the comprehensive regional planning agency and council of governments for the nine counties and 101 cities and towns of the San Francisco Bay region, including Solano County and the City of Vacaville. The ABAG helps local governments absorb growth and adapt to change while addressing sustainability, resilience and equity issues. ABAG primarily deals with regional land use, housing, environmental quality, and economic development issues, while Metropolitan Transportation Commission (MTC) is tasked with regional transportation planning, coordinating, and financing.

Plan Bay Area 2050

Plan Bay Area 2050 is a 30-year plan that charts a course for a Bay Area that is affordable, connected, diverse, healthy, and vibrant for all residents through 2050 and beyond. Thirty-five strategies comprise the heart of the plan to improve housing, the economy, transportation, and the environment across the Bay Area's nine counties — Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. This draft plan, developed by the Bay Area's two regional planning agencies, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), lays out a \$1.4 trillion vision for a more equitable and resilient future for Bay Area residents.

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Local Regulations

City of Vacaville General Plan

The City of Vacaville's General Plan serves as a guide for future conservation, enhancement, and development in the city. The General Plan provides a vision for the future and establishes a framework for how Vacaville should grow and change over the upcoming decades. The General Plan is intended to guide the City's actions through the year 2035, the horizon year of the General Plan.

California Government Code Section 65300 requires that a general plan be comprehensive, internally consistent, and long-term. The General Plan articulates a vision for the city's long-term physical form and development. It also provides overall direction to the day-to-day decisions of the City Council, its commissions, and City staff. In particular, the General Plan serves six related purposes, including policy determination, policy implementation, communication, guidance, education, and action plan (City of Vacaville 2015).

Land Use Element

The Land Use Element sets forth specific goals, policies, and actions to guide land use for the City of Vacaville through the year 2035. The General Plan Land Use Map, which is also part of this element, graphically represents the City's vision for the future development of the city limits – the boundary that encompasses the incorporated city and defines the properties that are subject to the City's jurisdiction. The Land Use Element provides the following goals, policies, and objectives related to land use and planning:

Community Character and Design

Goal LU-1 Preserve, promote, and protect the existing character and quality of life within Vacaville.

- **Policy LU-P1.1** Maintain Vacaville as a free-standing community surrounded by foothills, farmland, and other open space.
- **Policy LU-P1.2** Protect Vacaville's natural environment. Integrate creeks, hills, utility corridors, and other significant natural features into major development plans.
- **Policy LU-P1.3** Preserve the predominant single-family residential character of Vacaville while providing other housing opportunities.
- **Policy LU-P1.4** Protect established neighborhoods from incompatible uses.
- **Policy LU-P1.5** With the exception of Priority Development Areas, require that infill projects be designed to complement the neighborhood and surrounding zoning with respect to the existing scale and character of surrounding structures, and blend, rather than compete, with the established character of the area.
- **Policy LU-P1.6** Provide assistance where needed to eliminate substandard buildings and improve the appearance of neighborhoods and commercial areas.

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- **Policy LU-P1.7** Use the natural topography of the lands north of Mason Street and adjoining the Downtown to help define the location and setting of the Downtown. Encourage buildings to be designed to complement the topography and to maximize the views from these areas.
- **Policy LU-P1.8** Design aesthetically pleasing roadways using trees or other appropriate landscaping.
- **Policy LU-P1.9** Do not use streets alone to define the outer limits of urbanization. The boundary of the city shall be defined by elements such as the natural topography of the land, enhanced landscaping, and other existing visual barriers
- **Policy LU-P1.10** Promote and acknowledge outstanding community design.
 - **Action LU-A1.1** Maintain and replace, as necessary, lighting and landscaping on the City's streets.

Goal LU-2 Carefully plan for new development in undeveloped portions Vacaville.

- **Policy LU-P2.1** Require lands outside, but adjacent to, the current city limits to annex to the City of Vacaville as a prerequisite to development. Do not provide City utility services, water, and sanitary sewer to new development outside of the city limit (with the exception of sanitary sewer for infill in the Elmira area) unless the City Council, with the approval of the Local Agency Formation Commission (LAFCO), approves exceptions in situations where the following three conditions are met:
 - The area in question cannot annex to the City immediately, because it is not currently contiguous to the city limit.
 - The property owner signs a recorded, irrevocable agreement to annex the property to the City when such annexation is requested by the City.
 - The development is consistent with this General Plan and is found to meet all appropriate City development standards.

Responsible and Well-Planned Growth

- **Policy LU-P2.2** Require that specific plans be prepared for new areas brought into the city for development. Such specific plans must provide a coordinated plan for land use, public facilities, and public services. Prohibit individual, piecemeal developments within these outlying areas.
- **Policy LU-P2.3** Encourage housing, shopping, and employment opportunities on both sides of Interstate 80 to minimize the need for excessive travel across Interstate 80.
- **Policy LU-P2.4** Require that development on any prime farmland, farmland of statewide importance, or unique farmland (as classified by the California Department of Conservation) purchase conservation easements to permanently protect agricultural land of equal or greater value at a ratio of 1 acre of conserved agricultural land per 1 acre of developed agricultural land.

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- **Policy LU-P2.5** Do not convert lands designated Public Open Space to developed urban uses unless an overriding public purpose requires such a change.
- **Policy LU-P2.6** Lands designated Public Open Space that are converted to developed urban use shall be compensated for by providing equal or better lands for a similar use in another location. All proceeds that the City receives from any sale of Public Open Space lands shall be used to acquire additional open space lands elsewhere.
- **Policy LU-P2.7** Require that open space that is designated as a condition of development approval be permanently restricted to open space use by recorded map or deed.
- **Policy LU-P2.8** Continue discussions with the Solano Irrigation District (SID) to consider the future expansion of the Urban Service Area as far east as the PG&E transmission line right-of-way subject to the expansion of the agricultural buffer.
 - **Action LU-A2.1** Update the zoning map in the Land Use and Development Code to reflect the General Plan land use designations, and insert a table into the Land Use and Development Code specifying which zoning districts implement each General Plan land use designation.

Goal LU-3 Coordinate land development with the provision of services and infrastructure.

- **Policy LU-P3.1** The General Plan Update Environmental Impact Report (EIR) assumes the following maximum development projections for the year 2035 for the lands located within the Urban Growth Boundary, excluding the East of Leisure Town Road and Northeast Growth Areas, shown in Figure LU-3:
 - Residential: 7,340 units
 - Commercial: 880,000 square feet (67 acres)
 - Office: 1.06 million square feet (81 acres)
 - Industrial: 1.49 million square feet (86 acres)

When approved development within the city reaches the maximum number of residential units or any of the non-residential square footages projected in the General Plan EIR, the Community Development Director shall require that environmental review conducted for any subsequent development project address growth impacts that would occur due to development exceeding the General Plan EIR's projections. This does not preclude the City, as lead agency, from determining that an EIR would be required for any development in the Urban Growth Boundary to the extent required under the relevant provisions of CEQA (e.g. Section 21166 and related guidelines). The City will conduct the appropriate scoping at the time of initial study for any specific plan, all in accordance with these requirements. This policy does not apply to development within the East of Leisure Town Road and Northeast Growth Areas. See Policies LU-P17.8 and LU-P18.8, respectively, for these areas.

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- **Policy LU-P3.2** Manage growth so that the quantity and quality of public services and utilities provided to existing businesses and residents will not drop below required levels of service because of new development, except when required findings related to levels of service are made. While existing development bears some responsibility to fund improvements that will resolve such deficits, ensure that new development also funds its fair share of the costs of maintenance and depreciation of facilities.
- **Policy LU-P3.3** Provide urban services in accordance with the May 1995 City of Vacaville/Solano Irrigation District Master Water Agreement, as it may be amended from time to time.
- **Policy LU-P3.4** Do not approve new development unless there is infrastructure in place or planned to support the growth.
- **Policy LU-P3.5** Encourage new development to consider transit, pedestrian, and bicycle circulation during the design phase.
- **Policy LU-P3.6** Require that new development or new Specific Plan areas be located immediately adjacent to existing development or infrastructure.
 - **Action LU-A3.1** Regularly update and maintain the City’s Municipal Services Review and Comprehensive Annexation Plan to ensure that urbanization does not outpace the provision of public facilities within the Urban Growth Boundary.
 - **Action LU-A3.2** Monitor the rate of growth to ensure that it does not overburden the City’s infrastructure and services and does not exceed the amounts analyzed in the General Plan EIR.
 - **Action LU-A3.3** Continue to monitor new development where infrastructure limits are being reached or exceeded so that linkages with necessary improvements can be established and funded.
 - **Action LU-A3.4** Continue to revise existing policy plans, which are shown in Figure LU-2, to conform to General Plan policies and requirements for infrastructure financing mechanisms and open space.
 - **Action LU-A3.5** Review and revise the City’s capital improvement program annually to ensure that public improvements will be consistent with General Plan policies for residential areas and that progress is made toward implementing these policies.
 - **Action LU-A3.6** Develop a focused infrastructure investment plan to service employment sites.

Goal LU-5 Maintain the City’s Urban Growth Boundary.

- **Policy LU-P5.1** Urban Growth Boundary: To enhance and protect the city’s quality of life, establish and maintain an Urban Growth Boundary so that urban development will be focused within the Urban Growth Boundary and the land outside the Urban Growth Boundary will not be

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redesignated other than for agriculture, park, open space, public facility, and utility uses until March 1, 2028, specifically as set forth in Policies LU-P5.4 through LU-P5.7.

- **Policy LU-P5.2** Lands East of Leisure Town Road: In conjunction with approval of any new urban development on lands shown as “Area B” on Figure LU-3, which consists of lands that are inside the Urban Growth Boundary but east of Leisure Town Road and between the Locke Paddon Community areas on the north and New Alamo Creek on the south, the City shall require such development to mitigate its impact on agricultural and open space lands by preserving, to the extent consistent with applicable law, for each acre of land developed, at least 1 acre of land outside the Urban Growth Boundary but within Pleasants Valley, Upper Lagoon Valley, or Vaca Valley, or any other location that is within 1 mile of the Urban Growth Boundary. Alternatively, to the extent consistent with applicable law, such development may pay an equivalent in-lieu fee as determined by the City in consultation with the Solano Land Trust. Lands acquired directly or with fees collected pursuant to this requirement shall first be offered to the Solano Land Trust. Any such fees transferred to the Solano Land Trust may only be used to acquire or protect lands outside of the Urban Growth Boundary but within 1 mile of the Urban Growth Boundary, or within Pleasants Valley, Upper Lagoon Valley, or Vaca Valley. Acquisitions pursuant to this requirement shall be coordinated with the Solano Land Trust. If for any reason adequate land to meet the conservation goals described in the Vacaville General Plan, and in particular this section, cannot be identified or acquired, the City and the Solano Land Trust, or if the Solano Land Trust declines to participate, the City and another land conservation entity shall meet and confer to identify other areas where conservation acquisitions can occur at a reasonable cost and to satisfy the conservation goals described in this section.
- **Policy LU-P5.3** Coordination with Future Solano County LAFCO Open Space or Agricultural Land Mitigation Program: If the Solano County Local Agency Formation Commission (LAFCO) adopts an open space or agricultural land mitigation program applicable to the area defined in Policy LU-P5.2, lands defined therein shall be subject only to the requirements of the LAFCO mitigation program, provided that if the requirement described in Policy LU-P5.2 provides greater mitigation than the LAFCO requirement, the incremental difference between the two programs shall be imposed in addition to the LAFCO requirement to the maximum extent permitted by State law. To the extent the LAFCO requirement and this requirement overlap, development shall be subject to only the LAFCO requirement.
- **Policy LU-P5.4** Establish and Maintain an Urban Growth Boundary: Establish and maintain an Urban Growth Boundary so that urban development within the City’s land use jurisdiction will be focused within the Urban Growth Boundary and the land outside the Urban Growth Boundary within the City’s land use jurisdiction will be maintained primarily for agriculture, park, open space, public facility, and utility uses until March 1, 2028, as generally described in Policies LU-P5.1 through LU-P5.3, and as more specifically set forth in Policies LU-P5.5 through LU-P5.7. Until March 1, 2028, Section 2.10 of the Vacaville General Plan Land Use Element may be amended only by the voters of the City or as provided in Policy LU-P5.7. The Urban Growth Boundary is established at the location shown on Figure LU-3.

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- **Policy LU-P5.5** Description of the Urban Growth Boundary: The Urban Growth Boundary is a line beyond which the General Plan land use designation cannot be amended to apply any designation other than Public Parks, Open Space, Agriculture, or Hillside Agriculture (as those designations are defined in the General Plan as amended through the Submittal Date), except by the voters or as provided in Policy LU-P5.7. Additionally, any lands outside the Urban Growth Boundary that are not currently subject to the General Plan, but which may become so in the future, shall be subject to these same restrictions on land use designations.
- **Policy LU-P5.6** Land Use Restrictions Outside the Urban Growth Boundary: In those areas located outside the Urban Growth Boundary and within the City’s land use jurisdiction, only the following shall be permitted: (1) all uses permitted in the Vacaville General Plan or the Land Use and Development Code on the Submittal Date, or existing on that date, shall continue to be permitted, and in the event any such use is damaged or destroyed by natural disaster, fire, or Act of God, it may be rebuilt and continued; (2) new uses consistent with the General Plan as amended by the Urban Growth Boundary Initiative; and (3) any infrastructure improvements necessary or appropriate to serve or protect existing uses and new permitted uses within the Urban Growth Boundary, including, but not limited to, construction and/or expansion of public facilities and utilities outside the Urban Growth Boundary that support such development elsewhere, such as stormwater detention basins, water tanks (reservoirs), sewer and water lines, and wastewater treatment plants to accommodate buildout of the Vacaville General Plan. In addition, the area identified on Figure LU-3 as “Area A” shall remain designated Hillside Agriculture, as defined in the Vacaville General Plan on the Submittal Date, until March 1, 2028.
- **Policy LU-P5.7** No Amendment before March 1, 2028, except by Voters, or City Council Under Specific Enumerated Circumstances: Until March 1, 2028, the location of the Urban Growth Boundary depicted on Figure LU-3 and the policies adopted or amended by the Urban Growth Boundary Initiative may be amended, or exceptions thereto may be granted, only by the voters of Vacaville, or by the City Council pursuant to the procedures set forth in subsections (a) through (d) below. (a) Upon request of an affected landowner with a pending development application, the City Council may amend the location of the Urban Growth Boundary depicted on the General Plan Diagram, or amend policies adopted or amended by the Urban Growth Boundary Initiative, if it makes both the following findings based on substantial evidence in the record: (i) That the application of any aspect of the Urban Growth Boundary depicted on the General Plan Diagram or the implementation of any Vacaville General Plan Policy amended by the Urban Growth Boundary Initiative would constitute an unconstitutional taking of a landowner’s property for which compensation would be required, and (ii) That the amendment will allow additional land uses only to the minimum extent necessary to avoid such a taking of the landowner’s property. (b) The City Council may amend the location of the Urban Growth Boundary, or amend policies adopted or amended by the Urban Growth Boundary Initiative, where the City Council determines, after at least one public hearing, that doing so is necessary to comply with State law regarding the provision of housing, if it first makes each of the following findings based on substantial evidence in the record: (i) a specific provision of State law requires the City to accommodate the proposed housing; and (ii) the amount of land to be included within the Urban Growth Boundary is no greater than necessary to accommodate the proposed housing; and (iii) no alternative site within

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the Urban Growth Boundary could be used to satisfy the applicable State housing law; and (iv) the proposed housing will be located adjacent to already developed land and roads, unless locating the development in such areas would result in greater environmental impacts than would locating the housing elsewhere, would conflict with State or federal laws, or would not be possible. (c) The City shall not approve any general plan amendment, zoning amendment, specific plan or policy plan, specific plan or policy plan amendment, rezoning, subdivision map, conditional use permit, or public works project not otherwise provided for in Policy LU-P5.6, or take any other similar action that is inconsistent with the Vacaville General Plan amendments adopted by Section 3 of the Urban Growth Boundary Initiative. (d) The policies under Goal LU-5 of the General Plan Land Use Element shall not apply to any development project or ongoing activity that has obtained, as of the effective date of the Urban Growth Boundary Initiative, a vested right pursuant to State or local law.

Public Involvement in Planning

Goal LU-7 Promote public participation in the City's planning processes.

- **Policy LU-P7.1** Provide opportunities for individuals, organizations, and neighborhood associations to participate in the planning process.
- **Policy LU-P7.2** Use traditional communication tools and new media and technology to provide clear and current information on City processes and decisions and to encourage public participation in City government.
- **Policy LU-P7.3** Require that sponsors of new development projects have early and frequent communication with affected citizens and stakeholders. .
- **Policy LU-P7.3** Require that sponsors of new development projects have early and frequent communication with affected citizens and stakeholders.
 - **Action LU-A7.1** Develop online information pages for specific neighborhood areas to provide ongoing information to residents regarding the status of development in their neighborhoods.

Residential

Goal LU-11 Preserve and enhance the existing character and sense of place in residential neighborhoods.

- **Policy LU-P11.1** Encourage creative residential site design and architectural quality and variety in the City's design approval process.
- **Policy LU-P11.2** Ensure that the design of new residential development in established neighborhoods minimizes disruption to the neighborhood and is compatible with the design of existing residences.

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- **Policy LU-P11.3** Require a Planned Development permit for all residential development meeting one or more of the following criteria, consistent with the adopted Planned Development regulations (the Planned Development permit process is intended to increase flexibility for these types of development by allowing deviations from typical development standards, such as setbacks, building height, landscaping, parking, and design):
 - Multi-family projects of 10 units or more.
 - Mixed use.
 - A location potentially subject to natural or man-made geologic hazards, including hillside areas.
 - Any project exceeding the maximum density allowed by the land use designation or with 50 units or more.
- **Policy LU-P11.4** Maintain buffers between residential areas and business parks, industrial parks, and technology parks. The minimum separation shall be 200 feet.
- **Policy LU-P11.5** Prohibit residential neighborhood design that places access to single family lots on arterial streets. **Policy LU-P11.6** Design residential neighborhoods to avoid placing access to single family lots on collector streets, and limit the number of intersections along collector streets.
 - **Action LU-A11.1** Re-evaluate, implement, and maintain the City’s Residential Design Requirements for New Single-Family Development, which encourage residential subdivisions that are sensitive to topography, limit use of mass grading, provide for functional and aesthetically pleasing neighborhoods, and provide a variety of housing sizes.
 - **Action LU-A11.2** Update the Land Use and Development Code to include a diagram illustrating the requirements of the buffers between residential areas and business parks, industrial parks, and technology parks.
 - **Action LU-A11.3** Update the Traffic Mitigation Ordinance (Chapter 14.13.180 of the Land Use and Development Code) to address roadway design in residential neighborhoods, including, but not limited to, traffic calming measures.

Goal LU-12 Provide high-quality housing in a range of residential densities and types.

- **Policy LU-P12.1** Encourage development that broadens the choice of type, size, and affordability of housing in Vacaville.
- **Policy LU-P12.2** Provide for transitions between higher-density and lower-density housing.
- **Policy LU-P12.3** Strive to maintain a citywide housing mix of approximately 75 percent single-family and 25 percent multi-family attached housing.

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Commercial and Office Uses

Goal LU-13 Promote the development of attractive commercial areas and uses that provide goods and services.

- **Policy LU-P13.1** Ensure that new commercial development is compatible with the character and scale of existing and planned adjoining land uses.
- **Policy LU-P13.2** Provide neighborhood and community shopping centers of various sizes and locations to ensure easy access from nearby residential areas to daily commercial and service needs.
- **Policy LU-P13.3** Locate shopping centers and neighborhood commercial facilities at the intersection of major thoroughfares and, where appropriate, adjacent to multi-family housing and transit.
- **Policy LU-P13.4** Prohibit the location of competing new neighborhood shopping centers at one major intersection.
- **Policy LU-P13.5** Encourage similar and compatible types of commercial businesses to cluster together in appropriate locations to provide comparison shopping.
- **Policy LU-P13.6** Provide sufficient space to meet the need for commercial services and commercial recreation that can be supported by Vacaville's residents, businesses, and private workers.
- **Policy LU-P13.7** Apply the highest development standards to highway commercial uses to ensure that the characteristics of major entrances to the community are not diminished by incompatible uses or inharmonious site development concepts.
- **Policy LU-P13.8** Provide new commercial sites in new residential areas only in proportion to additional demand so that existing sites are not abandoned.
- **Policy LU-P13.9** Minimize conflicts between commercial areas and residences by requiring adequate buffers and screening.
- **Policy LU-P13.10** Require increased setbacks adjoining freeways and ensure that new commercial developments do not appear to back up to freeways.
- **Policy LU-P13.11** Ensure the design of new commercial areas considers public safety through physical design such as lighting, visibility into the stores from the street, and avoiding the creation of isolated public spaces.
- **Action LU-A13.1** Establish commercial design guidelines to govern new construction and major exterior alterations and additions in neighborhood and community shopping centers and in highway commercial areas. In neighborhood and community shopping centers, the guidelines should set a coherent design concept but avoid imposing a rigid, stylistic

4.12 LAND USE AND PLANNING

requirement for individual buildings. A range of architectural expression should be allowed. Free-standing uses, such as service stations, banks, and restaurants, should be compatible in design and materials with the main building complex. In highway commercial areas, the guidelines should ensure that the characteristics of major entrances into the community and views from the freeway are not diminished by incompatible uses or inharmonious site development concepts.

- **Action LU-A13.2** Revise the Land Use and Development Code to set specific limits on the size of neighborhood shopping centers to preserve opportunities for local-serving businesses and to exclude region-serving stores likely to generate high traffic volumes. Require increased setbacks from residential neighborhoods.
- **Action LU-A13.3** Revise the Land Use and Development Code to define competing neighborhood commercial uses, and to outline the development review process applicable to addressing development proposals including competing land uses and appropriate siting standards.

*Vacaville Municipal Code**Section 14.01.002.010, Private and Public Projects*

No land, building, or structure shall be developed, used, erected, constructed, altered, or maintained, and no land shall be subdivided, merged, nor lot lines adjusted, except in accordance with the provisions of this Title. No use that requires a permit or other approval under the provisions of this Title shall be initiated until such permit or approval has been granted by the appropriate City decision-maker, and until all conditions associated with the permit or approval have been completed or complied with to the satisfaction of the Director.

- A. Exempted Projects. This Title shall not be applicable to any public use, construction, or action that is specifically excluded from City jurisdiction by federal or state law or by the Municipal Code.
- B. In conjunction with the approval of a capital improvements project, the City Council may approve a reduction in standards related to the capital improvements project for an adjoining property if the Council finds that the reduced standard is necessary for the public health, safety, or welfare.
- C. Any approvals granted prior to the enactment of this ordinance (July 25, 1996), shall be valid for the original period of approval and the original conditions of approval shall apply for the original time period. Thereafter, with the expiration of any such approval, the provisions of the Development Code shall apply. (Ord. 1558, §12, 1996)
- D. Development Agreements.
 - i. When the provisions of a development agreement differ from those of this Title, the provisions of the development agreement shall supersede the provisions of this Title. (Ord. 1574, §7, 1997)

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Chapter 14.05.042, Processing of New Residential Development Projects

The following limitations on the processing of new development applications shall apply.

- A. Lands Outside the City Limits. Residential development applications for lands outside the City limits as of January 13, 2000 shall be accepted for processing with the following provisions:
 - i. A site requiring annexation to the City shall be identified as a near-term annexation area in the Vacaville Comprehensive Annexation Plan, or there shall be the initiation of an amendment to the Comprehensive Annexation Plan by the City Council to identify the site as a near-term annexation area in the Comprehensive Annexation Plan.
 - ii. Any person seeking annexation to the City shall first submit a proposal for annexation in a format consistent with the administrative procedures established by the Director, and approved by the City Council;
 - iii. Thereafter, the proposal shall be reviewed by the City Council within its sole discretion, and, if determined appropriate, may be allowed to proceed with a formal application to the Solano County Local Agency Formation Commission for annexation;
 - iv. Approval by the City Council of an applicant's ability to proceed with a formal annexation application shall not constitute, nor shall it be, a limitation of the ability of the City Council to fully exercise its discretion to deny a proposed annexation.
 - v. Lands designated within the General Plan as required Specific Plan or Policy Plan areas shall be subject to residential Phasing Plans to regulate the rate of growth within the individual project.
 - vi. Lands not designated within the General Plan as required Specific Plan or Policy Plan areas are subject to the allocation provisions of this Division, provided that as an alternative, a Phasing Plan may be proposed by the developer.
- B. Lands Within the City Limits. Residential development applications for lands within the City limits as of January 13, 2000 shall be accepted for processing at any time.
 - i. Lands identified within required Specific Plan or Policy Plan areas in the General Plan shall be subject to residential Phasing Plans to regulate the rate of growth within the individual project.
 - ii. Lands not identified within required Specific Plan or Policy Plan areas are subject to the allocation provisions of this Division, provided that as an alternative, a Phasing Plan may be proposed by the developer. (Ord. 1631, Repealed and Replaced, 01/13/2000)

4.12.1.2 EXISTING CONDITIONS

Surrounding Land Uses

Table 4.12-1, *Land Use*, provides land uses in the City based on the 2015 General Plan. As shown, residential land uses comprise approximately 6,120 acres within the City of Vacaville, with a total of approximately 33,260 residential dwelling units. The largest type of residential land uses is single family residential, which encompasses approximately 4,090 acres, and includes 22,010 units. Most of the City is comprised of single-family residential neighborhoods, with a retail corridor along Interstate 80 and a mix of uses in Downtown Vacaville. Vacaville has significant amounts of vacant land designated for development as well, most of which is located along Interstate 505 in the northeastern portion of the city.

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Non-residential land uses in Vacaville encompass approximately 10,890 acres throughout the city, with the largest non-residential land uses of Agricultural/Hillside Agricultural (approximately 2,510 acres), public open space (approximately 2,490 acres), vacant land (approximately 1,890 acres), and public land (1,330 acres).

TABLE 4.12-1 LAND USE

Existing Land Use	Acres	Units
Rural Residential	1,280	270
Single Family Residential	4,090	22,010
Retired Single Family Residential	220	1,680
Multi-Family Residential	360	7,130
Retired Multi Family Residential	50	1,030
Manufactured Homes	130	1,140
Total Residential	6,120	33,260
Retail Service	490	
Downtown	20	
Commercial Service	70	
Commercial Highway	80	
Commercial Office	80	
Medical Office	70	
Industrial	630	
Elementary School	190	
High School	90	
College	10	
Public	1,330	
Hospital	40	
Church	100	
Agriculture/Hillside Agriculture	2,510	
Public Open Space	2,490	
Private Recreation	200	
Public Park	530	
Miscellaneous	90	
Vacant	1,890	
Total Non-Residential Acres	10,890	

Source: City of Vacaville, January 2015.

Residential Land Uses

Nine residential categories establish different densities. The residential densities described below are given as a range of units per gross acre – the entire amount of land area, prior to any dedications for public use, health, and/or safety purposes. The number of units permitted may be further modified by the zoning district, any applicable overlay district or specific plan, or density transfers or bonuses.

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Existing neighborhoods include some residences built at densities outside the ranges specified in the General Plan. This does not imply that such development should be replaced or treated as nonconforming uses by the City's Land Use and Development Code.

The residential land use designations are as follows:

- **Rural Residential.** This designation provides opportunities for rural living on lots ranging in size from 2½ to 10 acres. This designation also permits animal husbandry and limited horticulture, subject to appropriate standards. The base density is 0.1 units per gross acre, and the maximum potential density is 0.4 units per gross acre.
- **Residential Estate.** This designation provides opportunities for very low-density residential land uses. The minimum lot size is 10,000 square feet; larger lots may be required in specific areas by policy plans and/or zoning regulations because of topography or limited public service capacities. The base density is 0.5 units per gross acre, and the maximum potential density is 3 units per gross acre.
- **Residential Low Density.** This designation provides opportunities for single-family residential uses in neighborhoods on lot sizes ranging from 5,000 to 10,000 square feet, subject to appropriate standards. The base density is 3.1 units per gross acre, and the maximum potential density is 5 units per gross acre.
- **Residential Low Medium Density.** This designation provides opportunities for single-family, duplex, and clustered housing in neighborhoods on lot sizes ranging from 3,600 square feet to 4,500 square feet, subject to appropriate standards. The designation also permits clustered development on sites measuring at least 10 acres in size, subject to appropriate standards. The base density is 5.1 units per gross acre, and the maximum potential density is 8 units per gross acre.
- **Residential Medium Density.** This designation provides opportunities for multiple residential uses, including duplexes, duets, attached or detached townhouses, and multi-dwelling structures with landscaped open space for residents, subject to appropriate standards. Homes designed as stacked units without garages are prohibited in this land use designation. Multi-dwelling structures must be within a subdivision in which each unit may be under individual ownership. Single-family detached housing may be allowed when in compliance with Residential Design Requirements for New Single Family Development. The base density is 8.1 units per gross acre, and the maximum potential density is 14.0 units per gross acre.
- **Residential Medium High Density.** This designation provides opportunities for higher density multi-family residential uses, including attached or detached townhomes, condominiums, and apartments, subject to appropriate standards. The base density is 14.1 units per gross acre, and the maximum potential density is 20 units per gross acre.

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- **Residential High Density.** This designation provides opportunities for high density multiple residential uses, including attached townhouses, condominiums, and apartments, subject to appropriate standards. The base density is 20.1 units per gross acre, and the maximum potential density is 24 units per gross acre.
- **Residential Golf Course.** This designation provides opportunities for residential use in conjunction with a golf course development, subject to appropriate standards. A golf course, or comparable large recreation center, is a required component in any development project under this classification. The average base density is 1 unit per gross acre, and the maximum potential density is 2 units per gross acre; units may be clustered. Specific or policy plan approval is required.
- **Residential Manufactured Home Park.** This designation provides opportunities for affordable housing using manufactured or modular components on sites developed as a planned unit development, subject to appropriate standards. This classification is intended for both parks with rental spaces for manufactured housing (i.e. mobile homes) and parks where the spaces are individually owned. The base density is 6 units per gross acre, and the maximum potential density is 10 units per gross acre.

Commercial Land Uses

Six commercial land use designations allow a range of commercial; retail, service, and office uses. The maximum intensity of development allowed in all of the commercial designations is generally limited to a floor area ratio (FAR) of 0.3, although, as noted in the descriptions below, the Mixed Use designation allows for a higher FAR. Exceptions to the FAR limits may be granted for areas with low employee densities, such as wholesaling and distribution uses, or low peak hour traffic generation, such as a hospital. Further, the FAR may be adjusted in policy plan areas based on the intensity of the use and the availability of public facilities and infrastructure and projected traffic levels of service. FAR limits may be increased only if adequate public services are available or new development is responsible to resolve any deficiencies.

- **Mixed Use.** This designation allows and encourages different but compatible uses to be located in close proximity to each other. A common example is a single building or a group of buildings that combine residential uses with commercial, public, entertainment, and/or office uses. In multi-story mixed-use developments, the ground floor uses are predominantly retail or office with the purpose of supporting pedestrian activity. Mixed-use buildings with two or more uses in the same structure are encouraged in this designation, but single use residential, retail, or office buildings are also allowed. Since this designation allows for both residential and commercial uses, it allows a wider residential density range and a higher FAR than other designations. This designation allows 10 to 40 dwelling units per acre and a maximum FAR of 1.0.
- **General Commercial.** This designation provides for a full range of commercial uses, including retail stores, food and drug stores, auto sales, and businesses selling home furnishings, apparel, durable goods, and specialty items. Support facilities, such as entertainment and eating-and-drinking establishments, are also permitted.

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- **Neighborhood Commercial.** This designation provides for small sites for neighborhood commercial centers, generally anchored by a grocery store with convenience uses serving the immediate area. New Neighborhood Commercial sites must be between 4 and 10 acres in size.
- **Commercial Service.** This designation provides areas for heavy commercial uses, such as lumber yards and auto-related services. Limited retail is permitted, but the primary function of this designation is to provide for commercial uses not permitted in other areas because they attract heavy vehicles or otherwise have adverse impacts on other uses. Office uses are prohibited unless they are accessory to a commercial service use.
- **Highway Commercial.** This designation adjoins Interstate highways and includes specialty retailing, restaurants, hotels/motels, and commercial recreation and entertainment, designed to attract primarily visitor business and shopping. Development in this designation should be high-quality in order to enhance views of Vacaville from the highway.
- **Commercial Office.** This designation provides sites for office development. Supporting retail and business services are permitted. This designation is intended for transition areas between commercial and residential areas. The Land Use and Development Code identifies a Professional Office overlay zoning district that can be applied to this land use designation that limits the types of permitted uses to professional and administrative offices, including medical and dental offices, which primarily provide services to local residents. No retail type of uses are allowed within this overlay district.

Existing Uses on the Project Site

The approximately 185.4-acre project site contains improvements associated with a golf course which was closed in 2016; a portion of the site north of existing Gilley Way is unimproved. The project site is bounded by Leisure Town Road to the east; Orange Drive to the north and northwest; Sequoia Drive, and Yellowstone Drive to the west; and Green Tree Drive to the southwest.

4.12.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant land use and planning impacts if it would:

1. Physically divide an established community.
2. 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.

4.12 LAND USE AND PLANNING

4.12.3 IMPACT DISCUSSION

LU-1	The project would not physically divide an established community. (Threshold LU-1)
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The existing community character of the project site consists of former golf course improvements and unimproved land surrounded by residential neighborhoods, commercial establishments, and agricultural lands. The proposed project would result in the development of two neighborhoods – the north of Sequoia neighborhood and the south of Sequoia neighborhood. The two proposed neighborhoods would include residential development at a variety of densities, with a wide range of housing types, including active-adult detached single-family and workforce-oriented housing; commercial retail including neighborhood serving uses; public parks; trails and open space; circulation improvements, and infrastructure facilities. Higher density residential, commercial retail, and a family-oriented park are the primary uses planned north of Sequoia Drive. Detached, single-family senior residential development and another park are the primary proposed uses south of Sequoia Drive. The proposed project would include 1,149 dwelling units; including 950 units of higher density housing types located north of Sequoia and 199 units of detached, single-family senior housing located south of Sequoia. In addition to the proposed residential and commercial uses, the proposed project includes a range of amenities, such as parks, a trail network, open space, and infrastructure features including an expanded sewer pump station site, two water well sites, and storm water detention facilities.

The residential, commercial, recreation, and open space uses of the proposed project would be compatible with and similar to the surrounding land uses. The trail network would improve connections with the surrounding neighborhood. Therefore, the proposed land use plan would not physically divide an established community and impacts related to division of established communities would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: LU-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: LU-1 would be less than significant.

LU-2	The project would not 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.
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The project site has existing General Plan land use designations of Commercial Highway (CH) and Private Recreation (PR). The Commercial Highway designation adjoins interstate highways and includes specialty retailing, restaurants, hotels/motels, and commercial recreation and entertainment, designed to attract

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primarily visitor business and shopping. The Private Recreation designation includes country clubs, free-standing golf courses, recreational vehicle (RV) parks, riding stables, campgrounds, and theme parks. The project site is zoned General Commercial and Recreation Commercial.

The project site would require a General Plan Amendment to amend the existing land use designations from Commercial Highway and Private Recreation to Residential Low Density, Residential Low Medium Density, Residential Medium Density, Residential Medium High Density, Residential High Density, Public Park, Public Open Space, Public, and General Commercial.

Additionally, the proposed project would require a rezoning approval to ensure that zoning is consistent with the proposed land uses. The Project site would be rezoned to Residential Low (RL), Residential Low Medium (RLM), Residential Medium (RM), Residential Medium High (RMH), Residential High (RH), General Commercial (CG), Community Facilities (CF), and Open Space (OS) from General Commercial (CG) and Recreation Commercial (CR).

Buildout of the proposed project would include approximately 1,149 dwelling units in both the north and south of Sequoia areas. The north of Sequoia area would include approximately 950 units of higher density housing types which would generate approximately 2,565 residents, and the south of Sequoia project would include 199 units of detached, single-family senior housing which would generate approximately 398 residents. A review of the Proposed Project's consistency with applicable plans and policies is provided here.

The proposed project includes a vesting tentative subdivision map approval to divide the north of Sequoia neighborhood into a series of large lot residential blocks, commercial blocks, a park, and associated infrastructure (e.g. detention basins and a sewer pump station site). One or more future small-lot subdivisions would be required to further define the residential neighborhoods and internal streets.

The proposed project would also require a subdivision approval for the south of Sequoia neighborhood. This neighborhood would be subdivided into 199 residential lots and additional parcels containing infrastructure (e.g. detention ponds and a water well site) and park uses.

An analysis of the proposed project's consistency with the applicable goals and policies of the City of Vacaville General Plan is provided below in Table 4.12-2, *Vacaville General Plan Consistency Analysis*. This analysis summarizes additional documentation and evidence detailed in the draft Greentree Specific Plan. Therefore, implementation of the Proposed Project would result in less-than-significant impacts relating to land use.

4.12 LAND USE AND PLANNING

TABLE 4.12-2 VACAVILLE GENERAL PLAN CONSISTENCY ANALYSIS

Applicable Goals and Policies	Project Consistency
LAND USE ELEMENT	
Goal LU-1 Preserve, promote, and protect the existing character and quality of life within Vacaville.	
Policy LU-P1.3 Preserve the predominant single-family residential character of Vacaville while providing other housing opportunities.	Consistent.
Policy LU-P1.4 Protect established neighborhoods from incompatible uses.	Consistent.
Policy LU-P1.5 With the exception of Priority Development Areas, require that infill projects be designed to complement the neighborhood and surrounding zoning with respect to the existing scale and character of surrounding structures, and blend, rather than compete, with the established character of the area.	Consistent.
Goal LU-2 Carefully plan for new development in undeveloped portions of Vacaville.	
Policy LU-P2.2 Require that specific plans be prepared for new areas brought into the city for development. Such specific plans must provide a coordinated plan for land use, public facilities, and public services. Prohibit individual, piecemeal developments within these outlying areas.	Consistent.
Policy LU-P2.3 Encourage housing, shopping, and employment opportunities on both sides of Interstate 80 to minimize the need for excessive travel across Interstate 80.	Consistent.
Goal LU-3 Coordinate land development with the provision of services and infrastructure.	
Policy LU-P3.4 Do not approve new development unless there is infrastructure in place or planned to support the growth.	Consistent.
Policy LU-P3.5 Encourage new development to consider transit, pedestrian, and bicycle circulation during the design phase.	Consistent.
Policy LU-P3.6 Require that new development or new Specific Plan areas be located immediately adjacent to existing development or infrastructure	Consistent.
Goal LU-4 Balance Residential Development with Jobs.	
Policy LU-P4.2 Strive to maintain a reasonable balance between employment income levels and housing costs within the city, recognizing the importance of housing choice and affordability to economic development in the city.	Consistent.
Policy LU-P4.1 Strive to maintain a reasonable balance between potential job generation and the local job market with a goal of one job for each employed resident.	Consistent.
Goal LU-5 Maintain the City's Urban Growth Boundary.	
Policy LU-P5.1 Urban Growth Boundary: To enhance and protect the city's quality of life, establish and maintain an Urban Growth Boundary so that urban development will be focused within the Urban Growth Boundary and the land outside the Urban Growth Boundary will not be redesignated other than for agriculture, park, open space, public facility, and utility uses until March 1, 2028, specifically as set forth in Policies LU-P5.4 through LU-P5.7.	Consistent.
Goal LU-6 All development shall pay its own way and not result in a financial burden to existing development or services.	
Policy LU-P6.1 Require that all development mitigate its own impacts on the existing community and pay its fair share of the cost of capital improvements needed to serve that development.	Consistent.
Policy LU-P6.2 Require that infrastructure and service improvements for future annexation or growth areas do not create an undue burden on existing City infrastructure and services.	Consistent.

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Applicable Goals and Policies	Project Consistency
Goal LU-7 Promote public participation in the City’s planning processes.	
Policy LU-P7.3 Require that sponsors of new development projects have early and frequent communication with affected citizens and stakeholders.	Consistent.
Goal LU-9 Ensure convenient access to healthy foods for all residents.	
Policy LU-P9.1 Encourage sources of fresh food, including grocery stores, farmers markets, and community gardens, and prioritize underserved areas for new sources of healthy food.	Consistent.
Goal LU-12 Provide high quality housing in a range of residential densities and types.	
Policy LU-P12.1 Encourage development that broadens the choice of type, size, and affordability of housing in Vacaville.	Consistent.
Goal LU-13 Promote the development of attractive commercial areas and uses that provide goods and services.	
Policy LU-P13.1 Ensure that new commercial development is compatible with the character and scale of existing and planned adjoining land uses.	Consistent.
Policy LU-P13.2 Provide neighborhood and community shopping centers of various sizes and locations to ensure easy access from nearby residential areas to daily commercial and service needs.	Consistent.
Policy LU-P13.3 Locate shopping centers and neighborhood commercial facilities at the intersection of major thoroughfares and, where appropriate, adjacent to multi-family housing and transit.	Consistent.
Policy LU-P13.9 Minimize conflicts between commercial areas and residences by requiring adequate buffers and screening.	Consistent.
TRANSPORTATION ELEMENT	
Goal TR-5 Design and maintain arterial roadways that meet circulation and access needs	
Policy TR-P5.2 Locate high traffic generating uses so that they have direct access or immediate secondary access to arterial roadways, while balancing the need to control the number of driveways that enter arterial roadways.	Consistent.
Policy TR-P5.4 Maximize the carrying capacity of arterial roadways by controlling the number of intersections and driveways, minimizing access, and prohibiting direct residential access whenever possible, and by requiring sufficient on-site parking to meet the needs of each project. This includes designing parking areas so that traffic turning into the parking areas does not impede through traffic on the arterial roadway, providing acceleration and deceleration lanes, combining driveways to serve several small parcels, limiting appropriate driveways to right-in and right-out movements only, and maintaining adequate distances between driveways and intersections to permit efficient traffic merges.	Consistent.
Goal TR-7 Provide a balanced, multimodal transportation network that meets the needs of all users.	
Policy TR-P7.4 Require that new development applications design roadway networks to accommodate transit vehicles and facilitate efficient transit routes.	Consistent.
Policy TR-P7.7 Require that new roadway networks be designed as a grid pattern to reduce circuitous travel patterns and improve access and circulation for all modes.	Consistent.
Goal TR-8 Provide a balanced, multimodal transportation network that meets the needs of all users.	
Policy TR-P8.1 Continue to implement a local Complete Streets Policy.	Consistent.
Goal TR-9 Increase bicycling by improving the network of bikeway and support facilities.	
Policy TR-P9.4 Require that new development applications include bike paths or bike lanes, when appropriate.	Consistent.
Goal TR-10 Ensure safe, pleasant, and convenient pedestrian paths, sidewalks, and trails to accommodate all segments of the population.	
Policy TR-P10.2 Design separated pedestrian paths and trails to be convenient, visible, and safe for all pedestrian transportation needs.	Consistent.

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Applicable Goals and Policies	Project Consistency
CONSERVATION AND OPEN SPACE ELEMENT	
Goal COS-1 Protect and enhance habitat for sensitive species and natural communities.	Consistent.
<p>Policy COS-P1.12 Until the Solano Habitat Conservation Plan (HCP) is adopted, comply with all of the Avoidance, Minimization, and Mitigation Measures listed in the Draft Solano HCP (see Appendix A for a list of the Avoidance and Minimization Measures that are applicable to Vacaville). In addition, require that development projects provide copies of required permits, or verifiable statements that permits are not required, from the California Department of Fish and Wildlife (2081 Individual Take Permit) and US Fish and Wildlife Service (Section 7 Take Authorization) prior to receiving grading permits or other approvals that would permit land disturbing activities and conversion of habitats or impacts to protected species. In cases where environmental review indicates that such permits may not be required, the Community Development Director may establish time limits of not less than 45 days from the submission of an adequate request for concurrence response from an agency. If the agency has not responded, or requested a time extension of no more than 90 days to complete their assessment, within the established time frame, applicable grading permits or other authorizations may be provided, subject to other City requirements and review. However, the City's issuance of grading permits or other authorizations does not absolve the applicant's obligations to comply with all other State and federal laws and regulations.</p>	Potentially Consistent, subject to revision outlined in Chapter 4.4 with modified language calling for reliance on analysis provided in this EIR.
Goal COS-3 Support Solano County efforts to preserve existing agricultural lands located in the Planning Area.	Consistent.
PARKS AND RECREATION ELEMENT	
Goal PR-1 Develop and maintain a high-quality public park system that provides varied recreational opportunities for city residents, workers, and visitors.	
Policy PR-P1.1 Provide new parks according to the standards established in this Element to ensure adequate distribution, size, and access.	Consistent.
Policy PR-P1.2 Provide neighborhood parks to serve the unique recreational, cultural, and educational needs of Vacaville's diverse neighborhoods. Design new neighborhood parks to have a unique character, appeal to children, and avoid standardized, programmatic designs.	Consistent.
<p>Policy PR-P1.3 Provide community parks to encompass a range of uses, including active high investment (e.g. gymnasiums and swimming pools), active low-investment (e.g. playfields and picnic facilities), and passive recreational facilities (e.g. natural areas suitable for quiet reflection). Community parks shall serve large portions of the city by providing facilities suitable for recreational and cultural activities beyond those supplied by neighborhood parks.</p>	Consistent.
Policy PR-P1.6 Make provisions for elderly and disabled individuals to freely access and utilize parks and recreational facilities, according to local, State, and federal codes.	Consistent.
Policy PR-P1.7 Encourage the development of private and commercial recreational facilities at appropriate locations. However, private recreational facilities shall not count towards the park standards established in this Element.	Consistent.
Policy PR-P1.8 Make designated open spaces more accessible to the public with a linked park and trail system that takes advantage of surrounding open space.	Consistent.
Goal PR-2 Ensure that new development is responsible for providing new parks and recreation facilities in accordance with the City's park and recreation standards and for providing its fair share of neighborhood park maintenance costs.	
Policy PR-P2.3 Require that proponents of large projects subject to Specific Plans and/or Development Agreements work with City staff early in the planning process to ensure that the project includes an adequate amount of developed parkland to satisfy the City's standards.	Consistent.
Policy PR-P2.4 Require all residential developers, including apartment builders, to provide sufficient parks and other recreational facilities to meet the standards established by the Comprehensive Parks, Recreation, and Open Space Facilities Master Plan by dedicating land and/or paying in-lieu fees for land acquisition, and by paying Park Development Impact Fees for the construction of new facilities.	Consistent.

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Applicable Goals and Policies	Project Consistency
SAFETY ELEMENT	
Goal SAF-2 Collect, convey, store, and dispose of stormwater in ways that provide an appropriate level of protection against flooding, account for existing and future development, and address applicable environmental concerns.	Consistent.
HOUSING ELEMENT	
Policies H.1-G1 Ensure a supply of housing of differing type, size, and affordability in order to meet Vacaville's housing needs for the current and future residents and workers within the community.	Consistent.
ENERGY & CONSERVATION ACTION STRATEGY, TRANSPORTATION AND LAND USE MEASURES	
LU-3 Require that new neighborhoods be based on traditional residential development patterns (i.e. interconnected streets or a grid pattern) in a variety of densities with a pedestrian-friendly network of streets and parks, unless prohibited by topographical conditions or other site-specific constraints.	Consistent.
LU-4 Require adequate pedestrian access to or through all new commercial, residential, and mixed-used development. New pedestrian infrastructure shall incorporate amenities such as street trees to shade sidewalks, lighting, benches, signage, and pedestrian signalization at major transportation points to increase pedestrian convenience, comfort, and safety.	Consistent.
LU-7 Continue to promote the development of employment-generating uses.	Consistent.

Based on the above, the project would be consistent with the applicable General plan policies. Therefore, the would be less than significant due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: LU-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation: LU-2 would be less than significant.

4.12.4 CUMULATIVE IMPACTS

LU-3	The proposed project would not result in cumulative impacts with respect to land use and planning.
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A cumulative impact would be considered significant if, taken together with past, present and reasonably foreseeable projects in the identified area, would conflict with applicable land use plans, policies, or regulations. As discussed above, the proposed project would not conflict with any applicable land use plans, policies, or regulations. In addition, the proposed project would not physically divide an existing community, nor would the proposed project conflict with an adopted conservation plan. Therefore, the proposed project would not contribute to a cumulative land use and planning impact and the impact would be less than significant.

4.12 LAND USE AND PLANNING

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: LU-3 would be less than significant.

Mitigation Measures

No mitigation measures.

Level of Significance After Mitigation: LU-3 would be less than significant.

4.12 LAND USE AND PLANNING

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4.13 HAZARDS AND HAZARDOUS MATERIALS

4.13 HAZARDS AND HAZARDOUS MATERIALS

This chapter describes the regulatory framework and existing conditions on the project site related to hazards and hazardous materials and provides an evaluation of the potential environmental consequences associated with the construction and operation of the proposed project related to the release of hazardous materials into the environment.

The analysis in this section is based, in part, upon the following documents included as Appendix 4.9, of this Draft EIR:

- Phase I Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, GeoSolve, Inc., June 24, 2021.
- Phase II Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, GeoSolve, Inc., June 24, 2021.
- Additional Phase II Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, GeoSolve, Inc., June 24, 2021. Environmental Setting
- *Arborist's Report, Davey Resource Group, July 2021.* A complete copy of this report is included as Appendix 4.7-2 of this Draft EIR.

4.13.1 ENVIRONMENTAL SETTING

4.13.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to Hazards and Hazardous Materials for the proposed Specific Plan.

Federal Regulations

Resource Conservation and Recovery Act

Federal hazardous waste laws are generally promulgated under the Resource Conservation and Recovery Act of 1976, as amended by the Hazardous and Solid Waste Amendments of 1984. These laws provide for the “cradle to grave” regulation of hazardous wastes. Any business, institution, or other entity that generates hazardous waste is required to identify and track its hazardous waste from the point of generation until it is recycled, reused, or disposed. The Department of Toxic Substances Control (DTSC) is responsible for implementing the Resource Conservation and Recovery Act program as well as California’s own hazardous waste laws, which are collectively known as the Hazardous Waste Control Law. Under the Unified Program, the California Environmental Protection Agency (CalEPA) has in turn delegated enforcement authority to the Solano County Department of Resource Management, Environmental Health Services Division for State law regulating hazardous waste producers or generators in Solano County. A certified Unified Program agency (CUPA) is a local agency that has been certified by CalEPA to implement the local Unified Program. The CUPA can be a county, city, or joint powers authority. A participating agency is a local agency that has been designated by the local CUPA to administer one or

4.13 HAZARDS AND HAZARDOUS MATERIALS

more Unified Programs within its jurisdiction on behalf of the CUPA. A designated agency is a local agency that has not been certified by CalEPA to become a CUPA, but is the responsible local agency that would implement the six Unified Programs until it is certified. Currently, there are 83 CUPAs in California.

Emergency Planning Community Right-to-Know Act

The Emergency Planning Community Right-to-Know Act (EPCRA), also known as Title III of the Superfund Amendments and Reauthorization Act, was enacted in October 1986. This law requires any infrastructure at the State and local levels to plan for chemical emergencies. Reported information is then made publicly available so that interested parties can be informed about potentially dangerous chemicals in their community. EPCRA Sections 301 through 312 are administered by United States Environmental Protection Agency's (EPA) Office of Emergency Management. The EPA's Office of Information Analysis and Access implements the EPCRA Section 313 program. In California, Superfund Amendments and Reauthorization Act Title III is implemented through California Accidental Release Prevention program. The State of California has delegated local oversight authority of the California Accidental Release Prevention program to the County of Solano.

Hazardous Materials Transportation Act

The United States Department of Transportation regulates hazardous materials transportation under Title 49 of the Code of Federal Regulations. State agencies that have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation. The California State Fire Marshal's Office has oversight authority for hazardous materials liquid pipelines. The California Public Utilities Commission has oversight authority for natural gas pipelines in California. These agencies also govern permitting for hazardous materials transportation.

Federal Response Plan

The Federal Response Plan of 1999 is a signed agreement among 27 federal departments and agencies and other resource providers, including the American Red Cross, that: 1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of State and local governments overwhelmed by a major disaster or emergency; 2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act as well as individual agency statutory authorities; and 3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a presidential declaration of a major disaster or emergency. The Federal Response Plan is part of the National Response Framework, which was most recently updated in June 2016.

Robert T. Stafford Disaster Relief and Emergency Assistance Act

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 authorizes the federal government to assist in emergencies and disasters when State and local capabilities are exceeded. The Robert T. Stafford Disaster Relief and Emergency Assistance Act constitutes statutory authority for most

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federal disaster response activities, especially as they pertain to the Federal Emergency Management Agency and its programs.

National Response Framework

The 2016 National Response Framework, published by the Department of Homeland Security, is a guide to how the nation responds to all types of disasters and emergencies. The Framework describes specific authorities and best practices for managing incidents that range from serious local to large-scale terrorist attacks or catastrophic natural disasters. In addition, the Framework describes the principles, roles and responsibilities, and coordinating structures for responding to an incident and how response efforts integrate with those of the other mission areas.

Occupational Safety and Health Administration

The federal Occupational Safety and Health Act of 1970 authorizes each state to establish their own safety and health programs with the US Department of Labor, Occupational Safety and Health Administration's (OSHA) approval. The California Department of Industrial Relations regulates implementation of worker health and safety in California. Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices. California standards for workers dealing with hazardous materials are in Title 8 of the California Code of Regulations and include practices for all industries (General Industrial Safety Orders) and specific practices for construction and other industries. Workers at hazardous waste sites (or working with hazardous wastes that might be encountered during excavation of contaminated soil) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations.

Code of Federal Regulations Section 1926.62 regulates the demolition, renovation, or construction of buildings involving lead materials. Federal, State, and local requirements also govern the removal of asbestos or suspected asbestos-containing materials (ACM), including the demolition of structures where asbestos is present. All friable (crushable by hand) ACMs or nonfriable ACMs subject to damage must be abated prior to demolition following all applicable regulations.

State Regulations

California Building Code

The State of California provides a minimum standard for building design through the California Building Code (CBC) (California Code of Regulations, Title 24, Part 2). The CBC is based on the 2018 International Building Code, but has been modified for California conditions. The CBC is updated every three years, and the current CBC went into effect in January 2020. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the typical fire safety requirements of the CBC, including the installation of sprinklers in all high-rise buildings; the establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

4.13 HAZARDS AND HAZARDOUS MATERIALS

California Fire Code

The California Fire Code (CFC) incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official fire code for the State and all political subdivisions (California Code of Regulations, Title 24, Part 9). The CFC is revised and published approximately every three years by the California Building Standards Commission.

California Governor's Office of Emergency Services

The California Governor's Office of Emergency Services (Cal OES) began as the State War Council in 1943. With an increasing emphasis on emergency management, it officially became Cal OES in 1970. The California Emergency Management Agency (CalEMA) was established as part of the Governor's Office on January 1, 2009—created by Assembly Bill 38 (Nava), which merged the duties, powers, purposes, and responsibilities of the former Governor's Office of Emergency Services with those of the Governor's Office of Homeland Security. CalEMA was responsible for the coordination of overall State agency response to major disasters in support of local government. The agency was also responsible for ensuring the State's readiness to respond to and recover from all hazards—natural, man-made, emergencies, and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. On July 1, 2013, Governor Edmund G. Brown Jr. eliminated CalEMA and restored it to the Governor's Office as Cal OES.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire threat potential throughout California. CAL FIRE ranks fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings are no fire threat, moderate, high, and very high fire threat. Additionally, CAL FIRE produced the 2018 Strategic Fire Plan for California, which contains goals, objectives, and policies to prepare for and mitigate for the effects of fire on California's natural and built environments.

California Environmental Protection Agency

CalEPA was created in 1991, unifying California's environmental authority in a single cabinet-level agency and bringing under one agency the California Air Resources Board, State Water Resources Control Board, Regional Water Quality Control Boards (RWQCBs), California Department of Resources Recycling and Recovery (formerly the Integrated Waste Management Board), DTSC, Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation. CalEPA is the "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of state resources. Its mission is to restore, protect, and enhance the environment and to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substance Control

The DTSC is a department of CalEPA and is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. The DTSC regulates hazardous waste in California primarily under the authority of the federal

4.13 HAZARDS AND HAZARDOUS MATERIALS

Resource Conservation and Recovery Act and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites; Department of Health Services lists of contaminated drinking water wells; sites listed by the State Water Resources Control Board as having underground storage tank (UST) leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater; and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

Regional Water Quality Control Board

The RWQCB is a department of CalEPA that oversees investigation and cleanup of sites, including USTs, where wastes have been discharged in order to protect the water quality of the state. The RWQCB regulates wastewater discharges to surface waters and to groundwater. It also regulates stormwater discharges from construction, industrial, and municipal activities.

California Health and Safety Code and Code of Regulations

California Health and Safety Code Chapter 6.95 and California Code of Regulations, Title 19, Section 2729 set out the minimum requirements for business emergency plans and chemical inventory reporting. These regulations require businesses to provide emergency response plans and procedures, training program information, and a hazardous material chemical inventory disclosing hazardous materials stored, used, or handled on-site. A business that uses hazardous materials or a mixture containing hazardous materials must establish and implement a business plan if the hazardous material is handled in certain quantities.

Asbestos-Containing Materials Regulations

State-level agencies, in conjunction with the federal EPA and OSHA, regulate removal, abatement, and transport procedures for ACMs. Releases of asbestos from industrial, demolition, or construction activities are prohibited by these regulations, and medical evaluation and monitoring is required for employees performing activities that could expose them to asbestos. Additionally, the regulations include warnings and practices that must be followed to reduce the risk for asbestos emissions and exposure. Finally, federal, State, and local agencies must be notified prior to the onset of demolition or construction activities with the potential to release asbestos.

Regional Regulations

Central Valley Regional Water Quality Control Board

The Porter-Cologne Water Quality Act established the State Water Resources Control Board and divided the state into nine regional basins, each under the jurisdiction of an RWQCB. The Central Valley Region (Region 5) RWQCB regulates water quality in the project area. The Central Valley RWQCB has the authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened and to require remediation actions if necessary.

4.13 HAZARDS AND HAZARDOUS MATERIALS

Yolo-Solano Air Quality Management District

The Yolo-Solano Air Quality Management District has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of CalEPA and the California Air Resources Board). The Yolo-Solano Air Quality Management District is responsible for preparation of attainment plans for nonattainment criteria pollutants, control of stationary air pollutant sources, and issuance of permits for activities, including demolition and renovation activities affecting ACMs (District Rule 9.9).

Solano County Office of Emergency Services

The Solano County Office of Emergency Services has adopted an Emergency Operations Plan (EOP) that identifies emergency response programs related to hazardous waste incidents. The EOP establishes policy direction for emergency planning, mitigation, response, and recovery activities in Vacaville. The Vacaville Emergency Operations Center uses the Standardized Emergency Management System, as required by California Government Code Section 8607(a), for managing responses to multiagency emergencies in California, including those related to hazardous materials.

Solano County Department of Resource Management, Environmental Health Services Division

The Solano County Department of Resource Management, Environmental Health Services Division is the certified CUPA for all cities and unincorporated areas within Solano County and consolidates, coordinates, and makes consistent the following existing programs:

- Hazardous Materials Business Plan (California Health and Safety Code, Chapter 6.95)
- Underground Storage Tank (California Health and Safety Code, Chapter 6.7)
- Aboveground Storage Tank Spill Prevention, Control Countermeasure Plan (California Health and Safety Code, Chapter 6.6.7)
- California Accidental Release Prevention Program
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs (California Health and Safety Code, Chapter 6.5)
- Hazardous Materials Business Plan

Local Regulations

City of Vacaville General Plan

The City of Vacaville's General Plan was adopted by the Vacaville City Council in August 2015. The Safety Element identifies methods and resources for minimizing death, injury, property and environmental damage, and social disturbance resulting from natural and human-induced hazards. Its policies and programs related to hazardous materials, hazardous wastes, and hazardous materials emergency

4.13 HAZARDS AND HAZARDOUS MATERIALS

response are listed in Table 4.13-1, *City of Vacaville General Plan Hazards and Hazardous Materials Policies Relevant to the proposed project*.

TABLE 4.13-1 CITY OF VACAVILLE GENERAL PLAN HAZARDS AND HAZARDOUS MATERIALS POLICIES RELEVANT TO THE PROPOSED PROJECT

Policy Number	Policy Text
Policy SAF-P6.4	Require adequate separation between areas where hazardous materials are present and sensitive uses such as schools, residences, and public facilities.
Policy SAF-P6.5	In areas historically used for commercial or industrial uses, require that developers conduct an environmental investigation to ensure that the site was not contaminated by the previous use.
Policy SAF-P7.3	Maintain an adequate level of disaster response preparedness through careful review of proposed developments and through staff training in and exercise of the local hazard mitigation plan.
Policy SAF-P7.5	Maintain comprehensive Emergency Response Plans.

Source: City of Vacaville, 2015, City of Vacaville General Plan 2035.

City of Vacaville Municipal Code

Besides the General Plan, the City of Vacaville Municipal Code is the primary tool that guides development in the city. It identifies land use categories, site development regulations, and other general provisions that ensure consistency between the General Plan and proposed development projects. Chapter 15.20.271, California Fire Code, regulates emergency response and hazardous materials in Vacaville through fire prevention and control of hazardous materials.

City of Vacaville Police Department

The City of Vacaville Police Department is responsible for coordinating agency response to disasters or other large-scale emergencies in Vacaville with assistance from the Solano County Office of Emergency Services and the Vacaville Fire Department.

City of Vacaville Fire Department

The Vacaville Fire Department (VFD) provides fire and emergency medical services to approximately 28 square miles within the City of Vacaville, as well as emergency medical services to approximately 160 square miles of unincorporated county land surrounding the city through a mutual aid agreement.

4.13.1.2 EXISTING CONDITIONS

This section describes existing conditions related to hazardous materials, airport hazards, and wildland fires associated with the proposed project.

Hazardous Materials Sites

The subject property consists of unimproved land north of existing Gilley Way and a closed former golf course with remaining structures, parking areas, former golf course ponds which function as part of the City's storm drain system, and unirrigated former turf and trees, many of which are in poor health or

4.13 HAZARDS AND HAZARDOUS MATERIALS

dying. The site was used as Green Tree Golf Course from about 1968 until February 2016. Redevelopment of the golf course and adjoining undeveloped parcel under the proposed project would remove all existing remnants of the former golf course, including trees and other improvements which currently represent potential fire hazards. Two storage tanks (one 500-gallon diesel tank and one 510-gallon gasoline tank) were previously located south of the former maintenance building and were used for the storage of gasoline and diesel fuel; these tanks were removed.

Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment was conducted by GeoSolve in June 2021 and determined that gasoline and diesel aboveground storage tanks (AST) were formerly operated on the project site.

A recognized environmental condition (REC) refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The Phase I ESA identified three RECs—former agricultural use of the site from at least 1937 to 1968 which could have impacted the surface soils on the site with organochlorine pesticides and arsenic, surficial lead around the buildings, and the presence of the storage tanks.

A controlled REC refers to an REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The Phase I ESA did not identify any controlled RECs.

A historical REC refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The Phase I ESA did not identify any historical RECs.

Phase II Environmental Site Assessment

A Phase II Site Investigation was conducted by GeoSolve in June 2021 to evaluate the extent to which soil and groundwater were impacted by past use of the site. The Phase II work entailed collecting soil obtained through grab sampling to address former agricultural use and potential surficial lead around buildings.

Exploratory borings and sampling were conducted in October 2016 and included drilling and sampling at 33 locations on-site. Eight locations were biased to address the potential surficial lead around buildings. The remaining 25 borings were drilled to two feet below ground surface to collect soil samples.

The results from the October 2016 sampling showed no elevated concentrations of pesticides. All detections of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Chlordane, and Dieldrin were either below their respective residential U.S. EPA Environmental Screening Levels (ESLs) and/or DTSC Screening Levels (DTSC-SLs).

Arsenic was detected at concentrations ranging from 2.4 mg/kg to 11 mg/kg, which is considered to be within background concentrations for California.

4.13 HAZARDS AND HAZARDOUS MATERIALS

Lead was detected below the residential ESL of 80 milligrams per kilogram (mg/kg) except for sample S-5 which was collected from a depth of 0.5 feet below ground surface. Sample S-5 had an elevated lead concentration of 8,200 mg/kg.

Additional Phase II Environmental Site Assessment

In June 2021, GeoSolve conducted an additional Phase II Environmental Site Assessment to better define the identified lead-impacted soil and to evaluate subsurface soil and groundwater around the previous location of the fuel tanks. Five additional soil samples were collected in the area of the elevated sample S-5. Lead was detected at concentrations below the residential ESLs in the additional samples except for one, L2-1 at a concentration of 210 mg/kg. GeoSolve recommended that an estimated 20 cubic yards (10-foot by 15-foot area extending 2 feet below ground surface) of lead-impacted soil be excavated and disposed of according to applicable laws.

Two soil borings were advanced to 20 feet below ground surface in the vicinity of the tanks and soil samples were collected at each boring at depths of 10, 15 and 20 feet. Once soil sampling activities were completed in each boring, a screened 1-inch diameter temporary PVC well casing was placed in each boring followed by the insertion of ¼-inch Teflon tubing. A hand-check valve was connected to the tubing and groundwater was manually pumped into four VOA vials and one plastic bottle, and the groundwater samples were labeled, preserved and transported to a laboratory for analysis. The groundwater samples showed no detectable concentrations of TPH-gasoline, TPH-diesel, TPH-motor oil or benzene, toluene, ethylbenzene and xylenes [BTEX]. MTBE was detected at a very low concentration of 5.4 micrograms per liter (ug/L), which is below the ESL of 1,300 ug/L established by the Regional Water Quality Control Board – Region 2 (February 2016). Lead was detected slightly above the maximum contaminant level (MCL) for drinking water of 15 ug/L.

Existing or Proposed Schools

Cooper Elementary School at 750 Christine Drive is 0.60 miles to the south of the site. The closest middle and high schools are Vaca Peña Middle School at 200 Keith Way, 1.2 miles to the southwest of the site and Will C. Wood High School at 998 Marshall Road, approximately 2.1 miles to the southwest of the proposed project site.

Airport Hazards

The City of Vacaville is within an airport master plan area for Nut Tree Airport, roughly 1.1 miles northwest of the project site. The project site is mostly within Compatibility Zone F (i.e. Other Airport Environs) for Nut Tree Airport. There are no other public use airports within two miles of the project site (Governor's Office of Emergency Services, 2019). Likewise, there are no private airstrips within or near the project site (AirNav 2021). The NorthBay VacaValley Hospital, approximately 0.9 miles southwest of the site, operates a helipad. Travis Air Force Base is located more than six miles from the project site.

The proposed project will be subject to Airport Land Use Compatibility review by the Solano County Airport Land Use Commission with respect to the 1988 Nut Tree Airport/Land Use Compatibility Plan and the Travis Air Force Base Land Use Compatibility Plan.

4.13 HAZARDS AND HAZARDOUS MATERIALS

Wildland Fire Hazard

CAL FIRE evaluates fire hazard severity risks according to areas of responsibility (i.e., federal, State, and local). According to CAL FIRE, there are no very high fire hazard severity zones within the Local Responsibility Area for the City of Vacaville, which includes the project site. The nearest very high fire hazard severity zones within the Local Responsibility Area are shown on Figure 4.13-1, Very High Fire Hazard Severity Zones in Local Responsibility Areas. Also, there are no moderate, high, or very high fire hazard severity zones in the State Responsibility Area in the vicinity of the City of Vacaville, including the project site. The nearest fire hazard severity zones within the State Responsibility Area are shown on Figure 4.13-2, Fire Hazard Severity Zones in State Responsibility Areas.

4.13 PARKS AND RECREATION

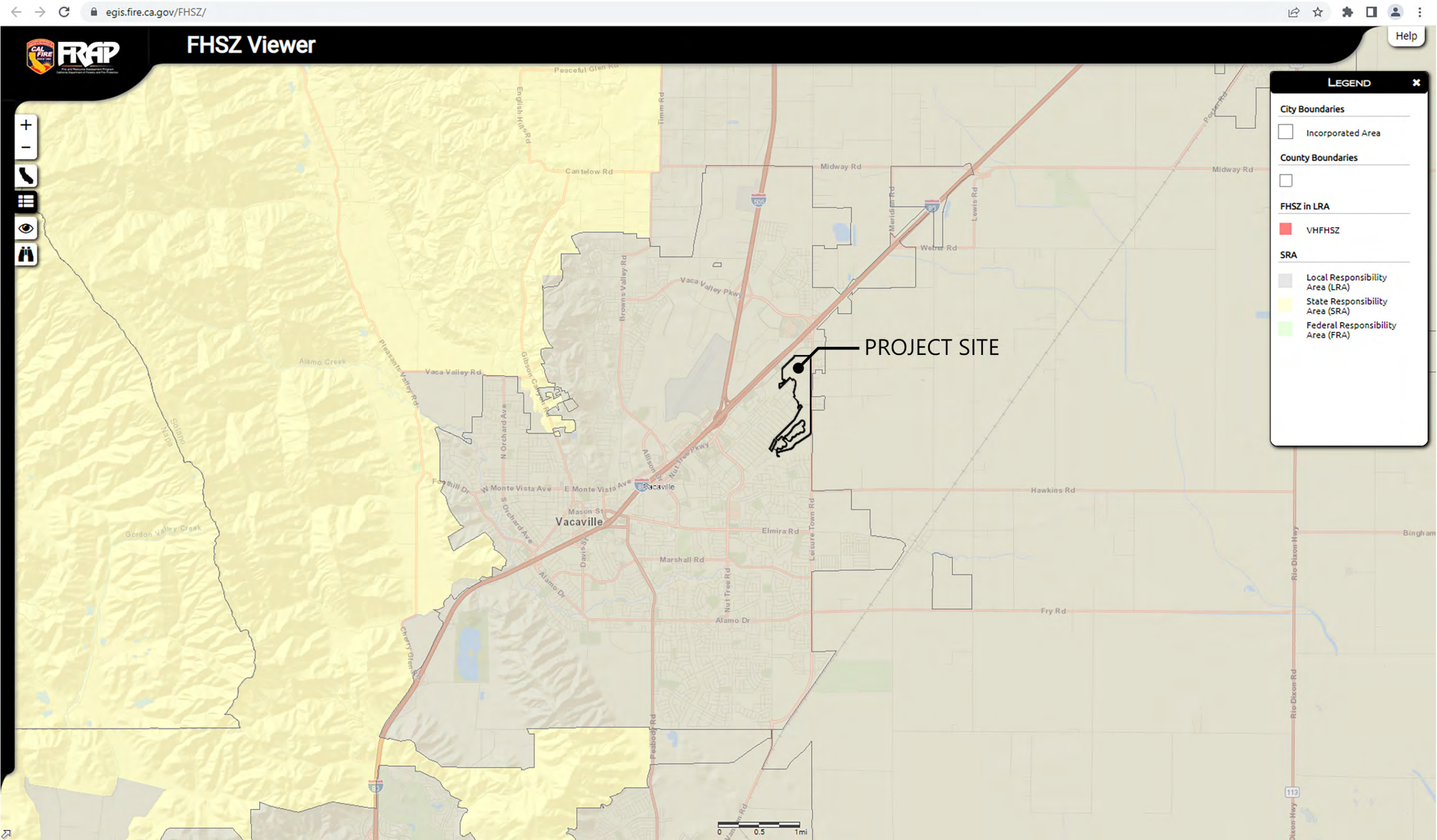


Figure 4.13-1
Very High Fire Hazard Severity Zones in Local Responsibility Areas

4.13 PARKS AND RECREATION

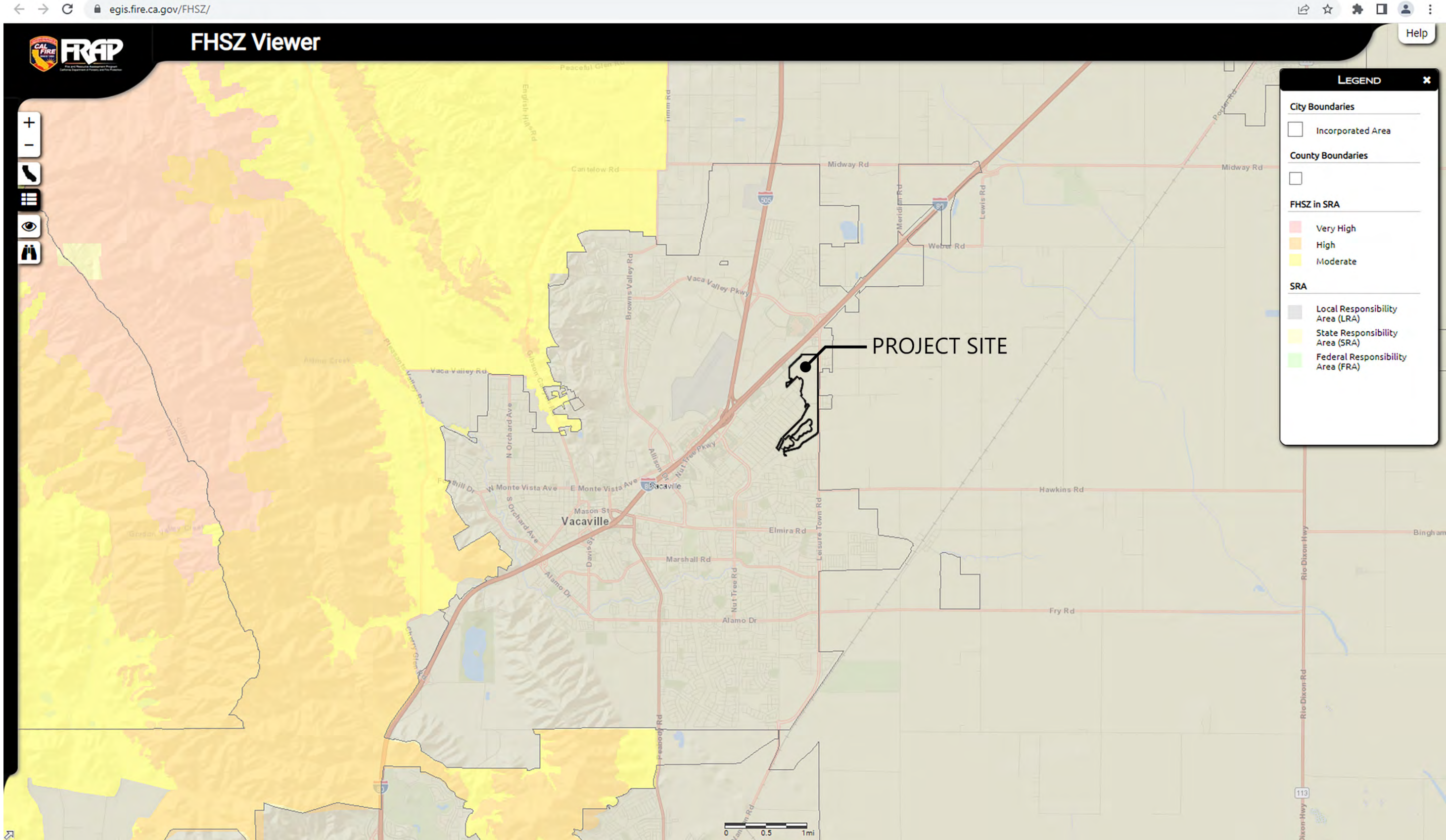


Figure 4.13-2

Fire Hazard Severity Zones in State Responsibility Areas

4.13.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant hazards and hazardous materials impacts if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within ¼-mile of an existing or proposed school.
4. Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
7. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

4.13.3 IMPACT DISCUSSION

HAZ-1	The project would not create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.
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Project Construction

The proposed project would involve construction activities that could result in the transport, use, and disposal of hazardous materials such as gasoline fuels, asphalt, lubricants, toxic solvents, pesticides, and herbicides. The transport, use, storage, and disposal of these materials would comply with existing regulations established by several agencies including the Department of Toxic Substances Control, the US Environmental Protection Agency (EPA), the US Department of Transportation, and the Occupational Safety and Health Administration. Compliance with applicable laws and regulations governing the use, storage, transportation, and disposal of hazardous materials during construction would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for hazardous materials releases.

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Project Operation

Landscaping within the commercial component would be maintained without synthetic herbicides or pesticides, and on-site pest management would employ certified Integrated Pest Management companies. However, operation of the proposed mixed-use development would involve the use of small amounts of other hazardous materials, such as cleansers and paints for cleaning and maintenance purposes. However, the proposed land use is not associated with uses that use, generate, store, or transport large quantities of hazardous materials, which generally include manufacturing, industrial, medical (e.g., hospital), and similar uses.

Additionally, the use, storage, transport, and disposal of hazardous materials would be governed by existing regulations of several agencies, including the Solano County Department of Resource Management, Environmental Health Services Division, EPA, Caltrans, and the California Division of Occupational Safety and Health. Compliance with applicable laws and regulations governing the use, storage, transportation, and disposal of hazardous materials would ensure that all potentially hazardous materials are used and handled in an appropriate manner and would minimize the potential for hazardous materials releases.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HAZ-2	The project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
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Use of hazardous materials during construction could potentially include fuels, lubricants, greases, and coatings. Use of hazardous materials after construction could potentially include cleaning solvents, fertilizers, pesticides, and other materials used in the regular maintenance and operation of the proposed uses. An accidental release of any of these materials could pose a health hazard to the public.

Existing laws, regulations, policies, and procedures that would serve to prevent a release of hazardous materials include applicable federal, State, and local laws and regulations described in Section 4.9.1.1, Regulatory Framework, of this chapter, and the Stormwater Pollution Prevention Plan and best management practices required for the proposed project (see Chapter 4.10, Hydrology and Water Quality, for additional detail). Compliance with these existing laws, regulations, policies, and procedures would help to ensure that future development activities would not create a significant hazard to the public. Therefore, the impact would be less than significant.

ENVIRONMENTAL ANALYSIS

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HAZ-3	The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within ¼-mile of an existing or proposed school.
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There are no schools within 0.25 miles of the proposed project.

When completed, the project may involve the use of small amounts of hazardous materials, such as cleansers, paints, fertilizers, and pesticides for cleaning and maintenance purposes. However, the proposed land uses are not associated with the use, generation, storage, or transport of large quantities of hazardous or acutely hazardous materials; such uses generally include manufacturing, industrial, medical (e.g., hospital), and similar uses. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school, and the impact would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HAZ-4	The project would be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 but would not create a significant hazard to the public or the environment.
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The Phase I ESA included a search of standard federal, State, County, and City environmental records. The database records search found no properties surrounding the site that could represent a significant environmental concern. This includes sites with the potential to create a concern to the subject property related to vapor intrusion- a process by which chemicals in soil or groundwater- especially Volatile Organic Compounds (VOCs)- migrate to indoor air above a contaminated site. Please refer to the Phase I ESA in Appendix 4.13-1 of this Draft EIR for further details regarding the regulatory records review.

The site is identified on the CA FID UST, UST, HIST UST, RCRA NonGen/NLR, HAZNET, HWTS, and SWEEPS UST databases for the historic use of one unused 550-gallon gasoline UST and the generation of waste oil and waste hydraulic fluid. The UST was removed from the site led by the Solano County Department of

ENVIRONMENTAL ANALYSIS

Resource Management, Environmental Health Services Division Certified Unified Program Agency (CUPA), with involvement by the City of Vacaville Fire Department. Based on the results from the additional Phase II investigation, there is no risk of vapor intrusion and therefore the project does not have the potential to create a hazard to the public or environment due to its location on a listed hazardous materials site.

As discussed in Section 4.9.1.2, Existing Conditions, the Phase I ESA identified three RECs on the project site. However, subsequent investigations showed that one of the RECs, residual pesticides in soil, did not pose a health risk; another, residual lead from the structures, was limited to a small area by the former clubhouse that is slated for excavation and disposal; and the last REC, the presence of a UST, subsequent investigations showed that there is no vapor intrusion risk from the historic feature. However, due to the presence of contamination, this is considered potentially significant.

The Phase II Supplemental ESA identified recommendations for proper handling and disposal of the soil surrounding the UST, which have been included in the Mitigation Measures below. Furthermore, the Phase I Supplemental ESA concluded that the project site was not found to be listed on any superfund or other lists compiled pursuant to Government Code Section 65962.5. Therefore, with inclusion of the below mitigation, impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-4 would be potentially significant.

Mitigation Measures

Mitigation Measure HAZ-1: As part of site the improvements, an estimated 20 cubic yards (28 tons) of soil must be excavated and disposed along the northern edge of the former maintenance yard building in a 10 foot by 15 foot by 2-foot excavation by a California Hazardous Waste licensed contractor, undersigned California Hazardous Waste manifests to accepting Class I landfill. Excavation activities should be observed and recorded by a California Professional Geologist and/or Professional Engineer certified in environmental remediation. Excavated soil must be placed within 20 cubic yard Visqueen lined roll-off bins and/or transport trucks. Similarly, excavated soil can be temporary stockpiled on site and placed on and covered with Visqueen.

Mitigation Measure HAZ-2: Confirmation soil samples must be collected from the excavation limits to determine if the lead impacted soil was removed from the site. Approximately 10 confirmation soil samples should be randomly collected from the excavation limits using clean laboratory supplied glass jars, which should be capped, labeled, and placed, within a pre-chilled ice chest for temporary storage. The confirmation soil samples should be delivered under chain-of-custody documentation to a State-Certified hazardous waste testing laboratory and analyzed for lead analysis using EPA Methods SW3550B/SW6020. If lead concentrations exceed 80 mg/Kg, then additional excavation must be conducted along with additional confirmation soil sampling as described above.

Level of Significance After Mitigation: HAZ-4 would be less than significant.

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HAZ-5	The project would not, for a project located within an airport land use plan, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
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The site is located within an airport master plan area for Nut Tree Airport, roughly 1.1 miles northwest of the project site. The project site is mostly within Compatibility Zone F (i.e. Other Airport Environs) for Nut Tree Airport and does not represent a safety hazard for future residents or workers in the project area. There are no other public use airports within two miles of the project site (Governor’s Office of Emergency Services, 2019). Likewise, there are no private airstrips within or near the project site (AirNav 2021). The NorthBay VacaValley Hospital, approximately 0.9 miles southwest of the site, operates a helipad. In addition, the distance from the Nut Tree Airport and NorthBay VacaValley Hospital would be sufficient to ensure that the project’s residents and employees would not be exposed to excessive airport- and helipad-related noise. Therefore, the impact would be *less than significant*.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HAZ-6	The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
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The proposed project would result in a significant impact if it would involve physical improvements that would impede emergency response to the project site or the immediate vicinity, or if it would otherwise interfere with emergency evacuation plans.

The proposed project would be required to comply with the provisions of the 2019 CFC and the 2019 CBC, which would ensure that building and life safety measures are incorporated into the proposed project and would facilitate implementation of emergency response plans. Future development plans would include fire and emergency access through all phases of construction and operation. During construction, the project would be required to comply with all applicable provisions of the CFC to ensure fire safety during the construction phase. The project plans have been developed to be consistent with requirements for the provision of fire sprinklers, fire department access, fire hydrants, and water supply for fire protection.

As discussed in Section 4.9.1.1, Solano County has prepared an EOP that identifies and allocates resources in response to emergencies—from preparation through recovery. The EOP identifies the County’s emergency planning, organizational, and response policies and procedures and how they would be coordinated with emergency responses from other levels of government. The proposed project would construct a mixed-use development and would not involve physical components that would interfere with

ENVIRONMENTAL ANALYSIS

the ability of the City, County, and emergency response service providers to access the site and implement emergency response activities within the project site or vicinity.

Compliance with applicable laws and regulations regarding emergency preparedness as well as General Plan policies would ensure that the proposed project would not interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-6 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HAZ-7	The project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.
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The project site is in an urbanized area of Vacaville and surrounded by developed lands. The proposed project is not in a fire hazard severity zone and, therefore, would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires (refer to Figure 4.13-1 and Figure 4.13-2).

The proposed project would be required to comply with the 2019 CFC and 2019 CBC, including installation of sprinklers, proper protection systems such as fire extinguishing systems and alarms, fire hydrants, water fire flow requirements, and access points to accommodate fire equipment. Compliance with existing codes and the project site's location outside of fire hazard areas would ensure that impacts related to wildland fires, either direct or indirect, would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: HAZ-7 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.13.4 CUMULATIVE IMPACTS

HAZ-8	The proposed project would result in less-than-significant cumulative impacts with respect to hazards and hazardous materials.
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The area considered for cumulative impacts is Solano County, which is the service area for the Solano County Department of Resource Management, Environmental Health Services Division, the affected CUPA. The population of Solano County is forecast to increase to 510,660 people by 2040. Other development

ENVIRONMENTAL ANALYSIS

projects throughout the county would use, store, transport, and dispose of increased amounts of hazardous materials, and thus could pose substantial risks to the public and the environment. However, the use, storage, transport, and disposal of hazardous materials by other projects would conform with regulations of multiple agencies described in Section 4.9.1.1.

The proposed project is not within 0.25 miles of any schools and would not handle large quantities of hazardous or acutely hazardous waste; therefore, the proposed project would not contribute to a cumulative impact associated with schools.

Furthermore, the proposed project area is within 2 miles of a private airstrip and would not have a significant impact on the Nut Tree Airport or NorthBay VacaValley Hospital helipad; therefore, the proposed project would not contribute to a cumulative impact associated with a public or private airport.

Cumulatively, projects have the potential to interfere with an adopted emergency response plan or emergency evacuation plan; however, this project along with all other future development would be required to comply with the provisions of the local, State, and federal regulations for emergency response plans and emergency evacuation plans. Compliance with these regulations would ensure potential cumulative impacts would be less than significant.

Cumulative projects have the potential to increase development in areas of high fire susceptibility; however, the project site is not in a fire hazard severity zone. Therefore, the proposed project would not contribute to hazards related to wildland fires. The project's contribution to potential cumulative impacts would not be considerable.

Cumulative impacts would be less than significant after compliance with regulations, and project impacts would not be cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Without Mitigation: HAZ-8 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.13.5 REFERENCES

AirNav, 2021, Browse Airport, Unites States of America, California, <http://www.airnav.com/airports/us/CA>, accessed October 19, 2021.

Association of Bay Area Governments, 2020, Projections 2040.

California Department of Forestry and Fire Protection (Cal Fire), 2018, *2018 Strategic Fire Plan for California*, https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf, accessed October 19, 2021.

ENVIRONMENTAL ANALYSIS

Cal Fire, 2021, California Fire Hazard Severity Zone Viewer, <https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414>, accessed August 13, 2021.

GeoSolve, Inc., 2021a, Phase I Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, June 24, 2021. (Appendix 4.13-1)

GeoSolve, Inc., 2021b, Phase II Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, June 24, 2021. (Appendix 4.13-2)

GeoSolve, Inc., 2021c, Additional Phase II Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, June 24, 2021. (Appendix 4.13-3)

Governor's Office of Emergency Services, 2019, Caltrans Public Use Airports, https://gis-calema.opendata.arcgis.com/datasets/64d77a43258e46078f7a39135ff83bcd_0, accessed August 13, 2021

4.14 HYDROLOGY AND WATER QUALITY

4.14 HYDROLOGY AND WATER QUALITY

This chapter describes the regulatory framework and existing conditions on the project site related to hydrology, and the potential impacts of the project on hydrology and water quality.

The analysis in this section is based in part on the following technical report:

- Water Supply Assessment Report for the Greentree Development Project, NV5, October 2021
- Draft Hydrologic Analysis and Preliminary Stormwater Management Plan for the Green Tree Project, Balance Hydrologics, February 23, 2022.

Complete copies of these reports are included as Appendix 4.14-2 and Appendix 4.14-3, respectively, of this Draft EIR.

4.14.1 ENVIRONMENTAL SETTING

4.14.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, and local regulations and programs related to hydrology and water quality for the proposed project.

Federal Regulations

Clean Water Act

The federal Water Pollution Control Act (or Clean Water Act [CWA]) is the principal statute governing water quality. It establishes the basic structure for regulating discharges of pollutants into waters of the United States and gives the EPA authority to implement pollution control programs, such as setting wastewater standards for industry. The statute's goal is to completely end all discharges and to restore, maintain, and preserve the integrity of the nation's waters. The CWA regulates direct and indirect discharges of pollutants; sets water quality standards for all contaminants in surface waters; and makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit is obtained under its provisions. The CWA mandates permits for wastewater and stormwater discharges; requires states to establish site-specific water quality standards for navigable bodies of water; and regulates other activities that affect water quality, such as dredging and the filling of wetlands. The CWA funds the construction of sewage treatment plants and recognizes the need for planning to address nonpoint sources of pollution. Section 402 of the CWA requires a permit for all point source (a discernible, confined, and discrete conveyance, such as pipe, ditch, or channel) discharges of any pollutant (except dredge or fill material) into waters of the United States.

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National Pollutant Discharge Elimination System

Under the National Pollutant Discharge Elimination System (NPDES) program (under Section 402 of the CWA), all facilities the discharge pollutants from any point into waters of the United States must have a NPDES permit. The term “pollutant” broadly applies to any type of industrial, municipal, and agricultural waste discharged into water. Point sources can be publicly owned treatment works (POTWs), industrial facilities, and urban runoff (the NPDES program addresses certain agricultural activities, but the majority are considered nonpoint sources and are exempt from NPDES regulation). Direct sources discharge directly to receiving waters, and indirect sources discharges to POTWs, which in turn discharge to receiving waters. Under the national program, NPDES permit are issued only for direct, point-source discharges. The National Pretreatment Program addresses industrial and commercial indirect discharges. Municipal sources are POTWs that receive primarily domestic sewage from residential and commercial customers. Specific NPDES program areas applicable to municipal sources are the National Pretreatment Program, the Municipal Sewage Sludge Program, Combined Sewer Overflows (CSOs), the Municipal Storm Water Program, and non-municipal sources industrial and commercial facilities. Specific NPDES program areas applicable to these industrial/commercial sources are: Process Wastewater Discharges, Non-Process Wastewater Discharges, and the Industrial Storm Water Program. NPDES issues two basic permit types—individual and general. Also, the EPA has recently focused on integrating the NPDES program further into watershed planning and permitting.

The NPDES has a variety of measures designed to minimize and reduce pollutant discharges. All counties with storm drain systems that serve a population of 50,000 or more, as well as construction sites one acre or more in size, must file for and obtain an NPDES permit. Another measure for minimizing and reducing pollutant discharges to a publicly owned conveyance or system of conveyances (including roadways, catch basins, curbs, gutters, ditches, man-made channels and storm drains, designed or used for collecting and conveying stormwater) is the EPA’s Storm Water Phase II Final Rule. The Phase II Final Rule requires an operator (such as a City) of a regulated small municipal separate storm sewer system (MS4) to develop, implement, and enforce a program (e.g., Best Management Practices [BMPs], ordinances, or other regulatory mechanisms) to reduce pollutants in post-construction runoff to the City’s storm drain system from new development and redevelopment projects that result in the land disturbance of greater than or equal to one acre.

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA) regulates drinking water quality nationwide and gives the U.S. Environmental Protection Agency (EPA) the authority to set drinking water standards, such as the National Primary Drinking Water regulations (NPDWRs or primary standards). The NPDWRs protect drinking water by limiting the levels of specific contaminants that can adversely affect public health. All public water systems that provide service to 25 or more individuals must meet these standards. Water purveyors must monitor for contaminants on fixed schedules and report to the EPA when a maximum contaminant level (MCL) is exceeded. MCL is the maximum permissible level of a contaminant in water that is delivered to any use of a public water system. Contaminants include organic and inorganic chemicals (e.g., minerals), substances that are known to cause cancer, radionuclides (e.g., uranium and radon), and microbial contaminants (e.g., coliform and E. coli). The MCL list typically changes every three years as the EPA adds

4.14 HYDROLOGY AND WATER QUALITY

new contaminants or revises MCLs. The California State Water Resources Control Board Division of Drinking Water is responsible for implementation of the SDWA in California.

Federal Urban Flooding Awareness Act

In recent years, communities have become concerned with localized flooding. In 2015, Congress passes the Urban Flooding Awareness Act of 2015. Under this bill, the National Academy of Sciences will conduct a study on urban flooding. It defines “urban flooding” as the inundation of property in a built environment, particularly in more densely populated areas, caused by rain falling on increased amounts of impervious surface and overwhelming the capacity of drainage systems. The bill directs the National Academy of Sciences to evaluate the latest research, laws, regulations, policies, best practices, procedures, and institutional knowledge regarding urban flooding. The findings from this assessment will direct future federal policies on identifying, preventing, and mitigating urban flooding.

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 mandate the Federal Emergency Management Agency (FEMA) to evaluate flood hazards. FEMA provides Flood Insurance Rate Maps (FIRMs) for local and regional planners to promote sound land use and floodplain development, identifying potential flood areas based on the current conditions. To delineate a FIRM, FEMA conducts engineering studies referred to as Flood Insurance Studies (FISs). Using information gathered in these studies, FEMA engineers and cartographers delineate Special Flood Hazard Areas (SFHAs) on FIRMs.

The Flood Disaster Protection Act (FDPA) requires owners of all structures in identified SFHAs to purchase and maintain flood insurance as a condition of receiving federal or federally related financial assistance, such as mortgage loans from federally insured lending institutions. Community members within designated areas are able to participate in the National Flood Insurance Program (NFIP) afforded by FEMA. The NFIP is required to offer federally subsidized flood insurance to property owners in those communities that adopt and enforce floodplain management ordinances that meet minimum criteria established by FEMA. The National Flood Insurance Reform Act of 1994 further strengthened the NFIP by providing a grant program for state and community flood mitigation projects. The act also established the Community Rating System (CRS), a system for crediting communities that implement measures to protect the natural and beneficial functions of their flood plains, as well as managing erosion hazards.

State Regulations

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Act (Water Code Sections 13000 et seq.) is the basic water quality control law for California. Under this Act, the State Water Resources Control Board (SWRCB) has ultimate control over state water rights and water quality policy. In California, the EPA has delegated authority to issue NPDES permits to the SWRCB.

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Storm Water Pollution Prevention Plans

Pursuant to the CWA, in 2001, the SWRCB issues a statewide general NPDES Permit for storm water discharges from construction sites (NPDES No. CAS000002). Under this Statewide General Construction Activity permit, discharges of storm water from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for storm water discharges or to be covered by the General Permit. Coverage by the General Permit is accomplished by completing and filing a Notice of Intent with the SWRCB and developing and implementing a Storm Water Pollution Prevention Plan (SWPPP). Each applicant under the General Construction Activity Permit must ensure that a SWPPP is prepared prior to grading and is implemented during construction. The SWPPP must list BMPs implemented on the construction site to protect storm water runoff, and must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a monitoring plan if the site discharges directly to a water body on the state’s 303(d) list of impaired waters.

The project shall meet the requirements of the City’s NPDES permit with the State Regional Water Quality Control Board to mitigate storm water pollution and erosion. The Phase II permit requires installation of Post Construction facilities.

Regional and Local Regulations

Central Valley Regional Water Quality Control Board (RWQCB)

The RWQCB regulates water quality for the region in accordance with the Water Quality Control Plan or Basin Plan. The Basin Plan presents the beneficial uses that the Regional Board has designated for local aquifers, streams, marshes, rivers, and the Delta as well as the water-quality objectives and criteria that must be met to protect these uses. The objectives, though occasionally numeric, are generally in narrative form and are to be applied so as to ensure that there is no degradation of the receiving waters and that the “beneficial uses” are not impaired.

Multiple beneficial uses have been designated for the Sacramento River Delta, the receiving waters for the project area, and include municipal, domestic, and agricultural supply, industrial process and service supply, contact and non-contact water recreation, warm and cold freshwater habitat and fish migration, warm water fish spawning, wildlife habitat, and navigation.

Aquatic habitat in the Delta is the most sensitive beneficial use to potential impacts from development of the proposed project. Pollution from driveways, roads, and parking lots could contribute petroleum products and heavy metals to storm runoff and degrade water quality downstream. Pesticides and fertilizers applied to residential and commercial landscaping could also be mobilized by rainfall and be transported to the delta sloughs, potentially affecting aquatic and terrestrial wildlife species in the river or the adjacent riparian zone.

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4.14.1.2 EXISTING CONDITIONS

The project site was historically the location of the Green Tree Golf Course and therefore, covered by irrigated turf. The only significant tree cover is limited to narrow strips along a series of long and narrow drainage pods and at the edges of the golf course green areas. Prior to the opening of the golf course in the early 1960s, the area was primarily used for agricultural purposes.

Drainage Features and Patterns

Regional Drainage and Runoff

The project site is located in the Sacramento River watershed, and creeks in the City of Vacaville generally drain in a southeasterly direction. Major creeks in the area include Alamo Creek, Gibson Canyon Creek, Horse Creek, and Ulatis Creek, all of which drain into the Sacramento River via Cache Slough. The project site’s receiving waters include Horse Creek, Ulatis Creek, and Old Ulatis Creek, which are summarized in Table 4.14-1, *Receiving Waters Hydraulic Parameters*. The project site is bounded to the south by Old Ulatis Creek, which joins Horse Creek approximately 2 miles downstream of Leisure Town Road, which is the eastern boundary of the project site. The headwaters of Old Ulatis Creek are located directly adjacent to the project site and nearly all runoff that enters Old Ulatis Creek upstream of Leisure Town Road either originates from the project site or is routed via overland flow from the adjacent neighborhood during very large storm events. The southern-most tip of the project site drains directly into Ulatis Creek. The project site is also bounded by Horse Creek to the north, which flows from west to east. Horse Creek joins with Ulatis Creek approximately 3 miles downstream of Leisure Town Road.

TABLE 4.14-1 RECEIVING WATERS HYDRAULIC PARAMETERS

	Drainage Area (square miles)	Peak Discharges		
		10-year (cfs)	50-year (cfs)	100-year (cfs)
Horse Creek @ Leisure Town Rd	7.8	2,200	2,700	2,700 ²
Ulatis Creek @ Leisure Town Rd	16.6	2,700	2,800	2,800 ²
Old Ulatis Creek @ Leisure Town Rd	0.6 ¹	-	-	-

Source: Balance Hydrologics 2021

Notes:

¹ Drainage area estimated from subwatershed sizes

² 100-year peak discharges are the same as 50-year discharges due to overbank losses

Horse Creek between Orange Drive and Leisure Town Road, and adjacent to the project site, is an engineered flood control channel in Solano County Water Agency. A drop stop structure in this section slows water velocity and ponds water upstream of the structure. An 84-inch culvert enters Horse Creek between Orange Drive and Leisure Town Road, downstream of the drop structure. This culvert drains the area northwest of the loop streets, between Nut Tree Road and Horse Creek, but does not include the proposed development areas.

4.14 HYDROLOGY AND WATER QUALITY

Local Drainage and Runoff

The primary pre-project mechanism for collection and conveyance of stormwater through the project site is a series of interconnected ponds, as shown in Figure 4.14-1, *Existing Drainage*, and Table 4.14-2, *Active Storage of Existing Ponds*, that handle both onsite runoff and that originate in the substantial offsite areas to the west. These ponds were constructed as part of the golf course facilities. Runoff from the existing residential area surrounding Grand Canyon Drive collects in a gravel-lined drainage ditch that eventually drains into a feature referred to herein as Pond 1, which drains into Pond 2. Runoff from the areas around Monterey Drive and the Leisure Town Center drain directly into Pond 3. Pond 2 and Pond 3 drain into Pond 4, which drains into a ditch that runs south along Leisure Town Road on the eastern extent of the project site. This ditch is referred to as Pond 5 as it can store substantial amounts of runoff during storm events. A higher-elevation drainage ditch exits Pond 4 during moderate to high flow events and flows North along Leisure Town Road and into Horse Creek. Outflow from Pond 5 crosses under Sequoia Drive and flows into Pond 7, which is a narrow, channel-like pond. Pond 6 is adjacent to the intersection of Yellowstone Drive and Rushmore Drive and collects runoff from the nearby “Loop Streets” neighborhood (Carlsbad Circle, etc.). Both Pond 6 and Pond 7 drain into the terminal Pond 8. Pond 8 drains into Old Ulatis Creek via three culverts and, during large storm events, an overflow spillway. Finally, the farthest south pond is referred to as Little Pond, which receives runoff from nearby existing residential areas and drains directly into a narrow slot channel that provides detention upstream of the outfall into Ulatis Creek. This channel/detention area is named “City Pond” because it is located on City property. The outfall for the City Pond is located on Ulatis Creek just upstream of the large offline detention basin constructed to attenuate flows in the Ulatis Creek channel.

TABLE 4.14-2 ACTIVE STORAGE OF EXISTING PONDS

Pond Name	Active Storage (acre feet)	Drains Into
Pond 1	3.2	Pond 2
Pond 2	3.1	Pond 4
Pond 3	6.7	Pond 4
Pond 4	4.5	Pond 5
Pond 5	3.5	Pond 7
Pond 6	2.2	Pond 7
Pond 7	4.9	Pond 8
Pond 8	5.3	Old Ulatis Creek
Little Pond	1.3	Ulatis Creek
Total	34.6	

Source: Balance Hydrologics 2021

An additional pond in the northwest-most corner of the project site and adjacent to Orange Drive was used for storing groundwater pumped for on-site for irrigation. Water from this pond can be released into the series of ponds for irrigation purposes but is not typically connected and therefore does not impact the stormwater routing. This irrigation pond was therefore not included in the hydrologic modeling.

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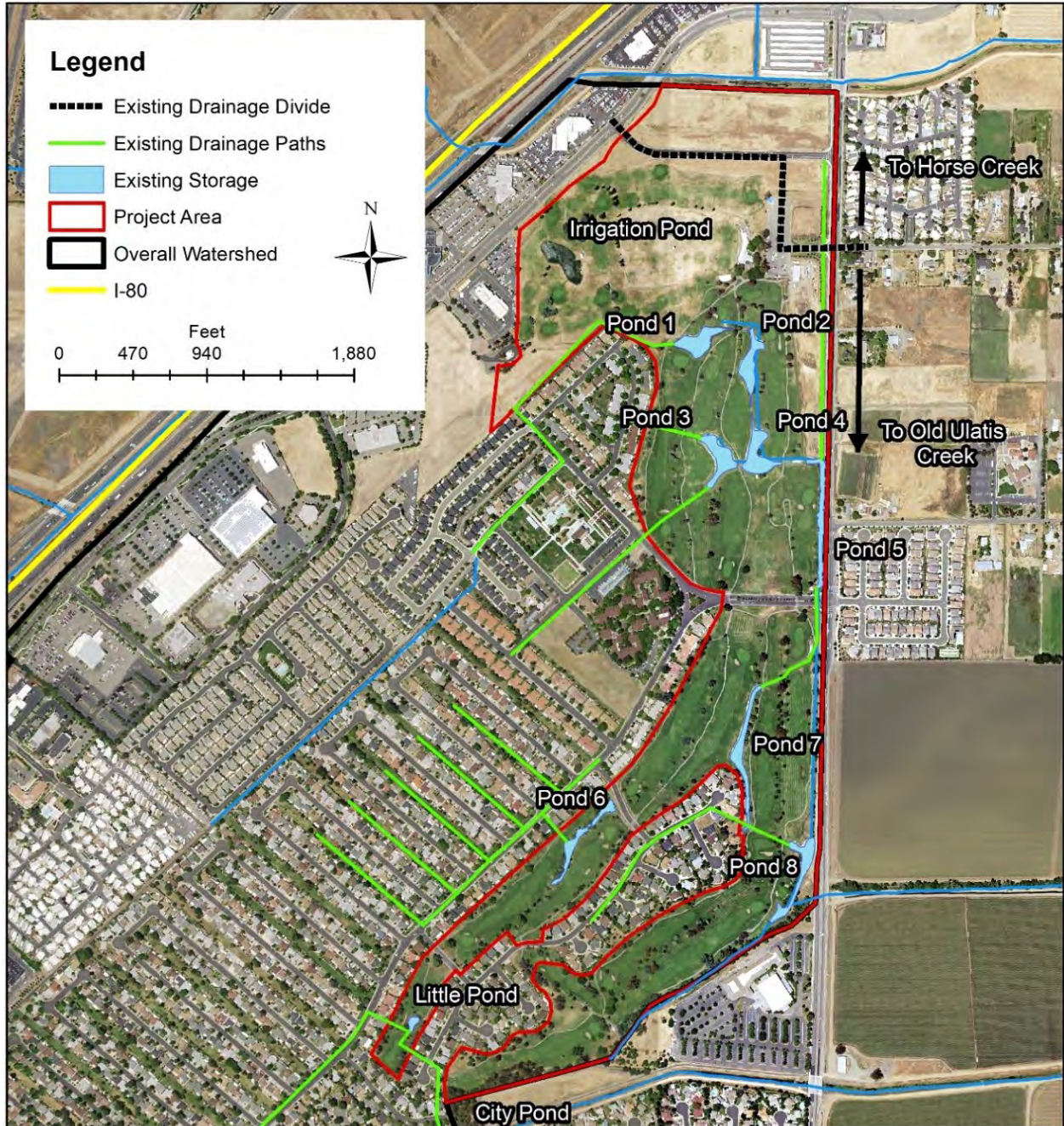


Figure 4.14-1
Existing Drainage

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The area north of Gilley Way drains via overland flow either into the northern part of the Leisure Town Road Ditch to Horse Creek, or directly into Horse Creek. The overall watershed, with a total area of 723 acres (1.1 square miles), encompasses the entire project site as well as the surrounding neighborhoods. The local neighborhood has existing stormwater drainage facilities that were built to drain directly into the golf course ponds. Stormwater runoff can enter the project site and the ponds in the form of overland flow from these same neighborhoods under certain conditions. Runoff from the neighborhoods will eventually drain into Old Ulatis Creek to the south and the remaining runoff will drain to Horse Creek to the north.

Water Quality Conditions

The most immediate water-quality concern with respect to the project is to protect the functions and values of the aquatic resources in the area. The project area drains to either Horse Creek, to Old Ulatis Creek, or to Ulatis Creek. Old Ulatis Creek joins with Horse Creek approximately 2 miles downstream of Leisure Town Road. Horse Creek is a tributary to Ulatis Creek, which was added to the 303(d) list as an impaired body of water in 2014 and is impaired by three pesticides, chlorpyrifos, diazinon, and diuron. The pesticides were banned for residential uses in the mid-2000s but are still allowed for agricultural uses. The proposed project does not include any land use designated for agricultural purposes and therefore will likely not affect the levels of chlorpyrifos, diazinon, and diuron in Ulatis Creek. Ulatis Creek is also impaired with respect to toxicity.

Groundwater Recharge and Supply

The City of Vacaville groundwater is sourced from the Sacramento River groundwater basin; more specifically the Solano subbasin, which is defined by Putah Creek to the north, the Sacramento River to the east, the North Mokelumne River to the southeast, and the San Joaquin River to the south. To the west, the subbasin boundary is defined by the hydrologic divide that runs along the ridges of the English Hills and the Montezuma Hills and separates lands draining to the San Francisco Bay from those draining to the Sacramento-San Joaquin River Delta.

The Tehama Formation is the thickest fresh-water-bearing geologic unit in the Solano subbasin, and ranges in thickness from 1,500 to 2,500 feet. The Tehama Formation consists of moderately compacted silt, clay, and silty fine sand enclosing lenses of sand gravel, silt and gravel, and cemented conglomerate. As a result, permeability of the Tehama Formation is variable. Overlying sediments are younger alluvium, with a similar variety of sediment sizes to the Tehama Formation, but with higher permeability. Primary recharge to the aquifers in the younger alluvium is likely sourced from the modern channel corridor, where coarser alluvial deposits accelerate deep percolation of surface runoff. Despite moderate to low permeability, wells in the Tehama Formation can yield several thousand gpm because of its relatively greater thickness. Primary recharge for the Tehama Formation is an outcrop area of over 35 square miles in the English Hills north of the city. Groundwater in the units under the Tehama Formation is saline and not used for water supply.

The City of Vacaville owns and operates 13 groundwater wells, 10 of which withdraw water from the deep aquifer zone of the Tehama Formation, which has a thickness of 2,200 feet near Elmira Field where most of the City-operated wells are located. Approximately 5,000 acre-feet is withdrawn annually to meet City

4.14 HYDROLOGY AND WATER QUALITY

water demands. The average per capita water use in the City was 168 gallons per day in 2020; 63 percent of water use was attributed to the residential sector at a rate of 106 gallons per day.

Offsite Drainage Issues

The pre-project model results appear to be consistent with the known off-site drainage issues in the 10-year event. Particularly, this includes flooding in excess of 0.5 feet deep along Yellowstone Drive, and on Sequoia Drive near Leisure Way. Model results in the 100-year event indicate deeper inundation depths on Yellowstone Drive, and on Sequoia Drive near Leisure Way. Model results in the 100-year event indicate deeper inundation depths on Yellowstone Drive and Sequoia Drive, but also inundation greater than 0.5 feet on White Sands Drive, Teton Drive, and Ponderosa Drive.

Drainage through the Green Tree Golf Course encompasses such a large and already developed offsite area that the drainage infrastructure through the project site has the potential to play a key role in drainage patterns offsite as well.. One main objective for the proposed project is to design on-site storm water infrastructure that does not make the existing flooding issues worse. A proposed drainage feature includes the use of multi-function stormwater basins. The proposed storm drain infrastructures are shown to comply with required peak flow reductions for 10- and 100-year events (Balance Hydrologics 2021).As proposed, the project will significantly reduce existing flooding issues in the area and ensure that new development is not subject to floods.

4.14.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant hydrology and water quality impacts if it would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows.
4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.14 HYDROLOGY AND WATER QUALITY

4.14.3 IMPACT DISCUSSION

HYD-1	The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
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Urban runoff from storms or nuisance flows (runoff during dry periods) from development projects can carry pollutants to receiving waters. Runoff can contain pollutants such as oil, fertilizers, pesticides, trash, soil, and animal waste. This runoff can flow directly into local streams or lakes or into storm drains and continue through pipes until it is released untreated into a local waterway and eventually the ocean. Untreated stormwater runoff degrades water quality in surface waters and groundwater and can affect drinking water, human health, and plant and animal habitats.

Construction Activities

Clearing, grading, excavation, and construction activities associated with the proposed project may impact water quality due to sheet erosion of exposed soils and subsequent deposition of particulates in local drainages. Grading activities lead to exposed areas of loose soil and sediment stockpiles that are susceptible to uncontrolled sheet flow. Although erosion occurs naturally in the environment, primarily from weather by water and wind action, improperly managed construction activities can lead to substantially accelerated rates of erosion that are considered detrimental to the environment.

As part of Section 402 of the Clean Water Act, the U.S. Environmental Protection Agency has established regulations under the National Pollution Discharge Elimination System (NPDES) program to control direct stormwater discharges. The NPDES program regulates industrial pollutant discharges, which include construction activities. In California, the State Water Resources Control Board (SWRCB) administers the NPDES permitting program and is responsible for developing NPDES permitting requirements.

Section 14.26.020.040, Discharges in Violation of Industrial or Construction Activity NPDES Storm Water Discharge Permit, of the Vacaville Municipal Code states that any person subject to a construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit.

Requirements for waste discharges potentially affecting stormwater from construction sites of one acre or more are set forth in the SWRCB's Construction General Permit, Order No. 2012-0006-DWQ, issued in 2012. The project site is larger than one acre and would be subject to requirements of the Construction General Permit. Projects obtain coverage under the Construction General Permit by filing a Notice of Intent with SWRCB prior to grading activities, and preparing and implementing a Storm Water Pollution Prevention Plan (SWPPP) during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the project site, and to contain hazardous materials. BMPs categories include, but are not limited to erosion control and wind erosion control, sediment control, and tracking control. Examples of BMPs include, but are not limited to, the use of jute bales, covering of soil, retaining walls, minimizing disturbed areas, diverting stormwater, etc. Implementation and monitoring required under the SWPPP would control and reduce short-term intermittent impacts to water quality from construction activities to less than significant levels.

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Operational Activities

The primary constituents of concern during the operational phase would be solids, oils, and grease from parking areas and driveways that could be carried offsite. The proposed drainage features would continue to route stormwater to Horse Creek, Ulatis Creek, and Old Ulatis Creek, including off-site runoff and the anticipated increased quantity of runoff from the project site. The proposed drainage patterns would serve two purposes, reducing the total infrastructure distance required to drain stormwater runoff, and reducing existing flooding hazards that occur because of low slopes and existing infrastructure across the project site. As a result, the relative proportion of stormwater volume released into Horse Creek will increase compared with Old Ulatis Creek, but stormwater detention would be designed such that peak flows would not increase in any of the three receiving waters. Figure 4.14-2, *Proposed Drainage Patterns and New Detention Basins*, shows the proposed detention basin locations and drainage patterns. Important proposed drainage features include the use of multi-function stormwater basins, which will play a key role in managing runoff water quality and quantity. Stormwater basins will be integrated with park and open space areas using naturalized contouring and landscaping where appropriate. Stormwater basins would be designed as “dry” basins to minimize vector control (e.g., mosquito) concerns. Given the elevation constraints at the project site and the proposed size of the detention basins, ponding in the detention basins would be managed with a central low-flow channel with a minimum slope of 0.35 percent, and a basin cross-slope to keep low-flows in the low-flow channel. On-site water quality would be managed using a combination of both bioretention/detention basins where elevation constraints permit, and local bioretention features such as bioswales or rain gardens, where necessary.

The primary goal of water-quality sensitive design is to limit the amount of Directly Connected Impervious Areas (DCIAs) within the development envelope. Limiting DCIAs promotes infiltration, increases times of concentration within drainage areas, and reduces runoff volumes. Additionally, less impervious area generally leads to increased amounts of space that can be dedicated to landscaping and open space uses that limit the introduction of pollutants to the environment and can filter out pollutants that already have been mobilized.

Site Design BMPs

Specific site design features that would be included to the maximum extent practicable include the following:

- **Reduced Street Widths.** The project proposes to use the minimum street widths compatible with safety of the residents and in conformance with the requirements of the City of Vacaville. Average street widths would be on the order of 30 feet, markedly less than average widths in other locations. The proposed street width is less than City standard, which requires street widths of 36 feet.
- **Home Design.** Homes would utilize designs that have a number of positive aspects with respect to stormwater management. Notably, the designs would minimize impervious area for a given interior floor space and would use disconnected downspouts to direct roof runoff to the vegetated areas.

4.14 HYDROLOGY AND WATER QUALITY

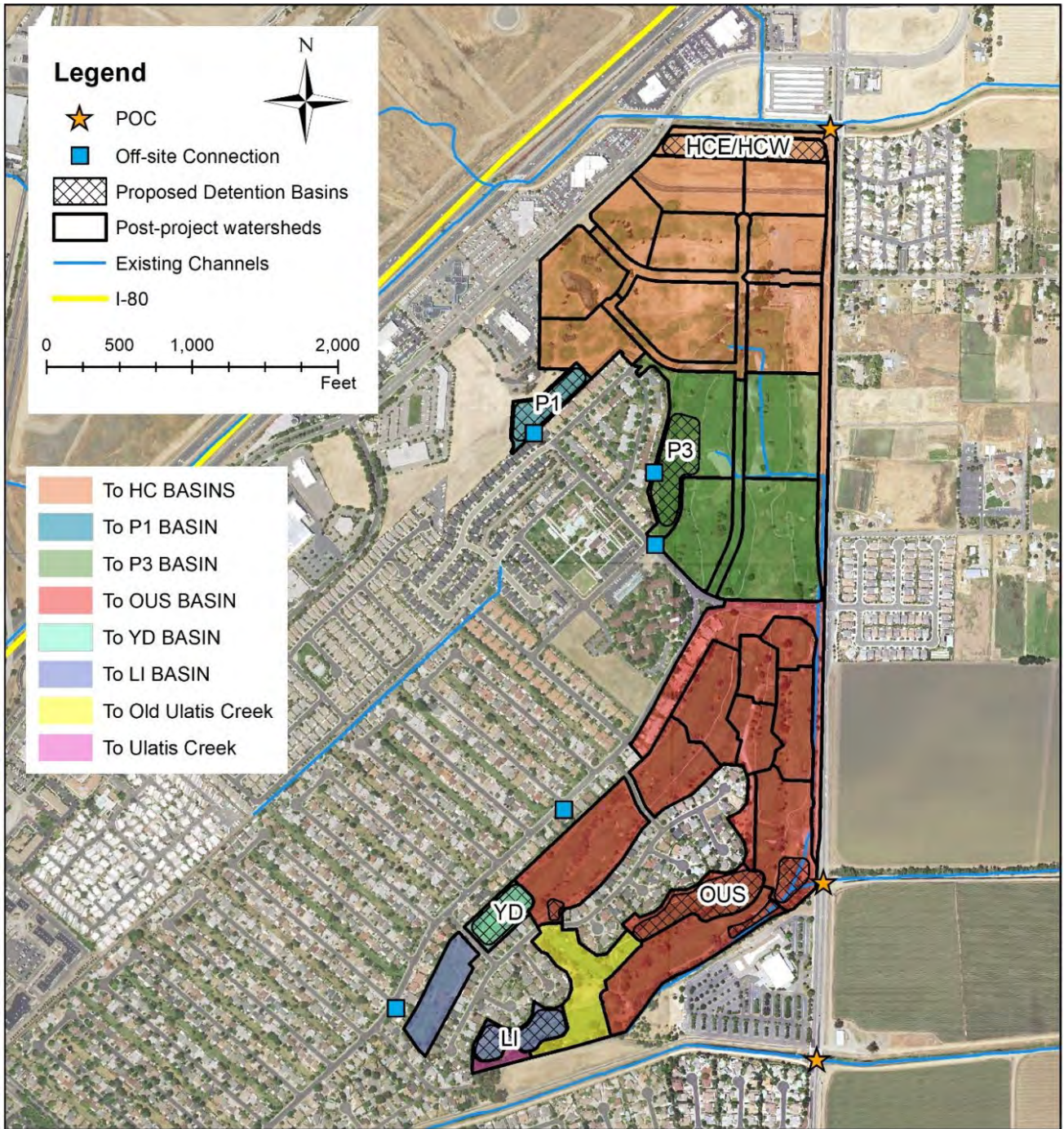


Figure 4.14-2
Proposed Drainage Patterns and New Detention Basins

4.14 HYDROLOGY AND WATER QUALITY

- **Open Space.** The proposed project includes a considerable amount of vegetated buffer areas and other public area (parks, plazas, gardens, etc.) which would remain as open space.

Source Control BMPs

The source control program would incorporate a number of strategies:

- **Education and Outreach.** The City of Vacaville has several outreach strategies designed to engage residents in the need to control non-point source pollution. One proven tactic in this regard is the marking of storm drain inlets and collection points to indicate that runoff can directly impact receiving waters. At this site, such markings may be along the lines of “Drains to Delta” Drains to Waterways.”
- **Landscaping.** All landscaping would incorporate plant species appropriate for the site soils and climate. Per the Specific Plan, the proposed project would utilize drip irrigation to the maximum extent practicable.
- **Trash Storage Areas.** All trash storage areas in commercial areas would be covered to prevent run-on and contained to prevent off-site transport of pollutants and trash.
- **Regular Street Sweeping.** Regular street sweeping can have a significant impact on the control of such constituents of concern as trash and debris, particulates, and heavy metals. The City of Vacaville coordinates a regular street sweeping program that would include the project area.

Treatment Control Elements

Treatment controls are generally considered necessary as a final element in water-quality protection even when the use of approved site planning and source control BMPs is maximized. Pollutants typically found in urban runoff include heavy metals (i.e., copper, lead, zinc, cadmium, mercury), oils and greases, nutrients (nitrogen and phosphorus), household and lawn-care chemicals (insecticides, herbicides, fungicides, and rodenticides), and coliform bacteria.

Ultimately, BMPs must comply with the requirements of the Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit (Order No. 2013-0001 DWQ, effective July 1, 2013). The site design measures of the MS4 Permit are generally more stringent than past requirements in that Permittees must design facilities to evapotranspire, infiltrate, harvest/use, and biotreat storm water. The clayey soils and low infiltration rates of the project site make infiltration generally infeasible. Rainwater may be harvested and used for irrigation, but the demand for domestic uses far exceeds the supply. For these reasons, bioretention basins are proposed as the primary treatment mechanism. Provisions of the MS4 Permit will require the basin floors to include an 18-inch layer of select soil mix suitable to maintain infiltration rates of up to 5 inches per hour, underlain by a gravel sub-drain layer. Underdrains will be installed near the top of the gravel layer to facilitate percolation through the bioretention medium and to prevent long-duration ponding.

4.14 HYDROLOGY AND WATER QUALITY

Preliminary sizes for bioretention basins were estimated with a combustion flow and volume design basis. The generalized sizing approach of multiplying the effective impervious area by a factor of 0.04 is a strictly flow-based method and does not consider the volume of runoff that is treated by infiltrating during the respective design storm (having an intensity of 0.2 inches/hour). This approach ignores the passive storage volumes that is available in the bioretention facility, and that is available to accommodate short periods of peak intensity. An alternative sizing convention uses a combination of flow and volume-based approaches which consider: (1) the volumes of runoff infiltrating through the bioretention facility over the course of the design storm, and (2) the volume of runoff held in the bioretention facility during the design event. This approach results in basin floor areas equal to roughly three percent of the effective impervious area, and sometimes less.

The required bioretention areas are summarized in Table 4.14-3, *Water Quality Treatment Bioretention Area*, for only the project area being developed, not including the pre-existing developments which drain through the project site, see Figure 4.14-3, *Post-Project Sub-Watersheds*, for reference. Under the assumption above, a total of 2.9 acres of the project area must be dedicated to bioretention facilities. This requirement can be met using a combination of distributed “rain gardens” or bioswales in green streets and strips, and biofiltration soils designed for infiltration built into the bottoms of the multi-function stormwater basins also designed for peak flow detention. The use of infiltration in addition to biofiltration in the southern portion of the project site may be advantageous as soil type B has higher infiltration potential compared to soil type C, which covers most of the project site.

TABLE 4.14-3 WATER QUALITY TREATMENT BIORETENTION AREA

Sub-Watershed	Total Area (acres)	Impervious (%)	Effective Impervious Area		Bioretention Area (acres)	Land Use
			Square Feet	Acre		
LTR South	9.0	60	234,900	5.4	0.16	Streets
OUS Basin	4.8	85	178,500	4.1	0.12	Basin
SA 520	7.6	55	182,100	4.2	0.13	Residential
SA 527	4.4	55	106,100	2.4	0.07	Residential
SA 528	2.3	55	55,100	1.3	0.04	Residential
SA 532	3.1	55	73,500	1.7	0.05	Residential
SA 534	2.5	55	60,200	1.4	0.04	Residential
SA 537	5.6	50	123,000	2.8	0.08	Residential
SA 540	5.1	50	111,200	2.6	0.08	Residential
YD Basin	2.6	85	94,500	2.2	0.07	Basin
CA 715	9.3	45	183,100	4.2	0.13	Basin
CE 830	8.8	50	191,700	4.4	0.13	Basin
WS 905	1.3	5	2,800	0.1	0.00	Open Space
SC Park	6.7	10	29,000	0.7	0.02	Open Space
CP Basin	0.7	5	1,600	0.0	0.00	Basin
LI Basin	3.0	85	110,200	2.5	0.08	Basin
Teton Park	3.9	5	8,500	0.2	0.01	Open Space
HCWB	2.1	80	71,500	1.6	0.05	Basin

4.14 HYDROLOGY AND WATER QUALITY

Sub-Watershed	Total Area (acres)	Impervious (%)	Effective Impervious Area		Bioretention Area (acres)	Land Use
			Square Feet	Acre		
Rest 7 West	6.0	60	155,800	3.6	0.11	Residential
WB Streets	5.9	85	216,900	5.0	0.15	Streets
Comm 2 East	5.2	80	181,400	4.2	0.12	Commercial
Residential 5	8.6	55	207,200	4.8	0.14	Residential
Comm 2 West	4.0	80	138,100	3.2	0.10	Commercial
Comm 3	6.0	80	210,000	4.8	0.14	Commercial
Residential 6	5.0	55	119,800	2.8	0.008	Residential
HCEB	2.0	80	69,400	1.6	0.05	Basin
Res 7 East	4.8	60	125,600	2.9	0.09	Residential
EB Streets	1.0	85	36,500	0.8	0.03	Streets
Comm 1	4.7	80	164,400	3.8	0.11	Commercial
Residential 4	7.1	55	171,100	3.9	0.12	Residential
HCP3	10.3	45	202,800	4.7	0.14	Basin/Open Space
Residential 2	5.9	55	141,300	3.2	0.10	Residential
P3 Streets	2.6	85	95,600	2.2	0.07	Streets
Residential 3	8.5	55	204,000	4.7	0.14	Residential
Residential 1	10.9	55	261,700	6.0	0.18	Residential
HCP1	2.7	80	93,700	2.2	0.06	Basin
HC-02 Residual	5.8	65	163,300	3.7	0.11	Streets
Total	189.8		4,776,100	110	3.3	

Source: Balance Hydrologics 2021

In general, projects must control pollutants, pollutant loads, and runoff volumes from the project site by minimizing the impervious surface area and controlling runoff through infiltration, bioretention, or rainfall harvest and use. Project must incorporate BMPs in accordance with the requirements of the municipal NPDES permit. The project would comply with water quality standards, and impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.14 HYDROLOGY AND WATER QUALITY

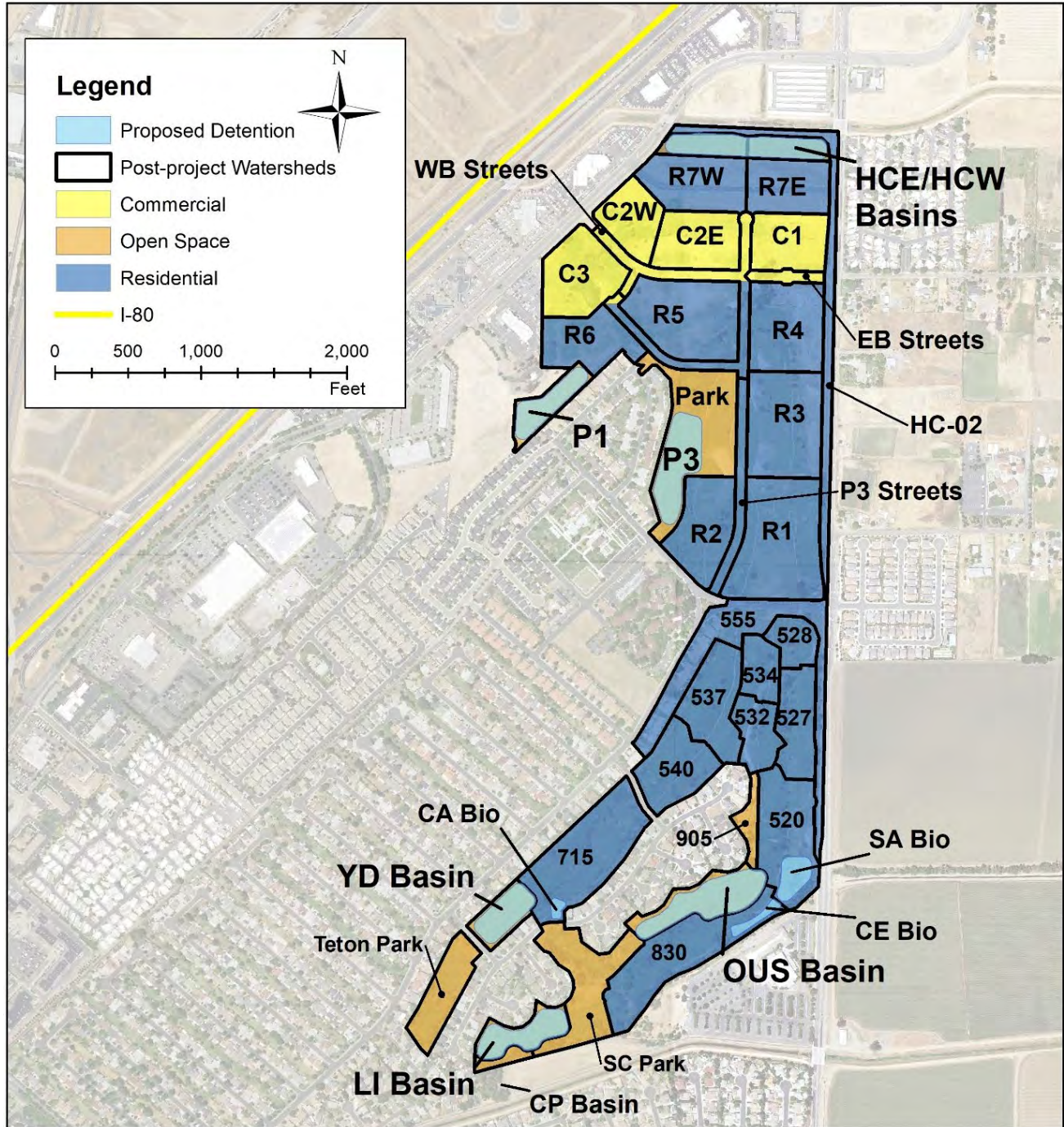


Figure 4.14-3
Post-Project Sub Watersheds

4.14 HYDROLOGY AND WATER QUALITY

HYD-2	The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
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The majority of the project site has hydrologic soil group (HSG) C soils composed of sandy clay loam that have low infiltration rates when thoroughly wetted. High rates of ET combined with low infiltration potential suggest that historically, the Green Tree Golf Course was likely not a significant source of groundwater recharge for the Tehama Formation. Any percolation of rainfall on the project site may recharge the shallow aquifers located in the younger alluvium; this would most likely occur in the southern portion of the project site were HSG B soils are located. An increase in the amount of impervious cover would not likely impact the total water supply available in the younger alluvium, especially with a reduction in pumping from this aquifer as a result of the proposed project. The source water for the proposed project would likely be supplied by the City of Vacaville from the Tehama Formation. This would place a new water demand upon the source aquifer of the City water supply but would cease groundwater withdrawals from the younger water-bearing alluvium layer.

Table 4.14-4, *Estimated Water Usage Under Post-Project Conditions*, shows the estimated water use for the proposed project’s residential and commercial uses, as well as landscaped areas.

TABLE 4.14-4 ESTIMATED WATER USAGE UNDER POST-PROJECT CONDITIONS

RESIDENTIAL					
Residence Type	Number of Units (Units)	Potable Water Use (gpd ¹ /unit)	Irrigation Water Use (gpd/unit)	Potable Annual Use (acre-feet/year)	Irrigation Water Use (acre-feet/year)
Residential Low	82	335	0	30.8	0.0
Residential Low Medium	117	295	0	38.7	0.0
Residential Medium	172	265	0	51.1	0.0
Residential Medium High	375	245	0	102.9	0.0
Residential High	403	230	0	103.8	0.0
COMMERCIAL					
	Commercial Area (acres)	Potable Water Use (gpd/unit)	Irrigation Water Use (gpd/unit)	Potable Annual Use (acre-feet/year)	Irrigation Water Use (acre-feet/year)
	20	1,230	385	27.4	8.6
LANDSCAPING					
Landscaping	Open Space (acres)	Potable Water Use (gpd/unit)	Irrigation Water Use (gpd/unit)	Potable Annual Use (acre-feet/year)	Irrigation Water Use (acre-feet/year)
Irrigated Areas	26.5	0	1,250	0.0	37.1
Total Potable					354.6
Total Irrigation					45.7
Total Water Use					400.3

Source: Balance Hydrologics 2022

¹ gpd = gallons per day

4.14 HYDROLOGY AND WATER QUALITY

The post-project water use for landscaping assumes modern and efficient irrigation practices gained from new irrigation equipment. Irrigation systems at the golf course were last installed in the early 2000s and were likely to be a relatively efficient system designed to optimize water use. However, the main transport of water across the golf course was through the inter-connected pond system, which resulted in significant water losses from evapotranspiration from the surface of the ponds at a rate of approximately 30 acre-feet per year, as well as some infiltration into the shallow subsurface. Under the previous land use of a golf course, approximately 556 to 578 acre-feet per year of water was used over the past 20 years for irrigation, whereas it is estimated that the proposed project would use an estimated 400 acre-feet of water each year.

It is important to note that existing golf course irrigation water was extracted from shallower groundwater in younger alluvial deposits, whereas all water used in the post-project development would be drawn from City groundwater supplies extracted from the Tehama Formation. Therefore, water use for the proposed project would increase the amount of water the City would need to supply from that source. However, the City of Vacaville is required to plan for increases in water demand from population increases as part of the UWMP and Groundwater Sustainability Plan (GSP). Additionally, the higher permeability of soils in the southern region of the project site (type B soils) have the potential to be used in conjunction with stormwater basins to offset for reductions in shallow alluvial aquifer recharge by focusing managed recharge efforts. Most of the proposed open space, including 4.5 acres of public park, is planned for the area south of Sequoia Drive where the type B soils within the project area are located, which will help maintain existing infiltration into the shallow alluvial aquifer. The three proposed bioretention basins south of Sequoia Drive are also located in the Type B soil area which would help maintain infiltration. Therefore, impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.14 HYDROLOGY AND WATER QUALITY

HYD-3	The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows.
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Erosion and Siltation

The proposed project would involve site improvements that require grading, excavation, and soil exposure during construction, with the potential for erosion or siltation to occur. If not controlled, the transport of these materials to local waterways could temporarily increase suspended sediment concentrations and release pollutants attached to sediment particles. To minimize this impact, the proposed project would be required to comply with the requirements in the State’s General Construction Permit, including preparation of an NOI and SWPPP prior to the start of construction activities. The SWPPP would describe the BMPs to be implemented during the project’s construction activities.

For the operation phase, the project applicant prepared a WQMP in accordance with the Central Valley RWQCB. The WQMP includes BMPs sized in accordance with the requirements of the MS4 to adequately treat runoff onsite. Collectively, implementation of the BMPs outlined in the SWPPP and the WQMP would address the anticipated and expected erosion and siltation impacts during construction and operational phases of the proposed project. Therefore, the proposed project would not result in substantial erosion or siltation on- or offsite, and impacts would be less than significant.

Proposed Drainage

Both Ulatis Creek and Horse Creek are FEMA regulated floodways and are heavily engineered channels. The channels have been straightened and lined with erosion control measures where necessary. Old Ulatis Creek originates at the project site and joins Horse Creek approximately 2 miles downstream of Leisure Town Road. The channel has been straightened, but otherwise largely unengineered; the channel banks have been colonized by local vegetation, including young trees, shrubs, and grasses. The estimated channel capacity of Old Ulatis Creek downstream of Leisure Town Road is approximately 110 cubic feet per second (cfs).

The proposed project would redirect a portion of the project site’s runoff that previously drained to Old Ulatis Creek via the existing pond system to Horse Creek.

Table 4.14-5, *Pre-Project and Proposed Post-Project Drainage Areas*, summarizes the proposed changes in drainage area for each of the project receiving waters. Currently, only an estimated 32 percent of the drainage area (project area and contributing off-site drainage area) drains to Horse Creek and 44 percent to Old Ulatis Creek. Under the proposed stormwater drainage patterns, 41 percent of the total drainage

4.14 HYDROLOGY AND WATER QUALITY

area would drain to Horse Creek and 36 percent would drain to Old Ulatis Creek. This serves multiple purposes, including but not limited to:

- Decreasing the effects of hydromodification on Old Ulatis Creek, which is not as heavily managed as Horse Creek; and
- Increasing runoff into Horse Creek may offset overall increases in runoff by releasing more stormwater prior to the peak discharge, which can lag rainfall in the relatively large watershed.

The total primary drainage area that drains to Ulatis Creek would not change under the proposed project.

TABLE 4.14-5 PRE-PROJECT AND PROPOSED POST-PROJECT DRAINAGE AREAS

Receiving Waters	Pre-Project Area		Post-Project Area	
	Drainage Area (acres)	Percent	Drainage Area (acres)	Percent
Horse Creek	227.8	32%	284.9	41%
Ulatis Creek	167.1	24%	167.1	24%
Old Ulatis Creek	308.1	44%	251.0	36%
Total	703.0	-	703.0	-

Source: Balance Hydrologics 2021

The proposed project would increase total runoff with development of the project site, but stormwater basins would be designed and built so that neither the 10- or 100-year flood events increase the peak discharges in either Horse Creek or Old Ulatis Creek, compared to pre-project peak discharges. As Table 4.14-5 above shows an increase in drainage area for Horse Creek, the post peak discharge will remain below pre peak discharge levels. The stormwater basins would also be designed to comply with 2-year hydromodification requirements.

Flood Flows

The lower-lying areas along the project site adjacent to Horse Creek have been mapped by FEMA as Special Flood Hazard Areas, Zones AE and A, commonly referred to as “100-year floodplains.” The currently effective Flood Insurance Study included detailed hydraulic analyses of flood conditions for the northwest side of I-80, whereas areas subject to inundation in a 100-year flood in the project site were determined using approximate methods, which is another common FEMA practice. The approximated hazard areas within the project boundary are defined as Zone A, which may have been estimated under the assumption that I-80 could be overtopped during a 100-year flood. The extent of the 100-year floodplain suggests that all other reaches of Horse Creek downstream of the project site do not overtop their banks during 100-year flood events.

The project does not allow encroachments into the designed Zone A floodplain area in the northwestern portion of the project site. The current Zone A area is proposed to be raised and the Conditional and Final Letters of Map Revisions (CLOMR and LOMR) process followed to redefine those limits. The proposed project grading plans would be designed to reduce flood risk to any housing facilities built within the designated floodplain. Floodplain impacts would be reduced through the implementation of the

4.14 HYDROLOGY AND WATER QUALITY

comprehensive stormwater management strategy, and post-project floodplains extents and water surface elevations would be reviewed and documented through CLOMR and LOMR processed through FEMA. Therefore, impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HYD-4	The project would not be in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
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Impacts as a result of potential floods would be less than significant, as indicated above. The project site is not in an area subject to seiches, mudflows, or tsunamis due to the absence of any nearby bodies of water and mud/debris channels. As shown in Figure SAF-7 of the City of Vacaville General Plan, the project site is not within a dam inundation area. Furthermore, the project site will not be in a flood hazard area as noted by the CLOMR and LOMR processes. In addition, the project site is not in the vicinity of any levees or waterbody which could cause a tsunami. Therefore, the proposed project would not be exposed to seiches, mudflows, or tsunami hazards, and impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-4 would be less than significant.

Mitigation Measures

No mitigation measures are required.

HYD-5	The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.
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As indicated in Impact 4.10-1, the proposed project would implement BMPs to ensure that the proposed project has a less than significant impact on surface and ground water quality. These measures also ensure that the proposed project would not obstruct or conflict with the implementation of applicable plans. Additionally, the proposed project would not conflict with the Vacaville UWMP or with the Solano Subbasin GSP. The proposed project would comply with water quality requirements set forth in the Statewide General Construction Permit, the NPDES, and the Section 14.26, Urban Storm Water Quality Management and Discharge Control, of the Vacaville Municipal Code. Therefore, impacts would be less than significant.

4.14 HYDROLOGY AND WATER QUALITY

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.14.4 CUMULATIVE IMPACTS

HYD-6	Implementation of the proposed project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to hydrology and water quality.
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Construction and operation of the proposed project as well as future projects in the City, could result in increased flows that would eventually discharge into waterways. Other projects would comply with their respective SWPPP and regulations for water quality standards established by the UWMP and the City. Although areas around the project site are built out, new projects in the area, both individually and cumulatively, could potentially increase the volume of stormwater runoff and contribute to pollutant loading in the storm drain system with eventual discharge to waterways. However, as with the proposed project, future projects in the City would be required to comply with drainage and grading regulations and ordinances, such as with water quality requirements set forth in the Statewide General Permit, the NPDES, and the City of Vacaville Code Section 14.26, Urban Storm Water Quality Management and Discharge Control. New projects would also be required to comply with the City's standard conditions of approval, regulations, ordinances regarding water quality, and NPDES permitting requirements. In consideration of preceding factors, cumulative water impacts would be rendered less than cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact HYD-6 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.14.5 REFERENCES

Balance Hydrologics, Inc. (Balance Hydrologics). 2021, June 2. Draft Hydrologic Analysis and Preliminary Stormwater Management Plan for the Green Tree Project. Appendix 4.14-3.

4.15 NOISE

This chapter discusses the fundamentals of sound; examines federal, state, and local noise guidelines, policies, and standards; reviews noise levels at existing receptor locations; and evaluates potential noise impacts associated with development of the proposed project; and provides mitigation to reduce noise impacts at sensitive receptor locations.

The analysis in this section is based in part on the following technical reports:

- *Acoustical Analysis Greentree Development Project*, WJV Acoustics Inc., May 2021. A complete copy of this report is included as Appendix 4.15-1 of this Draft EIR.
- *Greentree South Neighborhood Park, Amphitheater-Related Noise Levels*, WJV Acoustics Inc., October 2021. A complete copy of this memorandum is included as Appendix 4.15-2 of this Draft EIR.

4.15.1 ENVIRONMENTAL SETTING

4.15.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, and local regulations and policies related to noise for the proposed project.

Federal Regulations

There are no federal noise standards that are applicable to the project.

State Regulations

There are no state noise standards that are applicable to the project.

Local Regulations

City of Vacaville General Plan

Section 65302(f) of the California Government Code requires that General Plans contain a Noise Element that can be used as a guide for establishing a pattern of land uses that minimize the exposure of community residents to excessive noise. Local governments are required to analyze and quantify noise levels and exposure to noise through field measurements or noise modeling, and to use the Noise Element to address existing and foreseeable noise problems.

Noise is generally defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Noise is especially a concern in the vicinity of noise-sensitive uses, which are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of land, such as residences, schools, and hospitals.

4.15 NOISE

Noise Element

The Noise Element establishes land use compatibility noise level criteria in terms of the Community Noise Equivalent Level (CNEL) metric. The CNEL is the time-weighted energy average noise level for a 24-hour day, with a 4.77 dB penalty added to noise levels occurring during the evening hours (7:00 p.m.-10:00 p.m.) and a 10 dB penalty added to noise levels occurring during the nighttime hours (10:00 p.m.-7:00 a.m.). The CNEL represents cumulative exposure to noise over an extended period of time and is therefore calculated based upon annual average conditions.

The General Plan Noise Element establishes land use compatibility guidelines for specific land use types and noise exposure levels. The Noise Element provides policies to be applied to new developments. The Noise Element provides the following goals and policies, and actions related to noise:

Noise Standards

Goal NOI-1 Maintain an acceptable noise environment in all areas of the city.

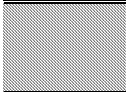
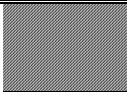
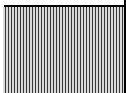

- **Policy NOI-P1.1** Require an acoustical analysis for all proposed projects that would locate noise sensitive land uses where the projected ambient noise level is greater than the respective "normally acceptable" noise level as indicated on Table NOI-3, and require mitigation of noise impacts that exceed the land use compatibility standards. Any acoustical analysis prepared pursuant to this Noise Element shall comply with the following:
 - Be performed according to a scope of work that has been approved by the Director of Community Development.
 - Be the financial responsibility of the applicant.
 - Be prepared by a qualified person experienced in the fields of noise assessment and architectural acoustics.
 - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions, predominant noise sources, and peak noise sources.
 - Estimate existing and projected cumulative (2035) noise levels in terms of CNEL, and compare those levels to the adopted policies of the Noise Element.
 - Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, giving preference to proper site planning and design over the construction of noise barriers or structural modifications to buildings. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.
 - Estimate noise exposure after the prescribed mitigation measures have been implemented.
 - Describe a post-project monitoring program that could be used to evaluate the effectiveness of the proposed mitigation measures.
- **Action NOI-A1.1** Amend the Land Use and Development Code to incorporate Policy NOI-P1.1.

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- **Policy NOI-P1.2** Require that noise created by new transportation and non-transportation noise sources be mitigated, to the extent that is technically and economically feasible, to comply with the noise level standards of Table NOI-3.
- **Policy NOI-P1.3** Allow minor exceptions to the noise level design standards in Table NOI-3 in circumstances where mitigation requirements are not technically or economically feasible and not consistent with other City goals, standards, and policies.
- **Policy NOI-P1.4** Prohibit new residential land uses where the exterior noise associated with aircraft operations at Nut Tree Airport or Travis Air Force Base exceeds 60 dB CNEL.
- **Policy NOI-P1.5** When considering applications for a change in land use, follow the noise and land use compatibility guidelines in Table NOI-3.

4.15 NOISE

TABLE 4.15-1 LAND USE COMPATIBILITY STANDARDS FOR COMMUNITY NOISE ENVIRONMENTS

Land Uses	CNEL (dBA)						
	50	55	60	65	70	75	80
Residential-Low Density: Single Family, Duplex, Mobile Homes	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Residential-Multiple Family	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Transient Lodging: Hotels and Motels	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Sports Arena, Outdoor Spectator Sports	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Playground, Neighborhood Parks	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Office Buildings, Businesses, Commercial and Professional	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Industrial, Manufacturing, Utilities, Agricultural	Normally Acceptable		Normally Acceptable		Normally Unacceptable		Clearly Unacceptable
Explanatory Notes							
	Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.				Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.		
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.				Clearly Unacceptable: New construction or development clearly should not be undertaken.		

Source: California Office of Noise Control 1971.

Goal NOI-2 Protect noise-sensitive uses from excessive noise.

- **Policy NOI-P2.1** Reduce outdoor noise levels in existing residential areas, where economically and aesthetically feasible.
 - **Action NOI-A2.1** Request that Caltrans provide sound walls along Interstate 80 adjacent to existing residential areas where sound walls are the only practical noise mitigation.
- **Policy NOI-P2.2** Discourage residential areas from directly abutting Interstate 80 or 505.
 - **Action NOI-A2.2** Review all non-residential development proposals for noise impacts on noise sensitive land uses, such as residences, schools, and hospitals.
- **Policy NOI-P2.3** Design subdivisions to minimize the transportation-related noise impacts to adjacent residential areas.
- **Policy NOI-P2.4** Maintain smooth street surfaces adjacent to land uses that are sensitive to noise intrusion.
- **Policy NOI-P2.5** Encourage the use of open space, earthen berms, parking, accessory buildings, and landscaping to buffer new and existing development from noise. Use sound walls only when other methods are not practical or when recommended by an acoustical expert as part of a mitigation program.
- **Policy NOI-P2.6** Require that the effects of sound walls on noise levels in surrounding areas be considered and taken into account in the design, location, and construction of sound walls.
- **Policy NOI-P2.7** Require that vibration-sensitive buildings (e.g. residences) are sited at least 100 feet from the centerline of railroad tracks whenever feasible. Require a study demonstrating that groundborne vibration issues associated with rail operations have been adequately addressed prior to allowing the development of vibration-sensitive buildings within 100 feet of the centerline of railroad tracks.

Goal NOI-3 Minimize noise from mobile sources.

- **Policy NOI-P3.1** Limit truck traffic to designated truck routes.
 - **Action NOI-A3.1** Update aircraft noise projections as future operations at the Nut Tree Airport and Travis Air Force Base are projected to change.
- **Policy NOI-P3.2** Utilize City traffic officers to enforce the use of approved truck routes.
- **Policy NOI-P3.3** Require increased setbacks for commercial and office development that adjoins freeways.
- **Policy NOI-P3.4** Work with the Solano County Airport Land Use Commission and other agencies to reduce noise generated from sources outside the City's jurisdiction.

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Goal NOI-4 Minimize noise from stationary sources.

- **Policy NOI-P4.1** Preclude the generation of annoying or harmful noise through conditions of approval on stationary noise sources, such as construction and property maintenance activity and mechanical equipment.
 - **Action NOI-A4.1** Amend the Land Use and Development Code to incorporate Policy NOI-P4.2.
- **Policy NOI-P4.2** Require the following construction noise control measures:
 - Equip all internal combustion engine-driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
 - Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction area.
 - Utilize “quiet” air compressors and other stationary noise sources where technology exists.
 - Limit hours of operation of outdoor noise sources through conditions of approval.

Vacaville Municipal Code

Section 14.09.127.120, Noise

These standards have been established to implement the Noise Element of the General Plan. They are applicable to the land use determinations approved through the General Plan amendment and the zone change process. They also apply to any project approvals granted in accordance with the Zoning Ordinance and the Subdivisions Ordinance. The standards identify the maximum noise levels to which sensitive land uses may be exposed and the maximum noise standards related to non-transportation sources. A sensitive land use is a use which is sensitive to noise impacts and for which this section establishes maximum noise exposure standards.

A. Projected Noise Environment.

1. Ground Transportation. Future noise exposure contours for the City from ground transportation noise sources are shown in Figure 14.09.127-1. The noise contours are day-night averages, referred to as DNL or L_{dn} , and are shown in decibels, or dBA, which measures the intensity of sound pressures on a logarithmic scale. The DNL also takes into account peoples’ increased sensitivity to noise at night. The mapped contours do not show the effect of existing sound walls, intervening buildings, or topography in contributing to the reduction of sound levels, nor the possible contribution of fixed-point, non-transportation noise sources that increase noise levels in areas throughout the community. Figure 14.09.127-1 provides a generalized indication of anticipated noise exposures that may be made more precise through site specific analysis;
2. Airport Operations. Future noise exposure contours from aircraft operations at Nut Tree Airport and Travis Air Force Base are shown in Figure 14.09.127-2. These contours are expressed in CNEL, or community noise equivalent levels. The CNEL is approximately equal numerically to DNL for most environmental settings, but adds an additional five dB penalty for

sounds occurring between 7:00 p.m. and 10:00 p.m. to further protect sensitive receptors. Figure 14.09.127-2 provides a generalized indication of anticipated noise exposures that may be made more precise through site specific analysis.

B. Land Use Determination Standards. The following standards serve as a guide for determining the appropriateness of approving land use changes. These standards are applicable to land use determinations approved through a General Plan amendment or a zone change.

1. Ground Transportation Related Standards. Ground transportation noise sources include traffic on public or private roadways and railroad operations. Noise exposure from these sources is measured as DNL.
 - a) Figure 14.09.127-1 shall be used as the basis for determining compliance with this section, with the following exception:
 - i. A site specific acoustical analysis may be considered in lieu of Figure 14.09.127-1 if the Director determines that such an analysis would more adequately describe the projected noise environment;
 - b) All land use determinations involving General Plan amendments and zone changes shall be consistent with the standards established in Table 14.09.127.01.
2. Airport Related Standards. Airport related noise sources include aircraft associated with the Nut Tree Airport, with Travis Air Force Base, and with other aviation activity affecting the City. Noise exposure from these sources are measured in CNEL.
 - a) Figure 14.09.127-2 shall be used as the basis for determining compliance with this section, with the following exception:
 - i. A site specific acoustical analysis may be considered in lieu of Figure 14.09.127-2 if the Director determines that such an analysis would more adequately describe the projected noise environment;
 - b) All land use determinations involving General Plan amendments and zone changes shall be consistent with the standards established in Table 14.09.127.02.

C. Project Approval and Operational Standards. These standards apply to all land uses subject to approval through the Zoning Ordinance and the Subdivisions Ordinance, and are applicable to both transportation and non-transportation noise sources. Compliance with these standards shall be required in conjunction with all land development and subdivision approvals.

1. Compliance with Noise Standards. Compliance with the noise standards shall be measured at the affected location of the land use, as determined by the Director. For single family residential uses, the exterior affected location typically is the backyard.
 - a) For multi-family or other attached residential unit projects, and hospitals and nursing homes, the exterior noise standards shall apply to courtyards, patios, private yard areas, and common activity areas;
 - b) Transient lodgings, motels, and hotels do not have specific exterior noise standards. However, areas designed for outdoor recreation at transient lodging, motels, or hotels shall be located in such a manner so that noise impacts are practically minimized.
2. Acoustical Study Required. Acoustical studies, prepared in a format consistent with the criteria established in the Noise Element of the General Plan, shall be required and submitted as a part of an application for a development project, in the following situations:

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- a) When a proposed sensitive land use would potentially be exposed to levels of noise which would exceed the standards shown in Tables 14.09.127.03 and 14.09.127.04:
 - i. The acoustical study shall demonstrate compliance with the noise standards and ensure that sensitive land uses, as receptors of noise, will not be exposed to noise levels in excess of the standards established for both transportation and non-transportation noise sources; and
 - ii. Identify mitigation measures that would result in compliance with such standards;
- b) When a proposed use would potentially generate levels of noise which would exceed the standards shown in Tables 14.09.127.03 and 14.09.127.04;
 - i. The acoustical study shall demonstrate that the use would not generate noise levels that would result in the existing or future sensitive land uses being impacted by noise levels that exceed the standards for both transportation and non-transportation noise sources; or

TABLE 4.15-2 NON-TRANSPORTATION NOISE LEVEL STANDARDS, DBA

Land Use Category	Noise Level Descriptor	Exterior Noise Levels		Interior Noise Levels	
		Daytime (7 am – 10 pm)	Nighttime (10 pm – 7 am)	Daytime (7 am – 10 pm)	Nighttime (10 pm – 7 am)
Residential	Hourly L_{eq}	50	45	45	35
Residential	Maximum Level dBA	70	65	–	–
Transient Lodging	Hourly L_{eq}	–	–	45	35
Hospitals, Nursing Homes	Hourly L_{eq}	50	45	45	35

- ii. Identify mitigation measures that would result in compliance with such standards.
3. Transportation Sources. The standard of noise measurement for transportation noise is the DNL. All new uses shall comply with the standards established in Table 14.09.127.03, with the following exception:
 - a) The decision-maker may approve an exception to the standards contained in Table 14.09.127.03 for unique situations where the requirement of strict compliance with the standard is not practical or feasible. In such situations, the decision-maker shall find that the projected noise levels have been mitigated to the maximum extent practical.
4. Non-Transportation Sources. Non-transportation noise sources include noise from activities or uses such as industrial operations, outdoor recreation facilities, loading docks, and construction equipment. Two standards apply to non-transportation noise sources: the hourly L_{eq} , dBA, which is an hourly average sound level, and the maximum level, dBA. Table 14.09.127.04 shows the maximum hourly average and the peak daytime and nighttime noise standards for non-transportation sources when located near sensitive land uses. All uses shall comply with these standards.

The noise standards for non-transportation sources shall not apply in the following situations:

- a) To new uses if the ambient noise levels exceed the hourly L_{eq} or the maximum level of the proposed noise generator, unless the additional noise generated would increase the projected, combined noise levels a minimum of three decibels;
- b) To public parks or public playgrounds upon a finding by the decision-maker that the location of the facilities within the park or playground reasonably limits the noise impacts upon other land uses;
- c) For nuisance abatement related to residential generated noise sources including, but not limited to, children playing, lawn mowers, barking dogs, and musical equipment;
- d) To residential caretaker units established in conjunction with non-residential uses;
- e) To construction activity related to public improvement projects where the Director has determined that full compliance with these standards cannot practically be achieved.

Section 14.09.127.090, Hours of Construction

- A. No construction or grading equipment shall be operated nor any outdoor construction or repair work shall be permitted within 500 feet from any occupied residence between dusk (one-half hour after sunset) and seven a.m. Monday through Saturday, and no such grading or construction activities shall be allowed on Sundays or holidays except as provided for herein:
 - 1. Interior work which would not create noise or disturbance noticeable to a reasonable person of normal sensitivity in the surrounding neighborhood shall not be subject to these restrictions;
 - 2. Construction or repair work performed by or under the direction of a homeowner at his or her residence is exempt from these restrictions on Sundays and holidays, but such construction or repair work shall be limited to the hours between eight a.m. and dusk.
- B. A request for an exception to the permitted construction hours and days may be granted by the Director for emergency work, to offset project delays due to inclement weather, for 24-hour construction projects, or other similar occurrences.
- C. City projects undertaken by or on behalf of the City's Public Works Department shall be exempt from these provisions.

TABLE 4.15-3 GUIDELINE VIBRATION ANNOYANCE POTENTIAL CRITERIA

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

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TABLE 4.15-4 GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

4.15.1.2 EXISTING CONDITIONS

Noise and Vibration Fundamentals

Noise is generally defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Noise is especially a concern in the vicinity of noise-sensitive uses, which are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of land, such as residences, schools, and hospitals.

Fundamental Concepts

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is the number of complete vibrations, or cycles per second of a sound wave (frequency), which results in the range of tone from high to low. Loudness is the strength of a sound that describes a noisy or quiet environment. It is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments. Table 4.12-5 contains a list of typical acoustical terms and definitions.

Measurement of Sound

A decibel (dB) is a unit of measurement which indicates the relative intensity of a sound. The zero point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3 dB or less are only perceptible in laboratory environments.

Since the human ear is not equally sensitive to all pitches (i.e. sound frequencies) within the entire noise spectrum, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. Table 4.15-6 shows representative noise sources and their corresponding noise levels in dBA.

TABLE 4.15-5 DEFINITIONS OF ACOUSTICAL TERMS

Term	Definitions
Decibel, dB	A unit of measurement that denotes the ratio between two quantities proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e. number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise
L ₀₁ , L ₁₀ , L ₅₀ , L ₉₀	The fast A-weighted noise levels equaled or exceeded by a fluctuating sound level for 1 percent, 10 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L _{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 decibels to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L _{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L _{max} , L _{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Source: City of Vacaville General Plan

Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Thus, a 10 dBA increase in the level of a continuous noise represents a perceived doubling of loudness, while a 20 dBA increase is 100 times more intense, and a 30 dBA increase is 1,000 times more intense.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level. Noise levels attenuate, or diminish, as distance from the source increases based on an inverse square rule, depending on how the noise source is physically configured.

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TABLE 4.15-6 TYPICAL A-WEIGHTED SOUND LEVELS

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment
Near Jet Engine	140	Deafening
Civil Defense Siren	130	Threshold of pain
Hard Rock Band	120	Threshold of feeling
Accelerating Motorcycle at a Few Feet Away	110	Very loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very loud
Ambulance Siren; Food Blender	95	Very loud
Garbage Disposal	90	Very loud
Freight Cars; Living Room Music	85	Loud
Pneumatic Drill; Vacuum Cleaner	80	Loud
Busy Restaurant	75	Moderately loud
Near Freeway Auto Traffic	70	Moderately loud
Average Office	60	Moderate
Suburban Street	55	Moderate
Light Traffic; Soft Radio Music in Apartment	50	Quiet
Large Transformer	45	Quiet
Average Residence Without Stereo Playing	40	Faint
Soft Whisper	30	Faint
Rustling Leaves	20	Very faint
Human Breathing	10	Very faint

Source: City of Vacaville General Plan

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The predominant rating scales for communities in California are the equivalent continuous sound level (L_{eq}), the community noise equivalent level (CNEL), and the day-night average level (L_{dn}), which are all defined in Table 4.15-5. L_{eq} represents an average of the sound energy occurring over a specified period. This descriptor is useful because sound levels can vary markedly over a short period of time. The most common averaging period for L_{eq} is hourly, but it can be of any duration. CNEL is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10:00 p.m. and 7:00 a.m. (defined as sleeping hours) and 5 dB added to the A-weighted sound levels occurring between 7:00 p.m. and 10:00 p.m. (defined as relaxation hours), to adjust for the fact that noise during these hours is more disruptive than noise during the day. L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are normally exchangeable.

The noise environments discussed in this Element are specified in terms of maximum levels, denoted by L_{max} . L_{max} is the highest exponential time averaged sound level that occurs during a stated time period. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Effects of Noise

According to the US Department of Housing and Urban Development's 1985 Noise Guidebook, permanent physical damage to human hearing can occur at prolonged exposure to noise levels higher than 85 to 90 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, and thereby affecting blood pressure, functions of the ear and the nervous system, and triggering emotional reactions like anger, depression, and anxiety. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. For avoiding adverse effects on human physical and mental health in the workplace or in communities, the US Department of Labor, Occupational Health and Safety Administration requires the protection of workers from hearing loss when the noise exposure equals or exceeds an 8-hour time-weighted average of 85 dBA.

Unwanted community effects of noise occur at levels much lower than those that cause hearing loss and other health effects. Annoyance occurs when noise interferes with sleeping, conversation, or noise-sensitive work, including learning or listening to the radio, television, or music. According to the World Health Organization, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA, or moderately annoyed with noise levels below 50 dBA.

4.15.1.3 EXISTING CONDITIONS

Existing noise levels in the project vicinity are dominated by traffic noise along Leisure Town Road, Orange Drive and other local roadways, noise associated with landscaping activities and other sources common with residential land uses, construction activities and aircraft overflights. Short-term noise measurements were conducted for 15-minute periods at five sites; two sites were located along Leisure Town Road and three were located within the project site away from heavier trafficked roadways. The overall noise measurement data indicate that noise in the project vicinity is highly influenced by vehicular traffic and noise associated with landscaping activities and other sources common with residential land uses.

4.15.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant noise impacts if it would:

1. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Result in generation of excessive groundborne vibration or groundborne noise levels.
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 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

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4.15.3 IMPACT DISCUSSION

NOI-1	Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
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Construction Noise

Construction noise would occur at various locations within and near the project site through the buildout period. Existing sensitive receptors could be located as close as 100 feet from construction activities. Table 4.15-7 provides typical construction-related noise levels at distances of 100 feet, 200 feet, and 300 feet.

Construction noise is not considered to be a significant impact if construction is limited to daytime hours and construction equipment is adequately maintained and muffled. The City of Vacaville municipal code limits hours of construction activities (if occurring within 500 feet of an occupied residence) to between 7:00 a.m. and one-half hour after sunset with no activities permitted on Sundays and holidays.

Extraordinary noise-producing activities (e.g., pile driving) are not anticipated. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained.

TABLE 4.15-7 TYPICAL CONSTRUCTION EQUIPMENT MAXIMUM NOISE LEVELS, DBA

Type of Equipment	100 Ft.	200 Ft.	300 Ft.
Concrete Saw	84	78	74
Crane	75	69	65
Excavator	75	69	65
Front End Loader	73	67	63
Jackhammer	83	77	73
Paver	71	65	61
Pneumatic Tools	79	73	69
Dozer	76	70	66
Rollers	74	68	64
Trucks	80	72	70
Pumps	74	68	64
Scrapers	81	75	71
Portable Generators	74	68	64
Backhoe	80	74	70
Grader	80	74	70

Source: WJV 2021 Appendix 4.15-1

Project buildout is expected to occur over a period of approximately ten years. As such, no one area of sensitive receptors would be subjected to prolonged exposure to construction noise, as a result of phased construction activities dispersed across the overall project area. However, noise impacts could occur if construction activities do not incorporate appropriate mitigation measures and best management practices. Compliance with the City's noise ordinance and implementation of BMPs and Mitigation Measures NOI-1 through NOI-5, would reduce impacts to less than significant.

Operational Noise

The noise analysis utilized the FHWA Traffic Noise Model to quantify expected project-related increases in traffic noise exposure along roadways in the project vicinity. The FHWA Model is a standard analytical method used by state and local agencies for roadway traffic noise prediction. The model is based on reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), 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 and is generally considered to be accurate within ± 1.5 dB. To predict CNEL values, it is necessary to determine the hourly distribution of traffic (day/night split) for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Average Daily Traffic (ADT) volumes were calculated based on traffic data provided by GHD. Traffic volumes were applied by WJVA to model existing conditions traffic noise exposure levels, existing plus project conditions traffic noise exposure levels, cumulative conditions traffic noise exposure levels, as well as to determine the project contribution to cumulative conditions. Posted vehicle speeds were documented by WJVA staff during the field visit. Truck percentages and the day/night distribution of traffic were estimated by WJVA, based upon previous studies conducted since project-specific data were not available from government sources.

Traffic noise exposure levels for specific scenarios were calculated based upon the FHWA Model and the above-described model inputs and assumptions. Project-related significant impacts would occur if an increase in traffic noise associated with the project would result in noise levels exceeding the City's applicable noise level standards at the location(s) of sensitive receptors.

There may be receptor locations at which traffic noise exposure levels already exceed the City's exterior noise level standards, prior to the addition of project-related traffic increases. In such situations, for the purpose of this analysis a significant impact was assumed to occur if traffic noise levels were to increase by 3 dB at sensitive receptor locations where noise levels already exceed the City's applicable noise level standards (without the project), as 3 dB generally represents the threshold of perception in change for the human ear.

The City's exterior noise level standard for residential land uses is 60 dB CNEL. Traffic noise was modeled at seventeen (17) receptor locations (R-1 through R-17). The seventeen modeled receptors are located at roadway setback distances representative of the sensitive receptors (residences) along each analyzed roadway segment. The receptor locations are described below.

- R-1: Residence located approximately 75 feet from the centerline of Leisure Town Rd.

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- R-2: Residence located approximately 100 feet from the centerline of Leisure Town Rd.
- R-3: Residence located approximately 85 feet from the centerline of Leisure Town Rd.
- R-4: Residence located approximately 10 feet from the centerline of Leisure Town Rd.
- R-5: Residence located approximately 80 feet from the centerline of Leisure Town Rd.
- R-6: Residence located approximately 80 feet from the centerline of Ulatis Dr.
- R-7: Residence located approximately 80 feet from the centerline of Leisure Town Rd.
- R-8: Residence located approximately 60 feet from the centerline of Leisure Town Rd.
- R-9: Residence located approximately 90 feet from the centerline of Leisure Town Rd.
- R-10: Residence located approximately 55 feet from the centerline of Marshall Rd.
- R-11: Residence located approximately 100 feet from the centerline of Leisure Town Rd.
- R-12: Residence located approximately 160 feet from the centerline of Nut Tree Rd.
- R-13: Residence located approximately 90 feet from the centerline of Yellowstone Dr.
- R-14: Residence located approximately 90 feet from the centerline of Yellowstone Dr.
- R-15: Residence located approximately 140 feet from the centerline of White Sands Dr.
- R-16: Residence located approximately 70 feet from the centerline of Yellowstone Dr.
- R-17: Residence located approximately 130 feet from the centerline of Sequoia Dr.

Table 4.15-8 provides existing and existing plus project traffic noise exposure levels at the seventeen analyzed receptor locations. The receptor locations are representative of existing residential land uses located along the analyzed roadway segments. Noise levels described in Table 4.15-8 do not consider any acoustical shielding that may be provided by existing sound walls, structures or topography, and should be considered a worst-case assessment of traffic noise exposure at the receptor locations.

Table 4.15-8 indicates that project-related traffic would not result in an exceedance of the City's noise level standards at any sensitive receptor location nor result in an increase of 3 dB at any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project.

Project buildout would occur over a period of approximately ten years, and as such project-related noise increases would not be realized for numerous years. While the exact buildout timeline is uncertain, the increases described in Table 4.15-8 would not occur immediately.

TABLE 4.15-8 PROJECT-RELATED INCREASES IN TRAFFIC NOISE, DB, L_{DN} GREENTREE DEVELOPMENT, VACAVILLE EXISTING CONDITIONS

Modeled Receptor	Existing	Existing Plus Project	Change	Significant Impact?
R-1	65	66	1	No
R-2	65	66	1	No
R-3	64	65	1	No
R-4	63	64	1	No
R-5	64	65	1	No
R-6	58	58	0	No
R-7	64	65	1	No
R-8	64	64	0	No
R-9	64	64	0	No
R-10	59	59	0	No
R-11	62	63	1	No
R-12	59	59	0	No
R-13	51	52	1	No
R-14	51	52	1	No
R-15	37	37	0	No
R-16	52	53	1	No
R-17	44	45	1	No

Source: WJV 2021 Appendix 4.15-1

Project Noise Impacts from Operational On-Site Sources

The project would include approximately 19.8 acres of land uses identified as commercial, north of Sequoia Drive. A wide variety of noise sources can be associated with commercial land use designations. The closest existing sensitive receptors to proposed commercial uses are located at a distance of 500 feet or greater. Additionally, proposed residential buildings would be located between the existing sensitive receptors and the proposed commercial land uses. From the perspective of the City’s noise standards, noise sources not associated with transportation sources are considered stationary noise sources. Typical examples of stationary noise sources associated with commercial land uses include:

- HVAC/Mechanical equipment
- Truck deliveries
- Loading Docks
- Compactors
- Parking lot activities (closing of car doors and trunks, stereos, alarms etc.)

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Because of the distance between existing sensitive receptors to the project's proposed commercial land uses (500 feet or greater), noise levels associated with stationary noise sources would not be expected to exceed any City of Vacaville noise level standard or result in noise levels exceeding existing ambient noise levels at the locations of existing sensitive receptors.

Noise Impacts from Operational On-Site Sources

The project would include a variety commercial and retail uses near the northern portion of the project site. While the exact tenants/uses were not known at the time of the noise analysis, anticipated uses include a grocery store, drug store, drive-thru restaurant, and numerous smaller retail stores. The project would also include an amphitheater in the South Neighborhood with a masonry wall constructed to approximately 6-8 feet in finished height. The amphitheater would include electric power to provide for amplified speech and music.

A wide variety of noise sources can be associated with these land uses, and noise levels produced by such sources can also be highly variable and could potentially impact existing off-site sensitive receptors. Mitigation measures typically incorporated into project design include increased setback distances, sound walls, limited hours of operation, and noise source equipment enclosures, shielding, and screening measures.

Mechanical Equipment

It is assumed that roof-mounted heating, ventilation, and air conditioning (HVAC) units would be included on future commercial buildings. The HVAC requirements for the buildings would likely require the use of multiple packaged roof-top units. For the purpose of noise and aesthetics, roof-mounted HVAC units are typically shielded by means of a roof parapet. The noise analysis included reference noise level measurements at numerous commercial and retail buildings with roof-mounted HVAC units, and associated noise levels typically range between approximately 45-50 dB at a distance of 50 feet from the building façade.

The closest proposed new residential land uses to potential roof-mounted HVAC equipment at new commercial land uses could be located as close as 150 feet. Considering the standard rate of noise attenuation with increased distance from a point source (-6 dB/doubling of distance), noise levels associated with the operation of roof-mounted HVAC units would be approximately 35-40 dB at the closest sensitive receptor property line. Such levels would not exceed any City of Vacaville noise level standard or exceed existing (without project) ambient noise levels.

Truck Movements

At the time of the noise analysis, a specific truck access route (or routes) had not been designated. However, trucks would be expected to access future commercial retail uses for various deliveries. The precise locations, frequency and times of truck deliveries was not known.

The noise analysis included measurements of the noise levels produced by slowly moving trucks for a number of studies. Such truck movements would be expected to produce noise levels in the range of 65 to 70 dBA at 100 feet. The range in measured truck noise levels is due to differences in the size of trucks, their speed, and whether they have refrigeration units in operation during the pass-by.

The applicable noise standard for truck movements occurring at proposed commercial land uses would be a maximum daytime noise level of 70 dB and a maximum nighttime noise level of 65 dB. To avoid exceeding such maximum noise levels, truck movements occurring within the proposed commercial/retail land uses should maintain a minimum setback distance of approximately 100 feet during the daytime hours of 7:00 a.m. to 10:00 p.m. and a minimum setback distance of approximately 180 feet during the nighttime hours of 10:00 p.m. to 7:00 a.m. from outdoor activity areas of proposed nearby and adjacent multi-family residential developments.

Noise levels associated with truck movements could exceed the City's 70 dB L_{max} daytime noise level standard and 65 dB L_{max} nighttime noise level standard at the outdoor activity areas of proposed multi-family residential land uses if proper setback distances are not maintained. However, Mitigation Measure NOI-6 would reduce impacts to less than significant.

Loading Docks

The proposed commercial uses associated with the project would likely include loading docks at the larger retail establishments, particularly any grocery store development. A loading dock would be located at the rear of such a grocery store, preferably adjacent to Orange Drive. The loading dock would be located at least 500 feet from any proposed residential sensitive receptor.

Based upon noise level measurements cited by the Noise Analysis, loading dock noise levels would be expected to be in the range of 44-62 dBA at a distance of 500 feet. Such levels would not exceed the City's daytime (70 dB) or nighttime (65 dB) maximum noise level standard.

If additional loading docks were included at other proposed commercial/retail uses, associated noise levels could potentially exceed the City's maximum nighttime noise level standard of 65 dB if they were to be located within 315 feet of a sensitive receptor and could potentially exceed the City's daytime noise level standard of 70 dB if they were to be located within 150 feet of a sensitive receptor.

Noise levels associated with loading dock activities could exceed the City's 70 dB L_{max} daytime noise level standard and 65 dB L_{max} nighttime noise level standard at the outdoor activity areas of proposed multi-family residential land uses if proper setback distances are not maintained or mitigation measures are provided. However, Mitigation Measure NOI-7 would reduce impacts to less than significant.

Parking Lot Activities

Noise due to traffic in parking lots is typically limited by low speeds and is not usually considered to be significant. Human activity in parking lots that can produce noise includes voices, stereo systems and the opening and closing of car doors and trunk lids. Such activities can occur at any time. The noise levels associated with these activities cannot be precisely defined due to variables such as the number of parking movements, time of day and other factors. It is typical for a passing car in a parking lot to produce

4.15 NOISE

a maximum noise level of 60 to 65 dBA at a distance of 50 feet, which is comparable to the level of a raised voice. Parking areas of proposed commercial uses would not be located closer than 50 from any proposed sensitive receptor, and noise levels associated with parking lot activities would not be expected to exceed any City of Vacaville noise level standards.

Drive Thru Retail

According to the Urban Design Illustrative Plan, the project could include a drive-thru retail store adjoining the Orange Drive frontage, located approximately 175 feet from proposed residential sensitive receptors. Noise levels associated with drive-thru retail are typically limited to vehicle movements and amplified speech associated with customers and employee interactions using the amplified menu board.

To assess potential project noise levels associated with drive-thru operations, the noise analysis utilized reference noise levels previously measured at a Wendy's drive-thru restaurant located in Visalia, California. Measurements were conducted during the early afternoon of July 11, 2011, between 12:45 p.m. and 1:45 p.m. using the previously-described noise monitoring equipment.

The microphone used by customers to order food and the loudspeaker used by employees to confirm orders are both integrated into a menu board that is located a few feet from the drive thru lane at the approximate height of a typical car window.

Reference noise measurements were obtained at a distance of approximately 40 feet from the menu board containing the microphone/loudspeaker system at an angle of about 45° toward the rear of the vehicle being served. This provided a worst-case exposure to sound from the loudspeaker system since the vehicle was not located directly between the loudspeaker and measurement location. Cars were lined up in the access lane during the noise measurement period indicating that the drive-through lane was operating at or near a peak level of activity.

Each ordering cycle was observed to take approximately 60 seconds including vehicle movements. A typical ordering cycle included 5-10 seconds of loudspeaker use with typical maximum noise levels in the range of 60-62 dBA at the 40 foot-reference location. Vehicles moving through the drive-thru lane produced noise levels in the range of 55-60 dBA at the same distance. Vehicles parked at the ordering position (between the menu board and measurement site) were observed to provide significant acoustic shielding during the ordering sequence. The effects of such shielding are reflected by the noise measurement data. Noise levels were measured to approximately 60 dB L_{eq} at the measurement site, and included noise from all sources, including the loudspeaker, vehicle movements and HVAC equipment.

At the location of the closest proposed residential sensitive receptors, noise levels associated with drive thru retail operations would be expected to produce noise levels of approximately 48-50 dB L_{max} and approximately 47 dB L_{eq} . While such noise levels could exceed the City's 45 dB L_{eq} nighttime noise level standard, reference to noise levels measured at ambient noise monitoring site L-2 indicated that existing ambient noise levels already exceed such noise levels, and would therefore not result in a noise impact.

Amphitheater

During events with amplified speech and music, the noise study estimates that noise levels associated with amplified speech and music (assuming the speaker is located on the stage in a south-facing orientation) would be in the range of approximately 40- 45 dB at the closest sensitive receptor locations to the northwest (Bighorn Court) and in the range of 43-48 dB at the closest proposed sensitive receptor locations to the east (Court E). Such noise levels would not be expected to exceed any City of Vacaville daytime noise level standards. Existing ambient noise levels measured in the vicinity of the proposed Greentree South Neighborhood Park (ambient noise monitoring site LT-5 provided in the original acoustical analysis) indicate that average daytime (7:00 a.m. to 10:00 p.m.) noise levels are approximately 50 dB Leq. Therefore (applying the above-described assumptions regarding speaker location and orientation), noise levels associated with amplified speech and music at the amphitheater location would not be expected to exceed existing ambient noise levels in the vicinity of existing and planned nearby sensitive receptor locations.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: NOI-1 would be potentially significant.

Mitigation Measures

Mitigation Measure NOI-1

- All construction equipment shall be properly maintained and muffled to minimize noise generation at the source.

Mitigation Measure NOI-2

- Noise-producing equipment shall not be operating, running, or idling while not in immediate use by a construction contractor.

Mitigation Measure NOI-3

- All noise-producing construction equipment shall be located and operated, to the extent possible, at the greatest possible distance from noise-sensitive land uses.

Mitigation Measure NOI-4

- Locate construction staging areas, to the extent possible, at the greatest possible distances from any noise-sensitive land uses.

Mitigation Measure NOI-5

- Signs shall be posted at the construction site and near adjacent sensitive receptors displaying hours of construction activities and the contact phone number of a designated noise disturbance coordinator.

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Mitigation Measure NOI-6

- Commercial/retail land uses proposed for the project should develop site-specific truck access routes in the vicinity of proposed sensitive receptors. All truck movements occurring within proposed commercial/retail areas should maintain a minimum setback of approximately 100 feet during daytime hours and approximately 180 feet during nighttime hours, from outdoor activity areas of proposed sensitive receptors.

Mitigation Measure NOI-7

- Loading docks located within 315 feet of a sensitive receptor could result in noise levels exceeding the City's daytime maximum noise level standard of 70 dB. Loading docks located within 150 feet of a sensitive receptor could result in noise levels exceeding the City's daytime maximum noise level standard of 65 dB. Any proposed loading docks should be located at the above-described minimum setback distances (depending on if daytime vs nighttime deliveries were expected) or incorporate sufficient mitigation measures (sound walls) to mitigate noise levels to below the City's noise level standards at sensitive receptor locations.

Level of Significance After Mitigation: NOI-1 would be less than significant.

NOI-2	The project would not result in generation of excessive groundborne vibration or groundborne noise levels.
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Construction Vibration

The dominant sources of man-made vibration are blasting, pile driving, pavement breaking, demolition, diesel locomotives, and rail-car coupling. None of these activities are anticipated to occur with construction or operation of the proposed project. Vibration from construction activities could be detected at the closest sensitive land uses, especially during movements by heavy equipment or loaded trucks and during some paving activities. Typical vibration levels at distances of 25 feet, 100 feet, and 300 feet are summarized in Table 4.15-9. These levels would not be expected to exceed any significant threshold levels for annoyance or damage, as provided in Table 4.15-3 and Table 4.15-4.

TABLE 4.15-9 TYPICAL VIBRATION LEVELS DURING CONSTRUCTION

Equipment	PPV (in/sec)		
	@ 25'	@ 100'	@ 300'
Bulldozer (Large)	0.089	0.011	0.006
Bulldozer (Small)	0.003	0.0004	0.00019
Loaded Truck	0.076	0.01	0.005
Jackhammer	0.035	0.005	0.002
Vibratory Roller	0.210	.03	0.013
Caisson Drilling	0.089	.01	0.006

Source: WJV 2021 Appendix 4.15-1

Vibration levels could at times be barely perceptible to distinctly perceptible (as described above in Table 4.15-3) at existing sensitive receptors during periods of construction activities. However, vibration levels associated with construction activities would not be expected to result in any structural damage (as described in Table 4.15-4) to existing residences and buildings in proximity to construction activities.

After full project build out, it is not expected that ongoing operational activities will result in any vibration impacts at nearby sensitive uses. Activities involved in trash bin collection could result in minor on-site vibrations as the bin is placed back onto the ground. Such vibrations would not be expected to be felt at the closest off-site sensitive uses. Additional mitigation is not required.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: NOI-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

NOI-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.
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The project site is located approximately one mile from the Nut Tree Airport. No portion of the project site is located within any of the airport noise contours, and noise associated with the airport would not result in a significant impact on proposed noise-sensitive receptors within the project site.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: Impact NOI-3 would not be significant.

Mitigation Measures

No mitigation measures are required.

4.15.4 CUMULATIVE IMPACTS

Table 4.15-10 provides cumulative traffic noise exposure levels at the seventeen analyzed representative receptor locations, and provides what the project contribution would be to cumulative conditions. Table 4.15-10 indicates that the project's contribution to cumulative traffic noise exposure levels at the modeled representative receptor locations would not result in an exceedance of the City's noise level standards nor result in an increase of 3 dB at any sensitive receptor locations where noise levels already exceed the City's noise level standard without the implementation of the project. Consequently, the project contribution to cumulative noise levels would be less than considerable and the project would not have a significant cumulative impact.

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TABLE 4.15-10 PROJECT-RELATED INCREASES IN TRAFFIC NOISE, DB, L_{DN} GREENTREE DEVELOPMENT, VACAVILLE CUMULATIVE CONDITIONS

Modeled Receptor	Cumulative Conditions Without Project Contribution	Cumulative Conditions	Project Contribution	Significant Impact?
R-1	68	68	0	No
R-2	67	68	1	No
R-3	67	67	0	No
R-4	65	66	1	No
R-5	67	67	0	No
R-6	62	63	1	No
R-7	67	67	0	No
R-8	65	65	0	No
R-9	66	66	0	No
R-10	59	59	0	No
R-11	64	65	1	No
R-12	59	59	0	No
R-13	52	53	1	No
R-14	52	53	1	No
R-15	39	39	0	No
R-16	53	54	1	No
R-17	46	46	0	No

Source: WJV 2021 Appendix 4.12-1

4.15.5 REFERENCES

California Office of Noise Control. *Guidelines for the Preparation and Content of Noise Elements of the General Plan*. 1976, February. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

City of Vacaville. *Vacaville General Plan*. 2015.

WJV Acoustics Inc. (WJV). 2021, May. Acoustical Analysis Greentree Development Project (Appendix 4.15-1)

WJV Acoustics Inc. (WJV). 2021, October. Greentree South Neighborhood Park, Amphitheater-Related Noise Levels (Appendix 4.15-2).

4.16 PARKS AND RECREATION

This section of the DEIR describes the regulatory framework and existing conditions on the project site related to parks and recreation, and the potential impacts to parks and recreational facilities in the city of Vacaville as a result of the proposed project.

4.16.1 ENVIRONMENTAL SETTING

4.16.1.1 REGULATORY FRAMEWORK

This section summarizes key State, regional, and local regulations and programs related to parks and recreation for the proposed project.

State Regulations

California Public Park Preservation Act

The primary instrument for protecting and preserving parkland in the state is California's Public Park Preservation Act of 1971. Under the California Public Resource Code, cities and counties may not acquire any real property that is in use as a public park for any nonpark use unless compensation, land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

Quimby Act

The Quimby Act of 1975 (California Government Code Section 66477) is state legislation allowing cities and counties to require residential subdividers to dedicate land, or pay in-lieu fees for park land that will serve the residential neighborhood as a condition of approving a new tentative or parcel map. It ensures the provision of sufficient park land early in the planning process of new residential subdivisions. Cities and counties desiring to enact this piece of legislation must adopt a Quimby Ordinance. The 2015 General Plan contains Action PR-A1.3 which states, *Implement a Quimby Ordinance requiring that park provision be considered and incorporated in the subdivision process*. This Action would support the provision of new neighborhood and community park land at the same ratio as the City currently provides.

Mitigation Fee Act

The California Mitigation Fee Act, Government Code Sections 66000, et seq., allows cities to establish fees that are imposed on development projects for the purpose of mitigating the impact that the projects have on the City's ability to provide specified public facilities. To comply with the Mitigation Fee Act, the City must follow four primary requirements: (1) Make certain determinations regarding the purpose and use of a fee and establish a nexus or connection between a development project or class of project and the public improvement being financed with the fee; (2) Segregate fee revenue from the General Fund to avoid commingling of capital facilities fees and general funds; (3) For fees that have been in the possession of the city for five years or more and for which the dollars have not been spent or committed to a project the city must make findings each fiscal year describing the continuing need for the money; and (4) Refund any fees with interest for developer deposits for which the findings noted above cannot be made.

4.16 PARKS AND RECREATION

Local Regulations

City of Vacaville General Plan

The City of Vacaville's General Plan serves as a guide for future conservation, enhancement, and development in the city. The General Plan provides a vision for the future and establishes a framework for how Vacaville should grow and change over the upcoming decades. The General Plan is intended to guide the City's actions through the year 2035, or the horizon year of the General Plan.

California Government Code Section 65300 requires that the General Plan be comprehensive, internally consistent, and long-term. The General Plan articulates a vision for the city's long-term physical form and development. It also provides overall direction to the day-to-day decisions of the City Council, its commissions, and City staff. In particular, the General Plan serves six related purposes, including policy determination, policy implementation, communication, guidance, education, and action plan (City of Vacaville 2015).

Parks and Recreation Element

The Parks and Recreation Element contains goals and policies to provide a high level of parks, recreation facilities and services to residents, and provides guidance for new development to incorporate additional recreational facilities as needed to maintain an adequate level of service. The Park and Recreation Element provides the following goals, policies, and objectives related to parks and recreational facilities:

- **Goal PR-1** Develop and maintain a high-quality public park system that provides varied recreational opportunities for city residents, workers, and visitors.
 - **Policy PR-P1.1** Provide new parks according to the standards established in this Element to ensure adequate distribution, size, and access.
 - **Policy PR-P1.2** Provide neighborhood parks to serve the unique recreational, cultural, and educational needs of Vacaville's diverse neighborhoods. Design new neighborhood parks to have a unique character, appeal to children, and avoid standardized, programmatic designs.
 - **Policy PR-P1.3** Provide community parks to encompass a range of uses, including active high investment (e.g. gymnasiums and swimming pools), active low-investment (e.g. playfields and picnic facilities), and passive recreational facilities (e.g. natural areas suitable for quiet reflection). Community parks shall serve large portions of the city by providing facilities suitable for recreational and cultural activities beyond those supplied by neighborhood parks.
 - **Policy PR-P1.5** Support and encourage the location of special use recreation facilities, such as community gardens, dog parks, and skate parks, on available park or other public lands, where compatible with the existing and planned uses of surrounding properties.
 - **Policy PR-P1.6** Make provisions for elderly and disabled individuals to freely access and utilize parks and recreational facilities, according to local, State, and federal codes.

4.16 PARKS AND RECREATION

- **Policy PR-P1.8** Make designated open spaces more accessible to the public with a linked park and trail system that takes advantage of surrounding open space.
- **Goal PR-2** Ensure that new development is responsible for providing new parks and recreation facilities in accordance with the City's park and recreation standards and for providing its fair share of neighborhood park maintenance costs.
 - **Policy PR-P2.1** All parks and recreation facilities required by the park standards in this Element shall be publicly owned, operated, and maintained, except as otherwise allowed by the Quimby Act.
 - **Policy PR-P2.2** New parks and recreation facilities shall be funded, at least in part, by fees paid by new development, or as turn-key facilities with new development, as described in Policy PR-P2.5.
 - **Policy PR-P2.3** Require that proponents of large projects subject to Specific Plans and/or Development Agreements work with City staff early in the planning process to ensure that the project includes an adequate amount of developed parkland to satisfy the City's standards.
 - **Policy PR-P2.4** Require all residential developers, including apartment builders, to provide sufficient parks and other recreational facilities to meet the standards established by the Comprehensive Parks, Recreation, and Open Space Facilities Master Plan by dedicating land and/or paying in-lieu fees for land acquisition, and by paying Park Development Impact Fees for the construction of new facilities.
 - **Policy PR-P2.5** Encourage development of turn-key neighborhood parks, which are completed in conjunction with development of a new subdivision, rather than payment of impact fees.
 - **Policy PR-P2.6** Work with residential developers to ensure that parks and recreational facilities planned to serve new development will be available concurrently with need.
 - **Policy PR-P2.8** Ensure that all new residential development will either annex into or set up a new park maintenance district in accordance with the Landscaping and Lighting Act of 1972.
- **Goal PR-3** Locate new parks to maximize safety, site efficiency, public safety, and convenient public access.
 - **Policy PR-P3.2** Prohibit new neighborhood parks adjacent to arterial streets.
 - **Policy PR-P3.3** Wherever possible, site new parks and recreation facilities to promote pedestrian and bicycle access and prevent the need to cross major roadways.
 - **Policy PR-P3.4** Locate parks and recreation facilities to take advantage of natural features, adjoining open space, trail access, lands that may be jointly used for recreation purposes, land use buffers (i.e., areas of open space or low-intensity uses between potentially conflicting land uses), urban separators, and easements.

4.16 PARKS AND RECREATION

Vacaville Parks and Recreation Master Plan

The City's Park and Recreation Master Plan was revised and adopted in 2021. The April 2021 Vacaville Parks and Recreation Master Plan identifies strategies and investments to improve and maintain Vacaville's system of parks, open space, special use facilities, and trails.

The Master Plan identifies a vision for the future of the parks system and recommendations to incrementally bring the vision to life. The Master Plan details park development guidelines, identifies high priority projects, and outlines funding and implementation strategies (City of Vacaville 2021). The Park and Recreation Master Plan provides the following goals related to parks and recreational facilities:

- **Goal 1:** Expand and diversify opportunities for play.
- **Goal 2:** Connect people to nature and support healthy ecosystems.
- **Goal 3:** Create a network of paths, bikeways, and trails.
- **Goal 4:** Enhance identity and economic vitality.
- **Goal 5:** Provide a variety of stimulating recreational experiences.
- **Goal 6:** Deliver excellent services.
- **Goal 7:** Build and diversify funding sources.

4.16.1.2 EXISTING CONDITIONS

Park Standards

The City of Vacaville's Park and Recreation Element requires 4.5 acres of developed parkland per thousand residents. As indicated below, this park acreage standard is further divided into the park categories of neighborhood, community, and regional parklands:

- Neighborhood Park: 1.8 acres per 1,000 people
- Community Park: 1.7 acres per 1,000 people
- Regional Park: 1.0 acre per 1,000 people
- Total: 4.5 acres per 1,000 people

The following park size standards provide efficiencies in programming and maintenance:

- New neighborhood parks must be a minimum of 6 acres in size, and can be as large as 9 acres as needed to serve the local service area. New neighborhood parks less than 6 acres may be approved in infill areas where there is a documented shortfall of parkland.
- New community parks must be a minimum of 10 acres in size, and may be up to 40 acres as needed to serve the planned service area.

4.16 PARKS AND RECREATION

- Lagoon Valley Regional Park is the city's only regional park at approximately over 300 acres. The City does not anticipate adding any new regional parks.

City Parks and Recreation Facilities

Neighborhood Parks

The city contains 28 Neighborhood Parks, which encompass approximately 133 acres throughout the city. According to the Parks and Recreation Element, Neighborhood Parks are defined as smaller parks that are primarily intended to serve the recreation needs of residential areas within a 0.5 mile (an approximate 10-minute walking distance) of the park. Park facilities are usually oriented towards the recreation needs of children and typically include a multipurpose playfield, a playground, and picnic facilities. Existing neighborhood park sites generally range in size from 1 to 10 acres. However, new neighborhood parks should typically be designed within a 6- to 9-acre size range, depending upon the neighborhood park needs of the part of the city in which they are located.

Community Parks

The city contains eight Community Parks, which encompass approximately 158.6 acres throughout the city. According to the Parks and Recreation Element, Community Parks are defined as mid-sized parks designed to provide major active-use recreational facilities such as lighted sports fields, sport courts, community buildings, swimming pools, spaces for community festivals, civic events, organized sports, and athletic competitions. Community parks often include appropriate support facilities such as parking areas, restroom buildings, and concession stands. Community parks generally range in size from 12 to 60 acres and are intended to serve the population living within a 1.5-mile radius. A community park can also function as a neighborhood park for nearby residential areas.

Regional Parks

The city contains one regional park, Lagoon Valley Regional Park, which is a large (314 acres), nature-themed park that is focused on balancing the natural environment with related recreational activities. The park is designed to serve the city's entire population and the greater Vacaville region. It includes a wide variety of passive recreation opportunities and amenities, including a 106-acre lake and open fields that are used for many large and regional events.

Accessible Open Space

The city contains approximately 2,204 acres of accessible open space within 22 locations throughout the city. The natural setting of the city is characterized by the ridges and hillsides west and south of the city, the agricultural valley lands to the north and east, and free-flowing creeks crossing through the city.

Accessible open space includes natural landscapes that are essentially undeveloped, but suitable for passive recreational activities that do not require substantial facilities or improvements. This includes lands that are owned, leased, or otherwise controlled by the City of Vacaville, or by some other public or non-profit entity, and are made accessible to the public for recreation, nature preservation, education, viewshed, and other open space purposes.

4.16 PARKS AND RECREATION

4.16.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant parks and recreation impacts if it would:

1. 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.
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.16.3 IMPACT DISCUSSION

PRK-1 The project would not 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.

Buildout of the proposed project would include approximately 1,149 dwelling units. The north of Sequoia project would include approximately 950 units of higher density housing types which would generate approximately 2,565 residents, and the south of Sequoia project would include 199 units of detached, single-family senior housing which would generate approximately 398 residents.

The City's General Plan requires that new residential projects provide park land at a ratio of 4.5 acres per 1,000 residents. The proposed project would generate approximately 2,963 new residents. Thus, in accordance with the General Plan's Parks and Recreation element, the proposed project would be required to provide the equivalent of 13.3 acres of park land, including 5.3 acres of on-site neighborhood park, 5.0 acres of community park, and 2.9 acres of regional park.

The proposed project includes park and recreation features that in aggregate, exceed the City's park land requirement for neighborhood park facilities. The proposed project would include an aggregate total of 10.5 acres of park land between the 6-acre neighborhood park and an additional 4.5-acre park within the proposed age restricted senior community. The proposed neighborhood park north of Sequoia Drive and the proposed smaller neighborhood park south of Sequoia Drive have been designed to serve the needs of the neighborhoods in which they are located. The parks would be accessible by all future residents of the project and by residents of surrounding neighborhoods through multiple modes of transportation. The proposed Development Agreement will address the financing, timing, and maintenance of park improvements within the project.

The project would also create a demand for additional parkland (2.8 acres over and above the 10.5 acres provided by the development). The development would construct 10.5 acres of new neighborhood parkland, and also pay remaining Park Impact Fees for community-wide and region park facilities to be developed elsewhere by the City.

Although the proposed project could otherwise potentially increase the use of existing neighborhood, community, and regional parks or other recreational facilities, due to the increase of population, it proposes to would include two new neighborhood park facilities to satisfy its own demand for local

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neighborhood parks, as well as pay Park Development Impact Fees to fund the development of new community and regional park facilities located elsewhere within the City. Thus, the proposed project would not be anticipated to physically deteriorate existing facilities near the project site or elsewhere within the city. Therefore, impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: PRK-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

PRK-2	The project would include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
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As analyzed in Impact PRK-1, the proposed project would generate approximately 2,963 new residents. Thus, the proposed project would be required to provide the equivalent of 13.3 total acres of park land, including 5.3 acres of on-site neighborhood park, 5.0 acres of community park and 2.9 acres of regional park.

The proposed project would include 10.5 acres of neighborhood park land plus an extensive network of public trails within dedicated public open space connecting throughout the project and to the adjoining neighborhood to the west. The north of Sequoia project area would include a 6-acre park along the western side of Yellowstone Drive in the center of the overall project site, which would be designed to include a range of active and passive recreation amenities, including playfields, ball courts, and play areas. Adjoining Detention Basin 2 is designed to incorporate a public trail around its perimeter which connects to the park and to Sequoia Drive to facilitate access from the neighborhood to the west. Parking to serve this Greentree North Neighborhood Park is to be provided along the entire adjoining frontages of Yellowstone Drive and Street H. The park would be accessible via pedestrian and bicycle paths on Yellowstone Avenue, Sequoia Drive, Street H, and trails that connect to residential areas north and south of Sequoia Drive, and to the commercial area. This neighborhood park would also serve residents south of Sequoia Drive and would be available for functions and programs to support the broader surrounding community. The preliminary park masterplan for this neighborhood park is included in the Greentree Specific Plan’s Parks, Open Space, and Trail Plan Chapter 6.

The south of Sequoia project area would include a 4.5-acre neighborhood park, which has been designed to meet the needs of seniors both within Greentree and in the adjoining senior neighborhood to the west. This southern park would be accessible from White Sands Drive and proposed Court E, with public sidewalk and off-street public trails providing accessibility within Greentree and to the adjoining existing neighborhood. The public trails will extend through the park and adjoining public open space areas, including along the perimeter of detention basins 4, 5 and 6, as shown in Mobility Chapter 5 of the Greentree Specific Plan. Amenities would include bocce ball and/or pickle ball courts, a small off-leash

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facility, a small local-serving amphitheater, and picnic and BBQ/picnic areas. The preliminary master plan for this park is included in Chapter 6 of the Greentree Specific Plan.

The open space network within Greentree totals approximately 42.4 total acres, including publicly accessible trails, and detention basins with perimeter trails. The trail system would link the area north of Sequoia with the area south of Sequoia, and connect to the adjoining neighborhood to the west. The open space area is considered to be “accessible” as described in the General Plan in that it will remain undeveloped as an aesthetic resource and would be available for public access via the trail system. The open space corridors would function to buffer existing homes from new planned residential development.

The trails network would be linked to pedestrian/bicycle facilities to be integrated into Street D, which would provide connectivity to Sequoia Drive and on to Yellowstone Drive and residential and commercial areas north of Sequoia Drive. Additionally, trails would be implemented in the north of Sequoia Drive neighborhood. Trails through the neighborhood park/detention area would connect it to Sequoia Drive, Yellowstone Drive, Street H, Grand Canyon Drive, and to residential and commercial areas to the north and west.

The proposed new parks, trails, and open space would benefit new residents of the proposed project as well as residents surrounding the project area. In addition, the proposed project would **include park and recreation features that in aggregate, exceed the City’s minimum neighborhood park land requirement, based on the number of residents within Greentree.** Environmental impacts associated with the construction and operation of new recreational facilities and amenities, such as noise associated with park operations, are analyzed throughout the topical sections of Chapter 4, Environmental Analysis, of this DEIR. However, the development of recreational facilities and amenities in the project site would not result in additional significant impacts to the environment. Therefore, implementation of the proposed project would create less than significant impacts relating to the provision of new and/or expanded recreational facilities.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: PRK-2 would be less than significant.

Mitigation Measures

No additional mitigation measures are required (see also the applicable measures in the other chapters of this document).

4.16 PARKS AND RECREATION

4.16.4 CUMULATIVE IMPACTS

PRK-4	The proposed project would not result in cumulative impacts with respect to parks and recreation.
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The geographic context for the analysis of cumulative recreation impacts includes the City of Vacaville. The proposed project, in combination with other proposed, approved, and reasonably foreseeable development in the City, would contribute to a cumulative increase in the demand for parks and recreational facilities. The City ensures that adequate developed parkland and associated facilities are provided to City residents in accordance with the established minimum standard of 4.5 acres of developed parkland per 1,000 residents as part of the development review process. Funding from park development impact fees, developer contributions, landscape and lighting funds, and other sources such as property taxes and grants, may provide sufficient resources for the design, construction, and maintenance of new parks and associated facilities needed to accommodate future growth within the City. Therefore, this impact would be less than significant. The proposed Project would provide adequate developed parkland for future residents and comply with the City's requirements. Therefore, the proposed Project's contribution to this impact would be less than cumulatively considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: PRK-3 would be less than significant.

Mitigation Measures

No mitigation measures would be required.

4.16.5 REFERENCES

City of Vacaville. 2015. General Plan.

<https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000>

City of Vacaville. 2021, April. Parks and Recreation Master Plan.

<https://www.ci.vacaville.ca.us/home/showpublisheddocument/18031/637546894858700000>

4.16 PARKS AND RECREATION

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4.17 POPULATION AND HOUSING

This chapter describes the population, housing, and employment characteristics of Vacaville and evaluates the potential impacts related to population, housing, and employment that could result from adoption and implementation of the proposed project.

4.17.1 ENVIRONMENTAL SETTING

4.17.1.1 REGULATORY FRAMEWORK

This section summarizes existing state, regional and local laws and policies pertaining to population and housing in Vacaville. There are no federal regulations applicable to the proposed project with regards to population and housing.

State Regulations

California General Plan Law

California Housing Element law (Government Code Sections 65580 to 65589.8) includes provisions related to the requirements for housing elements of local government General Plans. Among these requirements are an assessment of housing needs and an inventory of resources and constraints relevant to meeting these needs. Additionally, to ensure that counties and cities recognize their responsibilities in contributing to the attainment of the State housing goals, the California Government Code calls for local jurisdictions to plan for, and facilitate the construction of, their fair share of the region's projected housing needs, known as the Regional Housing Needs Allocation (RHNA).

Regional Regulations

Association of Bay Area Governments

Association of Bay Area Governments (ABAG) is the regional planning agency for the San Francisco Bay Area, which is composed of the nine Counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma and contains 101 cities. ABAG produces growth forecasts in four-year cycles so that other regional agencies, including the Metropolitan Transportation Commission (MTC) and the Bay Area Air Quality Management District (BAAQMD), can use the forecasts to make funding and regulatory decisions.

The ABAG projections are the basis for the Regional Transportation Plan (RTP), regional Ozone Attainment Plan, the Bay Area Air Quality Management District's Clean Air Plan, and the East Bay Municipal Utility District's Urban Water Management Plan. In this way, ABAG projections have practical consequences that shape growth and environmental quality. General Plans, zoning regulations, and growth management programs of local jurisdictions inform the ABAG projections. The projections are also developed to reflect the impact of "smart growth" policies and incentives that could be used to shift development patterns from historical trends toward a better jobs-housing balance, increased preservation of open space, and

4.17 POPULATION AND HOUSING

greater development and redevelopment in urban core and transit-accessible areas throughout the region. ABAG calculates the RHNA for individual jurisdictions within Solano County, including Vacaville.

Local Regulations

City of Vacaville General Plan

The City of Vacaville's General Plan serves as a guide for future conservation, enhancement, and development in the city. The General Plan provides a vision for the future and establishes a framework for how Vacaville should grow and change over the upcoming decades. The General Plan is intended to guide the City's actions through the year 2035, or the horizon year of the General Plan.

California Government Code Section 65300 requires that the General Plan be comprehensive, internally consistent, and long-term. The General Plan articulates a vision for the city's long-term physical form and development. It also provides overall direction to the day-to-day decisions of the City Council, its commissions, and City staff. In particular, the General Plan serves six related purposes, including policy determination, policy implementation, communication, guidance, education, and action plan (City of Vacaville 2015).

2015-2023 Housing Element

The Housing Element has been a mandatory element of the General Plan since 1969. This reflects the statutory recognition that the availability of housing is a matter of statewide importance and that cooperation between government and the private sector is critical to attainment of the State's housing goals. The Housing Element, required to be updated approximately every eight years, is subject to detailed statutory requirements and mandatory review by the Department of Housing and Community Development (HCD), a state agency. The Housing Element provides the following goals, policies, and objectives related to population and housing:

- **H.1- G 1** Ensure a supply of housing of differing type, size, and affordability in order to meet Vacaville's housing needs for the current and future residents and workers within the community.
- **H.1- G 2** In conjunction with policies in the Land Use Element of the Vacaville General Plan, ensure that an adequate supply of developable land is available to meet Vacaville's housing need, particularly for affordable housing.
- **H.1- G 3** Remove constraints to the production and availability of housing to the extent consistent with other General Plan policies.
- **H.1- G 4** Ensure the development and availability of housing appropriate for special needs groups including, but not limited to, young adults, young families, seniors, people with physical and developmental disabilities and homeless people.
- **H.1- G 5** Support the development of permanent, affordable, and accessible housing, along transit lines and near services, that allows people with disabilities to live independent lives integrated into the larger community.

4.17 POPULATION AND HOUSING

- **H.1- G 6** Encourage universal design in new housing developments to support both accessibility for residents with disabilities as well as visitability of friends and neighbors by people with disabilities.
- **H.1- G 7** Establish development and construction standards that encourage energy conservation in residential areas.
- **H.1- G 8** Aggressively participate in all programs, state and federal, private and public, suitable for maintaining and increasing the supply of affordable housing.

Land Use Element

The Land Use Element sets forth specific goals, policies, and actions to guide land use for the City of Vacaville through the year 2035. The General Plan Land Use Map, which is also part of this element, graphically represents the City's vision for the future development of the city limits – the boundary that encompasses the incorporated city and defines the properties that are subject to the City's. Chapter 4.12 of this document provides analysis of environmental issues related to Land Use, including related consistency with Vacaville General Plan goals and policies pertaining to population and housing. The Land Use Element provides the following goals, policies, and objectives related to population and housing:

- **Goal LU-2** Carefully plan for new development in undeveloped portions Vacaville.
 - **Policy LU-P2.1** Require lands outside, but adjacent to, the current city limits to annex to the City of Vacaville as a prerequisite to development. Do not provide City utility services, water, and sanitary sewer to new development outside of the city limit (with the exception of sanitary sewer for infill in the Elmira area) unless the City Council, with the approval of the Local Agency Formation Commission (LAFCO), approves exceptions in situations where the following three conditions are met:
 - The area in question cannot annex to the City immediately, because it is not currently contiguous to the city limit.
 - The property owner signs a recorded, irrevocable agreement to annex the property to the City when such annexation is requested by the City.
 - The development is consistent with this General Plan and is found to meet all appropriate City development standards.
 - **Policy LU-P2.2** Require that specific plans be prepared for new areas brought into the city for development. Such specific plans must provide a coordinated plan for land use, public facilities, and public services. Prohibit individual, piecemeal developments within these outlying areas.
 - **Policy LU-P2.3** Encourage housing, shopping, and employment opportunities on both sides of Interstate 80 to minimize the need for excessive travel across Interstate 80.

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- **Goal LU-3** Coordinate land development with the provision of services and infrastructure.
 - **Policies Policy LU-P3.1** The General Plan Update Environmental Impact Report (EIR) assumes the following maximum development projections for the year 2035 for the lands located within the Urban Growth Boundary, excluding the East of Leisure Town Road and Northeast Growth Areas, shown in Figure LU-3:
 - Residential: 7,340 units
 - Commercial: 880,000 square feet (67 acres)
 - Office: 1.06 million square feet (81 acres)
 - Industrial: 1.49 million square feet (86 acres) When approved development within the city reaches the maximum number of residential units or any of the non-residential square footages projected in the General Plan EIR, the Community Development Director shall require that environmental review conducted for any subsequent development project address growth impacts that would occur due to development exceeding the General Plan EIR's projections. This does not preclude the City, as lead agency, from determining that an EIR would be required for any development in the Urban Growth Boundary to the extent required under the relevant provisions of CEQA (e.g. Section 21166 and related guidelines). The City will conduct the appropriate scoping at the time of initial study for any specific plan, all in accordance with these requirements. This policy does not apply to development within the East of Leisure Town Road and Northeast Growth Areas. See Policies LU-P17.8 and LU-P18.8, respectively, for these areas.
 - **Policy LU-P3.2** Manage growth so that the quantity and quality of public services and utilities provided to existing businesses and residents will not drop below required levels of service because of new development, except when required findings related to levels of service are made. While existing development bears some responsibility to fund improvements that will resolve such deficits, ensure that new development also funds its fair share of the costs of maintenance and depreciation of facilities.
 - **Policy LU-P3.4** Do not approve new development unless there is infrastructure in place or planned to support the growth.
- **Goal LU-5** Maintain the City's Urban Growth Boundary.
 - **Policy LU-P5.1** Urban Growth Boundary: To enhance and protect the city's quality of life, establish and maintain an Urban Growth Boundary so that urban development will be focused within the Urban Growth Boundary and the land outside the Urban Growth Boundary will not be redesignated other than for agriculture, park, open space, public facility, and utility uses until March 1, 2028, specifically as set forth in Policies LU-P5.4 through LU-P5.7.

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- **Goal LU-11** Preserve and enhance the existing character and sense of place in residential neighborhoods.
 - **Policy LU-P11.1** Encourage creative residential site design and architectural quality and variety in the City’s design approval process.
 - **Policy LU-P11.2** Ensure that the design of new residential development in established neighborhoods minimizes disruption to the neighborhood and is compatible with the design of existing residences.
 - **Policy LU-P11.3** Require a Planned Development permit for all residential development meeting one or more of the following criteria, consistent with the adopted Planned Development regulations (the Planned Development permit process is intended to increase flexibility for these types of development by allowing deviations from typical development standards, such as setbacks, building height, landscaping, parking, and design):
 - Multi-family projects of 10 units or more.
 - Mixed use.
 - A location potentially subject to natural or man-made geologic hazards, including hillside areas.
 - Any project exceeding the maximum density allowed by the land use designation or with 50 units or more.
 - **Policy LU-P11.4** Maintain buffers between residential areas and business parks, industrial parks, and technology parks. The minimum separation shall be 200 feet.
 - **Policy LU-P11.5** Prohibit residential neighborhood design that places access to single family lots on arterial streets.
 - **Policy LU-P11.6** Design residential neighborhoods to avoid placing access to single family lots on collector streets, and limit the number of intersections along collector streets.
- **Goal LU-12** Provide high-quality housing in a range of residential densities and types.
 - **Policy LU-P12.1** Encourage development that broadens the choice of type, size, and affordability of housing in Vacaville.
 - **Policy LU-P12.2** Provide for transitions between higher-density and lower-density housing.
 - **Policy LU-P12.3** Strive to maintain a citywide housing mix of approximately 75 percent single-family and 25 percent multi-family attached housing.

4.17 POPULATION AND HOUSING

4.17.1.2 EXISTING CONDITIONS

Residential Land Uses

Nine residential categories establish different densities. The residential densities described below are given as a range of units per gross acre – the entire amount of land area, prior to any dedications for public use, health, and/or safety purposes. The number of units permitted may be further modified by the zoning district, any applicable overlay district or specific plan, or density transfers or bonuses.

As shown in Table 4.17-1, *City of Vacaville Housing*, residential land uses comprise approximately 6,120 acres within the City of Vacaville, with a total of approximately 33,260 residential dwelling units. The largest type of residential land uses are single family residential, which encompass approximately 4,090 acres, and includes 22,010 units.

TABLE 4.17-1 CITY OF VACAVILLE HOUSING

Existing Land Use	Acres	Units
Rural Residential	1,280	270
Single Family Residential	4,090	22,010
Retired Single Family Residential	220	1,680
Multi-Family Residential	360	7,130
Retired Multi Family Residential	50	1,030
Manufactured Homes	130	1,140
Total Residential	6,120	33,260

Source: City of Vacaville 2015

Population

As of the 2010 U.S. Census, the population of Vacaville was approximately 85,000 people. There were about 30,000 households in Vacaville, and the average household size was 2.71. The median age of Vacaville residents was 37 years, which is slightly older than the overall statewide median average of 35 years. Approximately 67 percent of Vacaville’s population identified as white, 10 percent identified as black, 6 percent as Asian, 1 percent as American Indian, and 0.6 percent as Hawaiian or other Pacific Islander. Approximately 23 percent identified as being of Hispanic origin and 7 percent reported being two or more races. Of Vacaville residents, approximately 10 percent identified as foreign born and 17 percent reported a primary home language other than English.

Employment

As of the 2010 US Census, approximately 46,600 people were employed in Vacaville. By employment, the largest industries are education and healthcare; retail; arts, entertainment, recreation, and accommodation and food services; manufacturing; and public administration. Together, these industries comprise about 70 percent of Vacaville’s employment. The city’s ten largest individual employers are the California State Department of Corrections, Vacaville Unified School District, Kaiser Permanente, Genentech, The City of Vacaville, State Compensation Insurance Co., Alza Corporation, NorthBay

4.17 POPULATION AND HOUSING

VacaValley Hospital, Travis Credit Union, and Mariani Packing Company. The presence of Genentech, Alza Corporation, and Novartis in Vacaville contribute to the city's position as a center for the biotech industry. Vacaville hopes to further strengthen this position in biotech and similar cutting-edge industries over the lifetime of this General Plan.

4.17.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant population and housing impacts if it would:

1. Induce substantial unplanned population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

4.17.3 IMPACT DISCUSSION

POP-1	The project would not induce substantial unplanned population growth or growth for which inadequate planning has occurred, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
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Development of the proposed project would include 1,149 dwelling units, which would generate approximately 2,963 new residents. The north of Sequoia project would include approximately 950 units of higher density housing types which would generate approximately 2,565 residents, and the south of Sequoia project would include 199 units of detached, single-family senior housing, which would generate approximately 398 residents. In accordance with Policy LU-P3.1 of the Land Use Element, the City assumes the following maximum development projections for the year 2035 for the lands located within the Urban Growth Boundary, which includes the project site:

- Residential: 7,340 units
- Commercial: 880,000 square feet (67 acres)
- Office: 1.06 million square feet (81 acres)
- Industrial: 1.49 million square feet (86 acres)

As such, the population growth that would be induced by the proposed project would be consistent with the anticipated population growth in the City's General Plan. Therefore, impacts would be less than significant.

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LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: POP-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

POP-2	The project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.
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As discussed previously, the approximately 185.4-acre project site contains improvements associated with a golf course which was closed in 2016, and a portion of the site north of existing Gilley Way is unimproved. The proposed project would not require additional right of way (ROW) outside of the project site and the existing adjoining public rights-of-way. Thus, the proposed project would not displace a substantial number of existing people or housing, and would not require the construction of replacement housing elsewhere. Therefore, there would be no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: POP-2 would result in no impact.

Mitigation Measures

No mitigation measures are required.

4.17.4 CUMULATIVE IMPACTS

POP-3	The proposed project would not result in cumulative impacts with respect to population and housing.
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This section analyzes potential impacts to population and housing that could occur from a combination of the project and other reasonably foreseeable projects in the surrounding area. The geographic scope of this analysis is taken as the City of Vacaville. A cumulative impact would be considered significant if the proposed project, taken together with past, present, and reasonably foreseeable projects in Vacaville, would result in the displacement of either people or housing units. Impacts resulting from the displacement of both people and housing necessitating the construction of replacement housing elsewhere are site-specific and are assessed on a site-by-site basis. The significance of the impacts would depend largely on what, if any, existing housing and residents occur on or near the sites

Similar to the proposed project, the determination for the displacement of a substantial number of people and housing would be made on a case-by-case basis and, if necessary, the applicants of the related projects would be required to comply with the City's General Plan. Future applicants may also be required

4.17 POPULATION AND HOUSING

to provide relocation assistance to rental households displaced as a result of conversion projects. Thus, given that the proposed project's impacts regarding the displacement of housing and people are less than significant, the proposed project would not combine with other projects to induce further growth or displace people or housing, the proposed project's contribution to this impact would not be cumulatively considerable. Therefore, cumulative impacts to population and housing would be less than significant and no mitigation measures are required.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: POP-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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4.18 PUBLIC SERVICES

This chapter describes public services provided in the project vicinity and evaluates the potential impacts to public services that could result from development of the project. In each section, a summary of the relevant regulatory setting and existing conditions are followed by a discussion of project-specific and cumulative impacts.

This chapter covers the following public services:

- Fire Protection
- Police Protection
- Schools
- Libraries

4.18.1 ENVIRONMENTAL SETTING

4.18.1.1 REGULATORY FRAMEWORK

This section summarizes key State, regional, and local regulations and programs related to public services for the proposed Specific Plan.

State Regulations

California Building Code

The California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations, establishes the minimum State building standards. The CBC is currently updated every three years. The most recent update is the 2019 CBC, effective January 1, 2020. It is based on the 2018 International Building Code but has been amended to account for California conditions. The CBC is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by City building officials for compliance with the CBC. Typical fire safety requirements of the CBC include installation of sprinklers in all high-rise buildings; establishment of fire resistance standards for fire doors, building materials, and particular types of construction; and clearance of debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

California Fire Code

The California Fire Code (CFC) incorporates, by adoption, the International Fire Code of the International Code Council, with California amendments. This is the official Fire Code for the State and all political subdivisions. It is located in Part 9 of California Code of Regulations Title 24. Similar to the CBC, the CFC is revised and published approximately every three years by the California Building Standards Commission. The most recent update is effective January 1, 2020. The CFC contains regulations for safeguarding life and

4.18 PUBLIC SERVICES

property from fire hazards, including setting certain building requirements regarding hazardous materials, storage, and occupancy.

Assembly Bill 337 (Bates Bill)

In response to the Oakland Hills fire of 1991, the Bates Bill was passed in 1992. Pursuant to this law, all new construction that is located in any fire hazard zone in Vacaville must use brush clearance and fire-resistant roof material.

California Health and Safety Code

Sections 13000 et seq. of the California Health and Safety Code include fire regulations for building standards (also in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with the California Code of Regulations, Title 8, Sections 1270, “Fire Prevention,” and 6773, “Fire Protection and Fire Fighting Equipment,” the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include but are not limited to, guidelines on the handling of highly combustible materials, fire house sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment.

Mitigation Fee Act (California Government Code 66000-66008)

Enacted as Assembly Bill (AB) 1600, the Mitigation Fee Act requires a local agency establishing, increasing, or imposing an impact fee as a condition of development to identify the purpose of the fee and the use to which the fee is to be put. The agency must also demonstrate a reasonable relationship between the fee and the purpose for which it is charged, and between the fee and the type of development plan on which it is to be levied. The Mitigation Fee Act came into force on January 1, 1989.

Senate Bill 50

Senate Bill (SB) 50 (funded by Proposition 1A, approved in 1998) limits the power of cities and counties to require mitigation of school facilities impacts as a condition of approving new development and provides instead for a standardized developer fee. SB 50 generally provides for a 50/50 State and local school facilities funding match. SB 50 also provides for three levels of statutory impact fees. The application level depends on whether State funding is available, whether the school district is eligible for State funding and whether the school district meets certain additional criteria involving bonding capacity, year-round school and the percentage of moveable classrooms in use.

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California Government Code, Section 65995(b), and Education Code Section 17620

SB 50 amended California Government Code Section 65995, which contains limitations on Education Code Section 17620, the statute that authorizes school districts to assess development fees within school district boundaries. Government Code Section 65995(b)(3) requires the maximum square footage assessment for development to be increased every two years, according to inflation adjustments. Per California Government Code Section 65995, the payment of fees is deemed to fully mitigate the impacts of new development on school facilities.

Mello-Roos Community Facilities Act

The Mello-Roos Community Facilities Act, Government Code Section 53311 et seq., provides an alternative method of financing certain public capital facilities and services through special taxes. This State law empowers local agencies to establish Community Facilities Districts (CFDs) to levy special taxes for facilities such as libraries.

Local Regulations

City of Vacaville General Plan

The Public Facilities and Services Element provides the following goals and policies related to public services in the City.

- **Goal PUB-1** Provide adequate fire, rescue, and emergency medical services to serve.
 - **Policy PUB-P1.1** Prohibit any development that will not, even with identified mitigation measures, maintain standards for fire, rescue, and emergency medical service. All service standards shall be met prior to project occupancy. Allow exceptions to these services standards only when there are overriding findings of special circumstances or economic or social benefits.
 - **Policy PUB-P1.2** Ensure that new development pays a fair and equitable amount to offset the costs for fire, rescue, and emergency medical response services by collecting impact fees, requiring developers to build new facilities, and requiring the new areas to create or annex into a Community Facilities District.
 - **Policy PUB-P1.4** Identify and mitigate fire hazards during the project review and approval process.
 - **Policy PUB-P1.5** Require that new development satisfy fire flow and hydrant requirements and other design requirements as established by the Fire Department.

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- **Goal PUB-2** Maintain a safe environment in Vacaville through the enforcement of the law.
 - **Policy PUB-P2.2** Prohibit any development that will not, even with identified mitigation measures, maintain standards for law enforcement service. All service standards shall be met prior to project occupancy. Allow exceptions to these services standards only when there are overriding findings of special circumstances or economic or social benefits.
 - **Policy PUB-P2.3** Ensure that new development pays a fair and equitable amount to offset the costs for law enforcement services by collecting impact fees and requiring the creation of or annexation into a Community Facilities District.
 - **Policy PUB-P2.4** Identify and mitigate law enforcement hazards during the project review and approval process.
 - **Policy PUB-P2.5** Require physical site planning that prevents crime by locating walkways, open spaces, landscaping, parking lots, parks, play areas, and other public spaces in areas that are visible from buildings and streets.

4.18.1.2 EXISTING CONDITIONS

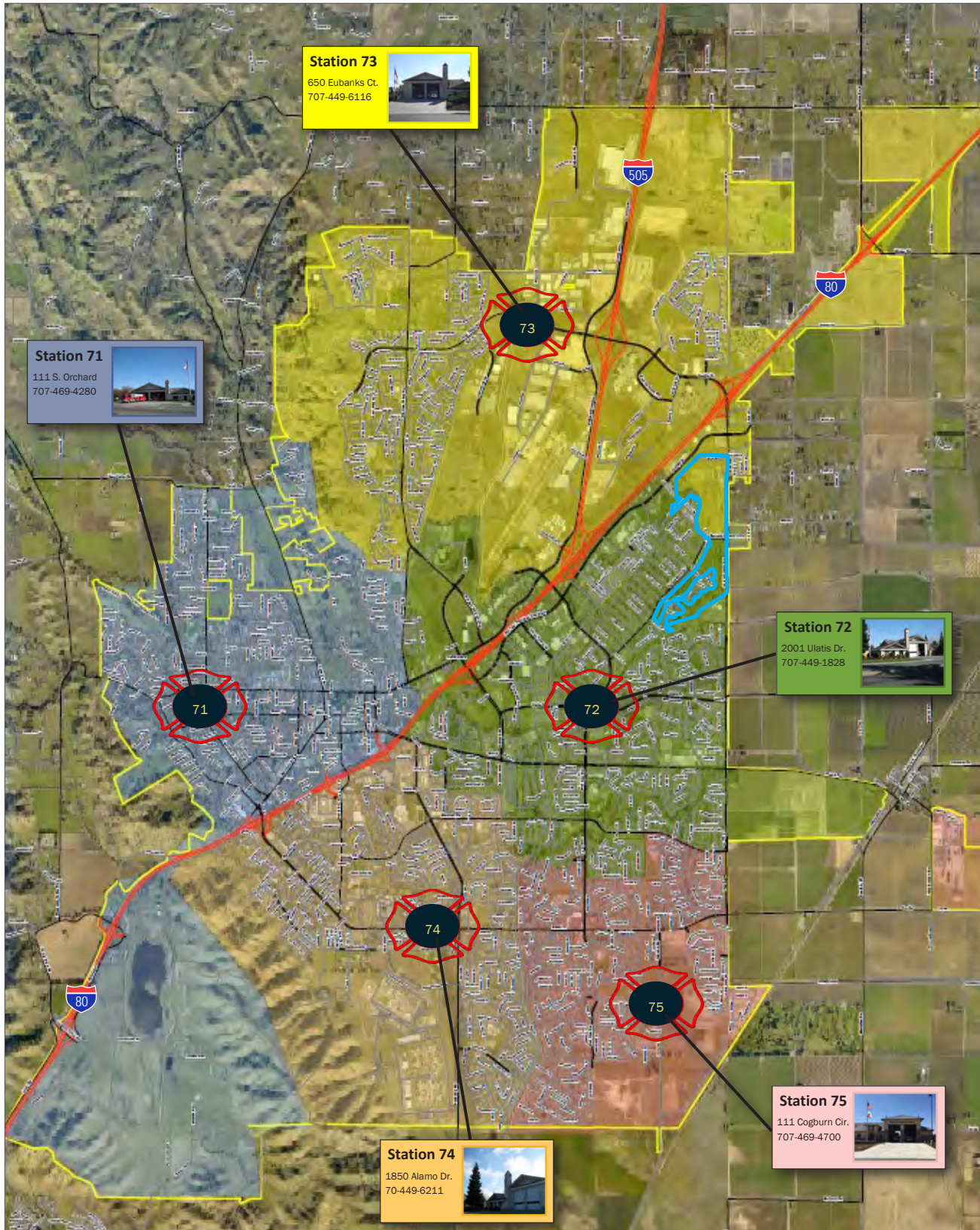
Fire Protection

The project site is served by the Vacaville Fire Department (VFD). The VFD provides fire and emergency response services the city. The VFD is responsible for fire response, vehicle accidents, public assistance, medical emergencies, water rescue, and hazardous material response. In addition, the VFD is also responsible for disaster preparedness and other services such as building plan review, fire prevention, and fire hydrant testing. As shown in Figure 4.18-1, *Fire Stations near the project site*, there are 5 fire stations within the City of Vacaville. Fire Station 73 is located at 50 Eubanks Ct., 2.3 miles from the project site and Fire Station 72 is located at 2001 Ulatis Dr., 2.7 miles from the project site. As shown in Figure 4.18-1, the northern portion of the project site would be serviced by Fire Station 73 and the southern portion of the project site would be serviced by Fire Station 72. The VFD 2020 average response times is 1.45 minutes to be in route once being notified, 4.38 minutes to arrive at scene once in route, and 12.01 minutes to be on scene (VFD 2020). The VFD has 98 staff members including firefighters, paramedics, captains, battalion chiefs, fire prevention staff, training staff, and administrative staff (Vacaville 2021a).

Police Protection

The Vacaville Police Department (VPD) serves the city of Vacaville from 660 Merchant Street, about 6 miles southeast of the project site (Vacaville 2021b). According to the General Plan EIR, VPD has 103 sworn officers and 58 non-sworn, full-time personnel and a ratio of 1.12 officers to 1000 residents. The average response time for Priority I calls with an average of 6 minutes, Priority II with an average of 15 minutes (Vacaville 2015).

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Source: Vacaville Fire Department, 2020

Project Boundary



Figure 4.18-1
Fire Stations near the Project Site

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Schools

The city is served by the Vacaville Unified School District (VUSD). The VUSD provides kindergarten through twelfth grade schooling and operates nine elementary schools, two middle schools, four high schools, and five specialty schools. As shown in Table 4.18-1, the project site would be serviced by Cooper Elementary School, located at 750 Christine Drive, 2.4 miles south of the project site, Vaca Pena Middle School, located at 200 Keith Way, 3.1 miles south of the project site, and Will C. Wood High School, located at 998 Marshall Road, 4.0 miles southwest of the project site (VUSD 2021).

TABLE 4.18-1 VUSD SCHOOL DISTANCES TO PROJECT SITE (MILES)

Elementary School	Distance	Middle School	Distance	High School	Distance
Alamo	6.1	Vaca Pena	3.1	Country	5.0
Browns Valley	4.7	Willis Jepson	5.6	Elise P. Buckingham Charter Magnet	4.1
Cooper	2.4			Vacaville	4.7
Edwin Markham	3.9			Will C. Wood	4.0
Eugene Padan	4.8				
Fairmont Charter	3.2				
Hemlock	5.3				
Jean Callison	3.3				
Orchard	6.4				

The project would include 403 multi-family units and 547 single-family units in the north of Sequoia neighborhood and no students are expected to be generated from the south of Sequoia senior-restricted residential neighborhood. Based on the student generation factors (VUSD 2015), the multi-family units is projected to generate approximately 68 total students (approximately 36 elementary students, 12 middle school students, 20 high school students). The single-family units are projected to generate approximately 301 total students (approximately 153 elementary students, 60 middle school students, 88 high school students).

Parks

Please see Chapter 4.13, Parks and Recreation, for a discussion of the project’s potential impacts on park facilities and services.

Libraries and Other Public Facilities

The Solano County Library (SCL) services the city. During 2019-2020, SCL has approximately 1,390,589 items borrowed and 1,016,124 visits to their 9 library locations (SCL 2021a). The project site is located within the Vacaville Planning Zone and there are two libraries located within the city, the Vacaville Cultural Center Library, located 3.4 miles southwest miles of the project site, and the Vacaville Town Square Library, located 5 miles southwest of the project site. According to the Solano County Library Master Plan, the Vacaville planning zone population is expected to grow to 120,000 people by 2040 and both public libraries could be renovated and potentially expanded to provide sufficient library space for future residents (SCL 2021b).

4.18.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant public services impacts if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i) fire protection; ii) police protection; iii) schools, iv) libraries; and v) other public facilities.

4.18.3 IMPACT DISCUSSION

PS-1	The project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i) fire protection; ii) police protection; iii) schools, iv) libraries; and v) other public facilities.
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Fire Protection

A significant environmental impact could result if implementation of the proposed project would increase demand for fire protection services to the extent that the construction of new or physically altered fire protection facilities would be needed.

The proposed project would increase demand for fire protection services that would be accommodated by VFD. According to the VFD, the proposed project would not impact emergency response times (Vacaville 2021c). Currently, Fire Station 72 is located 2.7 miles from the project site and Fire Station 73 is located 2.3 miles from the project site.

The proposed project would be required to comply with State and local building and Fire Code Requirements and would be reviewed and inspected by VFD to ensure all requirements are met. The proposed project would also be required to comply with Division 14.20 of Vacaville's Land Use which sets forth the most recent CBC. The code includes standards for building and construction in the City, permit processes, and requirements for emergency access, hazardous material handling, and fire protection systems (including automatic sprinkler systems, fire extinguishers, and fire alarms).

In addition, the VFD implements a vigorous building inspection program to ensure compliance with applicable standards and regulations, including requirements for emergency access. The proposed project includes a 20-foot paved pathway/emergency vehicle access roadway ("EVA") with gates or other measures to preclude daily vehicular traffic in the south of Sequoia Drive area. The EVA would enable

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required fire department access between Courts A and E, with identification as an approved route for first-responders and emergency crews. Providing emergency access to the project site will allow the VFD to provide emergency response services successfully and efficiently to the project site.

An increase in the population will lead to more emergency calls and calls for service, which may increase the average response time from VFD without reciprocal additions to staff and equipment. For the proposed project, the developer impact fees levied by the city upon the developer would cover the additional cost of service necessitated by the proposed project.

Compliance with the CFC and local regulations, fair share payment of developer impact fees, and continuation of VFD planning processes, would ensure that the proposed project would have a less than significant impact on the need for additional future fire facilities.

Police Protection

A significant environmental impact could result if implementation of the proposed project would increase demand for police protection services to the extent that the construction of new or physically altered police protection facilities would be needed.

The proposed project would increase demand for police protection services that would need to be accommodated by VPD. However, according to the VPD, the proposed project would not impact emergency response time and would not require new police facilities (Vacaville 2021d).

As previously described, the proposed project includes access improvements to provide emergency accessibility. With implementation of new access roads, the proposed project would result in less than significant impacts related to police protection services.

Schools

Development of the proposed project would approximately 1,149 dwelling units, with approximately 950 units of higher density housing types located north of Sequoia and 199 units of detached, single-family senior housing located south of Sequoia. Due to the senior restrictions on the south sequoia neighborhood, it is assumed that the 199 units of senior housing would not generate students. The north of Sequoia project plans for 403 multi-family units and 547 single-family units. The student generation factor for multi-family attached units is 0.09 elementary school students per unit, 0.03 middle school students per unit, and 0.05 high school students per unit (VUSD 2015). Based on the generation factor, the proposed multi-family unit would generate approximately 36.27 elementary students, 12.09 middle school students, and 20.15 high school students. The student generation factor for single-family detached units is 0.28 elementary school per unit, 0.11 middle school students per unit, and 0.16 high school students per unit (VUSD 2015). The single-family detached unit would generate approximately 153.16 elementary students, 60.17 middle school students, and 87.52 high school students. Overall, the north of Sequoia high density units will generate a combined total of approximately 671 students. The proposed project would be required to pay school impact fees, pursuant to Senate Bill (SB) 50, to reduce impacts to the school system. The School Districts collect these fees at the time of issuance of building permits. The State legislature has found that funding program established by SB 50 constitutes "full and complete

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mitigation of the impacts” on the provision of adequate school facilities (GC 65995(h)). SB 50 sets forth a state school facilities construction program that includes restrictions on a local jurisdiction’s ability to demand mitigation of a project’s impacts on school facilities in excess of fees in Education Code 17620. Therefore, with the inclusion of the impact fees, impacts to school services would be less than significant.

Libraries and Other Public Facilities

Development under the proposed project would increase the number of residents and housing within Vacaville Planning Zone service area and would, therefore, represent an increase in demand on library services provided at the Vacaville Cultural Center Library and Vacaville Town Square Library.

The additional residential uses proposed for the project site would be expected to generate local tax revenues roughly proportional to needs generated by the project site’s new residents. These tax revenues would aid the SCL in improving its library facilities and collections. Additionally, the proposed project would be required to pay library impact fees.

In accordance with required fees and local taxes, the proposed project would provide funding to support the additional residents generated from the project. Therefore, a less than significant impact would occur with respect to the need for new or physically altered library facilities.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: PS-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.18.4 CUMULATIVE IMPACTS

PS-2	The proposed project, in combination with past, present and reasonably foreseeable projects, would not result in substantial adverse physical impacts associated with the provision of new or physically altered facilities or need for new or physically altered facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: i) fire protection; ii) police protection; iii) schools, iv) libraries; and v) other public facilities.
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The proposed project would generate a total of approximately 2,963 residents which is aligned with the projected growth within the Vacaville General Plan. The General Plan EIR determined that the impact would be less than significant for fire protection, police, protection, schools, and libraries. Because the proposed project is within the projected growth for the city, additional projects in the city would also be consistent with the projected growth. In addition, other cumulative projects in the city would also be

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required to pay developer impact fees. Therefore, the project's contribution to the cumulative impacts on public services would be less than considerable.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: PS-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.18.5 REFERENCES

California Department of Education (CDE). 2021. August 24 (accessed). Enrollment Data 2020-21. <https://dq.cde.ca.gov/dataquest/SearchName.asp?rbTimeFrame=oneyear&rYear=2020-21&cName=cooper&Topic=Enrollment&Level=School&submit1=Submit>

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Vacaville Unified School District (VUSD). 2015, March. School Facility Fee Justification Report for Residential, Commercial & Industrial Development Projects for the Vacaville Unified School District. <http://vusd-ca.schoolloop.com/file/1411369341639/1442126369385/8303337553024262424.pdf>

_____. 2021, August 24 (accessed). School Boundary Maps. <https://vusd-ca.schoolloop.com/boundaries>

4.19 TRANSPORTATION

This chapter describes the potential environmental impacts related to transportation associated with the proposed project. This assessment is based on the proposed project as described in the Screencheck Draft Specific Plan (“proposed Specific Plan”) for the Greentree Project prepared by EMC Planning Group on October 29, 2021.

The analysis in this section is based in part on the following technical reports:

- Project Circulation & Neighborhood “Quality of Life” Assessment Memorandum, GHD, November 3, 2021.
- *VMT Analysis*, GHD, November 10, 2021

A complete copy of these reports are included as Appendix 4.19-1 and Appendix 4.19-2, respectively, of this Draft EIR.

4.19.1 ENVIRONMENTAL SETTING

The section describes the regulatory framework and existing setting relevant to potential transportation impacts.

4.19.1.1 REGULATORY FRAMEWORK

State Regulations

Vehicle Miles Traveled & Automobile Delay

Senate Bill 743 (SB 743) was adopted in 2013 and created a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 required the Governor’s Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative method for evaluating transportation impacts to replace level of service (LOS) metrics that were based on automobile delay.

As amended in December 2018 and effective statewide beginning on July 1, 2020, CEQA Guidelines section 15064.3 (Determining the Significance of Transportation Impacts) now specifies that vehicle miles traveled (VMT) is the primary metric or measure of effectiveness (MOE) for determining the significance of transportation impacts across California. As described in Section 15064.3(a) of the amended CEQA Guidelines:

Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

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Section 15064.3(a) also specifies that a projects' effect on automobile delay shall not constitute a significant environmental impact, except as provided in subdivision (b) (2) which is applicable only to roadway capacity projects.

The updated CEQA Guidelines lists the criteria for analyzing transportation impacts for proposed land use projects in Section 15064.3, subsection b, which states that for land use projects: VMT exceeding an applicable threshold of significance may indicate a significant impact. Lead agencies, including the City of Vacaville, have discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, and to develop thresholds of significance. OPR published the Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory, OPR 2018) which contains guidance on methodology and recommendations for establishing screening criteria and thresholds for VMT evaluation. The City of Vacaville has interim VMT guidance and thresholds against which the Project is compared. These guidelines are described in the Local Regulations section below.

California Department of Transportation

The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Any improvements or modifications to the SHS would need to be approved by Caltrans. In May 2020, the California Department of Transportation (Caltrans) published the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), which replaced its *Guide for the Preparation of Traffic Impact Studies* (2002). The TISG generally endorses the policies, technical approaches, and recommendations from OPR's Technical Advisory. It also indicates that Caltrans intends to "transition away from requesting LOS or other vehicle operations analyses of land use projects", instead placing the focus on VMT and safety.

Regional Regulations

Regional Transportation Plan/Sustainable Communities Strategy

The Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is a long-range plan for transportation improvements within the nine county Bay Area, including the City of Vacaville within Solano County, developed by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG). Plan Bay Area 2050 (adopted in October 2021) is the latest iteration of the RTP/SCS that provides a regional long-range plan for housing, economic development, transportation and environmental resilience and charts the course for the future of the region.

Solano Transportation Authority (STA) Comprehensive Transportation Plan

The Solano County Comprehensive Transportation Plan (CTP), prepared by STA, envisions, directs, and prioritizes the transportation needs of Solano County. The CTP identifies Routes of Regional Significance, which are roadways that carry significant through traffic, connect two or more jurisdictions, serve major transportation hubs, or cross county lines. Since these routes are significant to the transportation network of the region, and serve more than local transportation needs, they are eligible for federal funding. The Comprehensive Transportation Plan identifies long-term transportation needs for Solano County. In addition to Interstate 80 and Interstate 505, the CTP identifies local roadway segments within the Vacaville

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city limits and roadway segments within the county, adjacent to city limits as Routes of Regional Significance.

Solano Countywide Bicycle plan

Within the vicinity of the project site, the Solano Countywide Bicycle plan proposes a Class I Multi-use bicycling and walking path along Leisure Town Road and continuing the existing Class I path along Ulatis Creek north from Ulatis Drive to the recently completed portion of the trail at Nut Tree Road.

Local Regulations

Vacaville General Plan Transportation Element

The City of Vacaville General Plan, as updated in 2015, is intended to guide development through 2035. The Transportation Element of the General Plan was updated in 2021 to address the requirements of SB 375 regarding VMT.

The General Plan Transportation Element establishes the City's transportation network that supports automobile mobility while also supporting walking and bicycling, improving transit service to key destinations, conserving energy resources, and reducing greenhouse gas (GHG) emissions and air pollution. The Transportation Element includes policies to address these issues, as well as parking, goods movement, airports and transportation funding. As noted in the Transportation Element, "land use patterns and transportation systems are directly related. Land use decisions drive the need for a transportation system, while the capacity of the transportation network may support or constrain land use options."

The Transportation Element identifies current and future street configurations, bicycle facilities, truck routes, and transportation improvements including:

- Planned provision of a Class I multi-use path along Leisure Town Road adjacent to the project site as part of the city's bikeway network
- Planned widening of Leisure Town Road to four lanes south of Orange Drive
- Intersection improvements are identified for intersections along Vaca Valley Parkway and Leisure Town Road in the project vicinity.

Relevant policies within the Transportation Element as adopted in 2015 include the following:

- **Policy TR-P7.3** requires consideration of traffic calming measures to lower vehicle speeds and enhance mobility for pedestrians and bicyclists.
- **Policy TR-P8.3** requires that new development applications include transit amenities, as appropriate, or explain why these measures are infeasible or unnecessary.
- **Policy TR-P8.4** requires that new development applications design roadway networks to accommodate transit vehicles and facilitate efficient transit routes.

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- **Policy TR-P8.6** requires that new development applications design roadway networks to accommodate on-street bicycle lanes where practical.
- **Policy TR-P8.7** require that new roadway networks be designed as a grid pattern to reduce circuitous travel patterns and improve access and circulation for all modes.
- **Policy TR-P9.4** requires that new development applications include bike paths or bike lanes, when appropriate.
- **Policy TR-P9.5** requires enhanced and improved bicycle connections between neighborhoods and between neighborhoods and significant destinations, such as parks, schools, transit stops and transit centers, shopping centers, and employment centers.
- **Policy TR-P10.2** requires that the design of pedestrian paths be convenient, visible and safe.
- **Policy TR-P-12.7** requires specific plans in new growth areas to include planning for future public transit service to these areas by considering the addition of future transit stops and route connections as part of the public transportation system.

The City has updated the Transportation Element of the City's General Plan to address SB 743 goals aimed at reducing VMT. Compliance with SB 743 does not preclude the City from maintaining LOS policies in its General Plan and Municipal Code. However, it prevents the City from using LOS or other delay-based metrics to evaluate the potential significance of transportation impacts for CEQA purposes. General Plan goals, policies and actions amended include the following:

- Added Goal TR-3. Take proactive steps to reduce Greenhouse Gas Emissions caused by Vehicle Miles Travelled in Vacaville.
- Added new policies and implementation actions that address reducing VMT in the City, including the following:
 - Pursue an overall land use / transportation relationship that becomes more efficient over time, as measured by improved VMT efficiency (i.e., VMT per dwelling unit or per thousand square feet of floor space).
 - Evaluate development proposals using VMT measurement techniques and significance thresholds from the Senate Bill (SB) 743 Implementation Guidelines for the City of Vacaville.
 - Update the Senate Bill (SB) 743 Implementation Guidelines for the City of Vacaville as needed (i.e., due to major changes in land use, transportation system disruptions, changes in technology for estimating VMT, etc.).
 - Consider the potential effect on VMT when evaluating proposed transportation improvements.
 - Require feasible mitigation measures for significant VMT impacts and monitor whether those measures are achieving the intended outcomes.

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- Establish specific monitoring protocols and processes for mitigation measures aimed at reducing VMT.
- Amend existing policies that state specific LOS thresholds shall be required and delete policies that are no longer relevant.

The recently updated Transportation Element of the City's General Plan sets forth the following goals, policies, and actions that are directly or indirectly related to vehicle miles traveled:

- **Goal TR-8** Provide a balanced, multimodal transportation network that meets the needs of all users
 - **Policy TR-P8.1** Continue to implement a local Complete Streets Policy.
 - **Policy TR-P8.8** Prioritize transportation improvements that support and enhance travel by transit, bicycle, and pedestrian modes to and from designated Priority Development Areas (PDA).
 - **Action TR-A8.5** Construct off-site transit facilities to enhance citywide transit service and to offset new developments' impact on citywide congestion levels and greenhouse gas emissions.
 - **Action TR-A8.8** Include transportation improvements that will support and enhance travel by transit, bicycle, and pedestrian modes in updates to the Development Impact Fee program.
- **Goal TR-9** Increase bicycling by improving the network of bikeway and support facilities
 - **Policy TR-P9.1** Construct the comprehensive network of on- and off-roadway bike routes identified in Figure TR-2 to encourage the use of bikes for commute, recreational, and other trips as part of new development and as funding allows in existing developed areas.
 - **Policy TR-P9.5** Enhance, complete and improve bicycle connections between neighborhoods and between neighborhoods and significant destinations, such as parks, schools, transit stops and transit centers, shopping centers, and employment centers.
 - **Policy TR-P9.7** Adopt standards for major employers to provide support facilities to encourage use of bikes for commute purposes.
 - **Action TR-A9.5** Develop funding mechanisms to construct bicycle infrastructure to enhance the citywide bike route network, including completing gaps in the existing bicycle network, and to offset existing and new development's impacts on citywide congestion levels and greenhouse gas emissions.
- **Goal TR-11** Reduce traffic impacts through transportation systems management (TSM) and transportation demand management (TDM).

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- **Policy TR-P11.2** Work cooperatively with the Solano Transportation Authority (STA) to promote transportation demand management programs to reduce peak-period trip generation
- **Policy TR-P11.3** Work with the Solano Transportation Authority (STA) to encourage major employers to adopt Transportation Systems Management (TSM) programs that will reduce peak- period trip generation by 20 percent or more from the vehicle trip generation currently observed at similar sites without a TSM program.
- **Policy TR-P11.4** Encourage Transportation Demand Management (TDM) programs that limit vehicle use, such as ridesharing and public transit, over those that extend the commute hour, such as flex-time and staggered work hours, to provide greater benefits to regional air quality.
 - **Action TR-A11.1** Amend Chapter 10.60, Transportation Demand Management, of the Vacaville Municipal Code, to implement VMT reduction policies consistent with State law.
- **Goal TR-12** Support a comprehensive, convenient, and efficient transit system.
 - **Policy TR-P12.2** Encourage the expansion of an inter-city public transit/bus system to link Vacaville with neighboring communities.
 - **Policy TR-P12.3** When financially feasible, support increased frequency and operational hours of public transit service consistent with current short- and long-range transit planning

City of Vacaville Guidelines for Evaluating VMT Impacts

Project VMT is evaluated using the thresholds of significance as described in the *SB 743 Implementation Guidelines for the City of Vacaville* (January 2021):

- The project would cause a significant transportation impact if it would generate an average VMT per dwelling unit (DU) for residential uses, or average VMT per 1,000 square feet (KSF) for non-residential uses including commercial uses, that is greater than 85-percent of the city-wide average for that land use type.
- If the above threshold is exceeded, the project’s VMT impact could still be found to be less-than-significant if it did not cause the total VMT generated by the City of Vacaville to increase.

Under CEQA, project impacts must be evaluated by comparing environmental conditions after project implementation to conditions at a point in time referred to as the baseline. The City of Vacaville has identified these VMT baselines and thresholds in their guidance. Table 4.19-1 presents the SB 743 thresholds for residential and non-residential land uses which are utilized to determine project impacts. The land uses analyzed for the Greentree project will include Multi-Family Units, Age-Restricted Units, and General Retail Units and will be analyzed against the below corresponding thresholds.

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The VMT guidelines state that mixed-use projects can be evaluated by two possible approaches:

1. Analyze and determine significant impacts of each project component separately (considering internal trips), or
2. Consider significant impacts based on the project’s dominant land use.

Based on discussion with the City and the trip generation characteristics of the different uses, VMT for the Greentree project is evaluated by estimating each project land use component separately (option 1) and takes into account internal capture trip reductions.

TABLE 4.19-1 CITY OF VACAVILLE INTERIM VMT THRESHOLDS

Residential		Base Year (2015)		Cumulative (BO-NE)¹	
Use	SB 743 VMT Threshold	Average VMT per Dwelling Unit	SB 743 VMT Threshold	Average VMT per Dwelling Unit	
Single-Family	73.4	86.4	65.0	76.5	
Multi-Family	49.7	58.5	47.2	55.5	
Age-Restricted	32.0	37.6	29.8	35.0	
Non-Residential		Base Year (2015)		Cumulative (BO-NE)¹	
Use	SB 743 VMT Threshold	Average VMT per KSF	SB 743 VMT Threshold	Average VMT per KSF	
Office	77.2	90.8	70.9	83.4	
Highway Commercial	134.5	158.2	134.4	158.1	
General Retail	103.3	121.5	106.3	125.1	
Industrial	29.4	34.6	24.1	28.4	
Warehouse	15.2	17.9	13.3	15.7	

Notes: Derived from City of Vacaville travel demand model. Threshold applied is 85 percent of the average for that land use type.

Source: Interim SB 743 Implementation Guidelines for the City of Vacaville, January 2021.

¹BO-NE = Build Out minus Northeast Area

4.19.1.2 EXISTING CONDITIONS

Setting

The project site is located in northeast Vacaville, south of the Interstate 80 freeway, on the west side of Leisure Town Road, just east of Orange Drive, Yellowstone Drive, and Green Tree Drive. The project site is bisected by Sequoia Drive. Figure 4.19-1 shows the project site and adjacent transportation network.

Roadways

Key roadways providing multi-modal access to the project site include:

- Leisure Town Road is a two to six-lane arterial roadway that runs north/south from Vanden Road to Intersection 80 with a posted speed limit of 40 miles per hour (mph) in the project vicinity. Leisure Town Road provides access to the project site from I-80 to the north and connects to roadways included Ulatis Drive and Elmira Road south of the project site. Adjacent to the project

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site: sidewalks are provided on both sides and Class II bicycle lanes are provided on some segments.

- Yellowstone Drive is two-lane collector roadway that runs north/south from Nut Tree Road to Sequoia Drive with a posted speed limit of 25 mph. Class II bicycle lanes and sidewalks are provided on both sides of the roadway. Yellowstone Drive provides access to the project site via Sequoia Drive and Rushmore Drive.
- Sequoia Drive is a two-lane roadway that runs east/west between Yellowstone Drive and Grand Canyon Drive, with a posted speed limit of 25 mph. Sequoia Drive is a collector roadway between Yellowstone Drive and Leisure Town Road and a local street between Yellowstone Drive and Grand Canyon Drive.
- Gilley Way is a two-lane collector roadway that runs east/west between Orange Drive and Leisure Town Road, with a posted speed limit of 35 mph. Gilley Way is proposed to be closed by the project, and a new east/west connection between Orange Drive and Leisure Town Road would be provided.
- Orange Drive is a four-lane arterial roadway that runs north/south between Nut Tree Road and Leisure Town Road, with a posted speed limit of 40 mph. Class II bicycle lanes and sidewalks are provided on both sides of the roadway. Orange Drive provided access to the project via the proposed east/west connection between Orange Drive and Leisure Town Road. Orange Drive also provides access to I-80 and I-505 within the project vicinity.

Transit Service

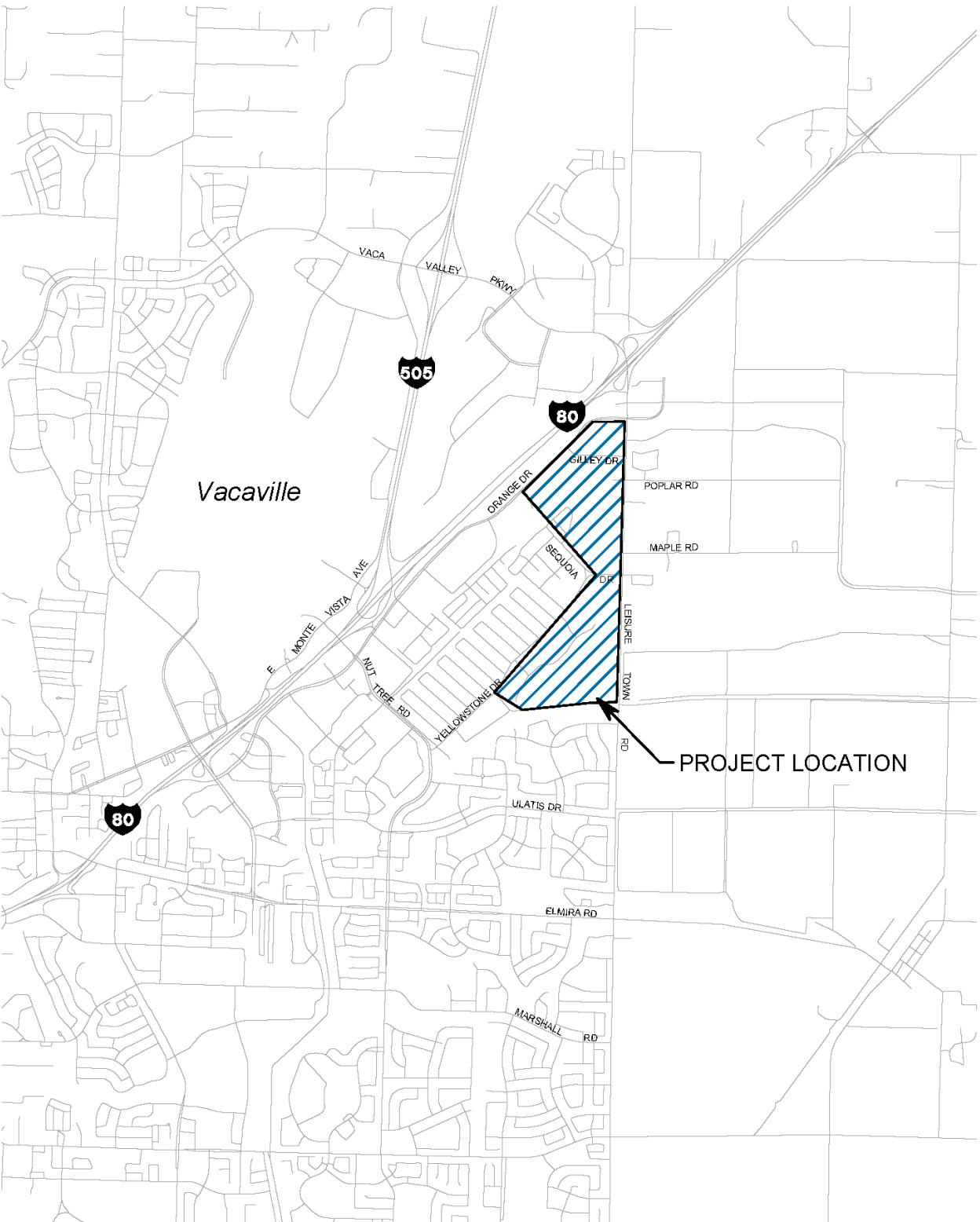
The City of Vacaville has fixed-route bus service via “City Coach” which is operated and maintained by the City. Route 1 and Route 4 serve the vicinity of the Project site. Figure 4.19-2 shows the adopted City Coach routes serving the project vicinity (based on regular service prior to the COVID-19 pandemic that disrupted transit service beginning in 2020):

- Route 1 provides service between Kaiser Medical Center on E. Akerly Drive and the Transportation Center at Allison Drive, via Leisure Town Road and Yellowstone Drive including a segment within the project site, and has hourly headways.
- Route 4 is a loop route that provides service between the Transportation Center, Solano Community College, and Kaiser Medical Center. Route 4 operates on Orange Drive and Leisure Town Road immediately north of the Project site with 30-minute headways.

In addition, Fairfield and Suisun Transit (FAST) operates intercity bus service from the Vacaville Regional Transportation Center and the Bella Vista Park & Ride Lot, including service to/from Sacramento and BART stations in Walnut Creek and El Cerrito.

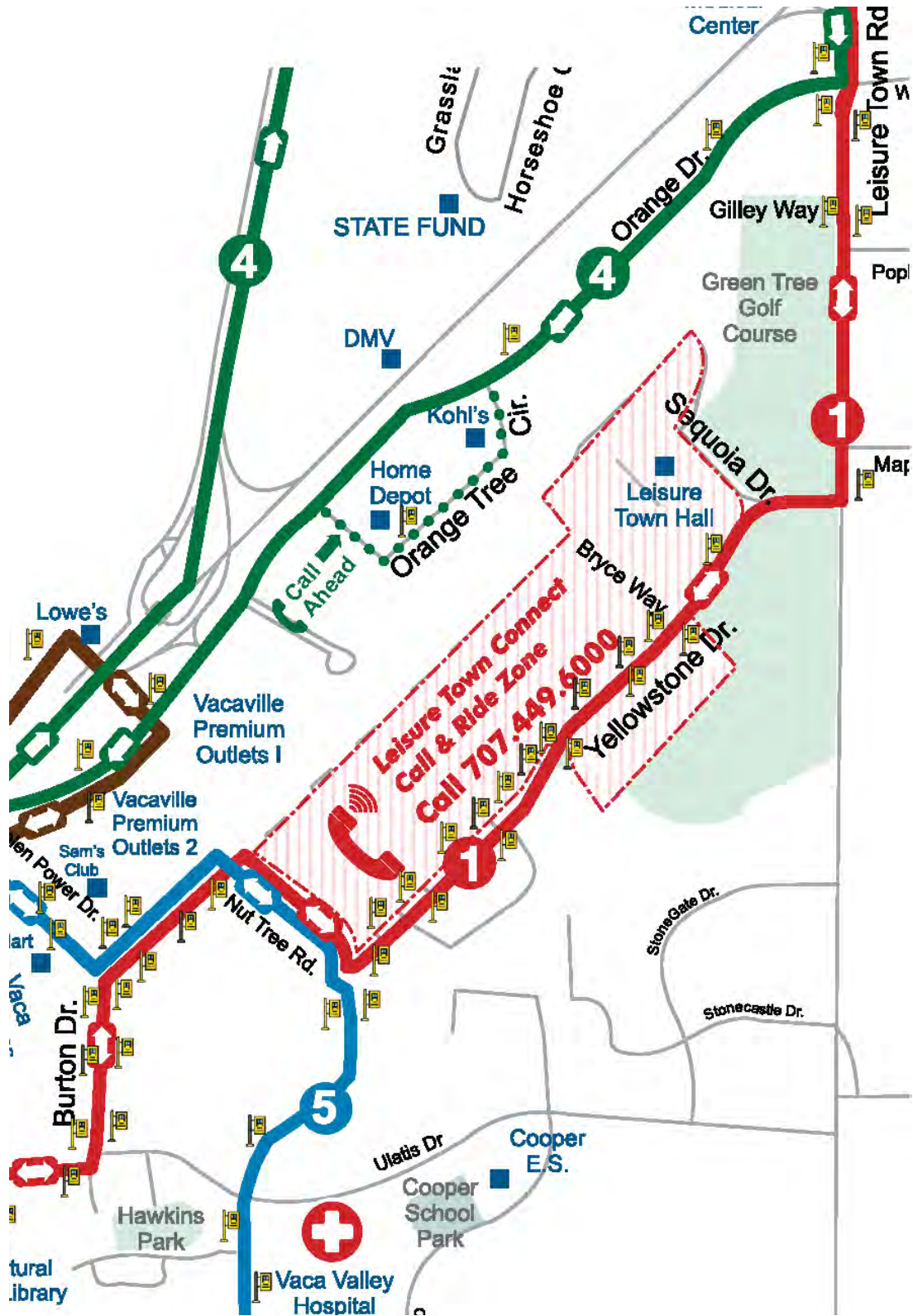
4.19 TRANSPORTATION

Figure 4.19-1 Transportation Setting Map



4.19 TRANSPORTATION

Figure 4.19-2 CityCoach Bus Route Map



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Bicycle & Pedestrian Facilities

Currently, near the project site there are Class II Bike Lanes along Yellowstone Drive, Orange Drive, Nut Tree Road, and on Leisure Town Road between Orange Drive and Sequoia Drive. There is an existing Class I shared-used path south of the project site connecting Nut Tree Road and Leisure Town Road along the canal.

Sidewalks are present on many City streets, including both sides of Leisure Town Road adjacent to the project site and on Yellowstone Drive within the project site. Sidewalks are not yet provided on the segment of Sequoia Drive within the project site. Marked crosswalks are provided at many signalized and unsignalized crossings, including the signalized intersection of Leisure Town Road and Sequoia Drive bordering the project site.

4.19.2 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant transportation impacts if it would:

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

4.19.3 IMPACT DISCUSSION

TRANS-1	The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. This impact is less than significant.
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This section assesses whether the proposed project is consistent with applicable regional and local transportation programs, plans, ordinances and policies that were summarized in section 4.16.1.1 (Regulatory Framework) of this chapter. The land use plan as summarized in the proposed Specific Plan is shown on Figure 4.19-3. As proposed, most of the project site would be developed with a mix of residential uses, with multi-family housing north of Sequoia Drive, and single-family senior housing south of Sequoia Drive. In addition, commercial retail development is proposed north of Sequoia Drive that would provide neighborhood-serving commercial uses to serve existing and future residents living south of I-80, including new residents that would reside within the proposed project.

4.19 TRANSPORTATION

The proposed street network plan is shown on Figure 4.19-4, including both existing and proposed future public streets. Proposed bicycle and pedestrian facilities are shown on Figure 4.19-5 and would include bicycle lanes and pedestrian paths consistent with General Plan policies, while also providing “complete streets” consistent with regional goals described in Plan Bay Area 2050.

- Proposed private streets north of Sequoia Drive, as shown on Figure 4.19-6, would provide a “grid-like backbone” that would help to reduce the block size with the multi-family residential development area, consistent with General Plan Policy TR-P8.7 that require new roadway networks to be designed as a grid pattern to reduce circuitous travel patterns and improve access and circulation for all modes.
- The project incorporates the planned provision of a Class I multi-use path along Leisure Town Road adjacent to the project site as part of the city’s bikeway network, also consistent with the Solano Countywide Bicycle Plan.
- The proposed Specific Plan emphasizes street connectivity and accessibility for multiple modes of transportation, with a proposed street network that will accommodate transit access, consistent with General Plan Policy TR-P8.4 that requires that new development applications design roadway networks to accommodate transit vehicles and facilitate efficient transit routes.
- Proposed future streets include several new “backbone streets”:
 - Village Way is proposed to connect Leisure Town Road and Orange Drive. It is envisioned to function as a “main street” for the planned commercial district and as an anchor for pedestrian and commercial activity. Village Way would provide two automobile lanes with parking on both sides, bicycle lanes on both sides that are separated from parking by two-foot buffers, landscaping on both sides, and wide sidewalks on both sides.
 - Yellowstone Drive is proposed to be extended to connect Sequoia Drive on the south with Village Way on the north, including an extension for secondary access and utility connections into residential Subarea R7. Yellowstone Drive would provide two automobile lanes with on-street parking on one side, bicycle lanes that are separated from travel lanes/parking by a buffer, and sidewalks on both sides. Traffic calming bulb-out features are proposed at the Yellowstone Drive/Street H intersection, consistent with General Plan Policy TR-P7.3 that requires consideration of traffic calming measures to lower vehicle speeds and enhance mobility for pedestrians and bicyclists. In addition, a roundabout is proposed at the Yellowstone Drive/Sequoia Road intersection.
 - Streets H and G would connect Yellowstone Drive and Village Way. Streets H and G would provide two shared travel lanes for automobile and bicycle travel, with sidewalks and on-street automobile parking on both sides.

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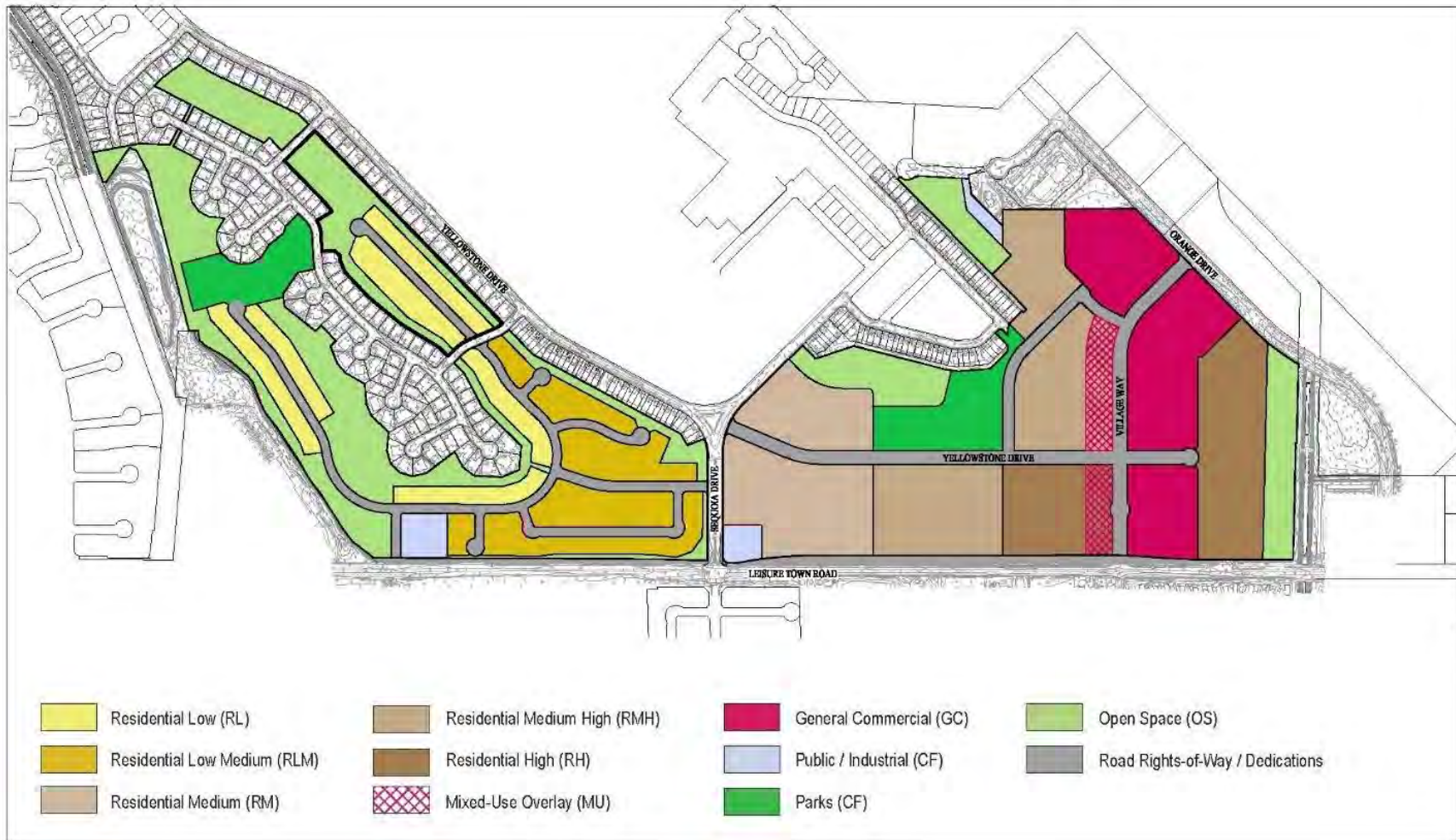
- Class II bicycle lanes and enhanced sidewalks would also be provided along Sequoia Drive between Yellowstone Drive and Leisure Town Road, consistent with General Plan Policy TR-P8.6 requires that new development applications design roadway networks to accommodate on-street bicycle lanes where practical.
- Pedestrian trails (i.e., separated walking paths) would be provided throughout the “South of Sequoia” and “North of Sequoia” development areas with connections to proposed roadways and parks.

As described above, the proposed project would not conflict with adopted programs, plans, ordinances, or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, including the Vacaville General Plan, Plan Bay Area 2050, and Countywide transportation plans for Solano County.

Significance Without Mitigation: Less than significant.

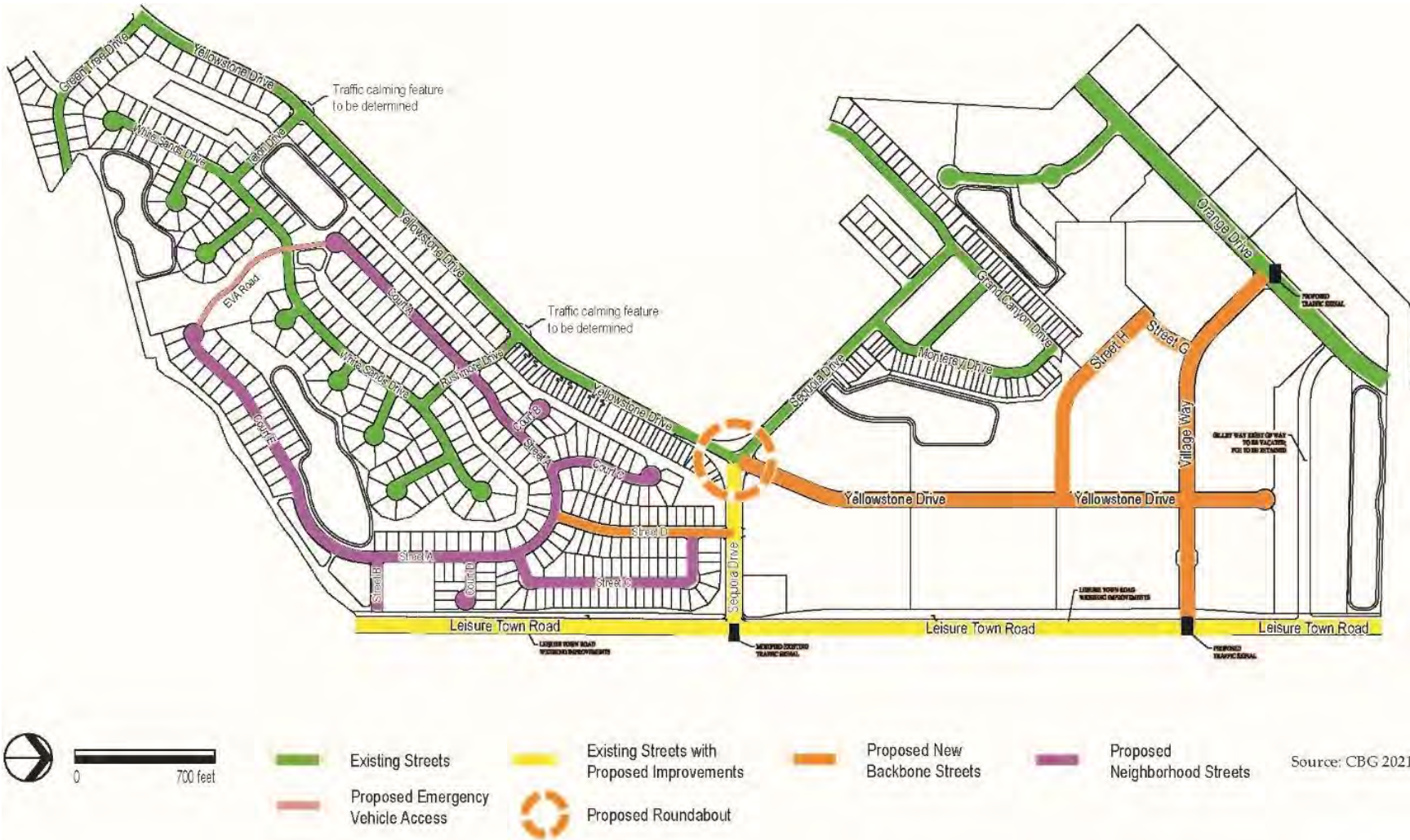
4.19 TRANSPORTATION

Figure 4.19-3 Proposed Land Use Map



4.19 TRANSPORTATION

Figure 4.19-4 Proposed Public Street Network



4.19 TRANSPORTATION

Figure 4.19-5 Proposed Bicycle & Pedestrian Facilities



- Bike Lanes + Enhanced Sidewalks
- Bike Lanes + Sidewalks
- Offstreet Trail Network
- Neighborhood Sidewalks
- Dashed Lines Indicate Private Streets (Illustrative)

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Figure 4.19-6 Illustrative Plan of Proposed Grid of Public & Private Streets (North of Sequoia Drive)



Source: ELS 2021



4.19 TRANSPORTATION

TRANS-2 VMT attributable to the project would exceed applicable thresholds. Therefore, the project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). This impact is significant and unavoidable.

VMT Assessment

The proposed Specific Plan includes measures intended to reduce VMT, including a mix of residential and commercial land uses. In addition, the proposed Specific Plan emphasizes street connectivity and accessibility for multiple modes of transportation, with a proposed street network that will accommodate transit access. The analysis within this section is based on the analysis and findings of the *VMT Analysis* memorandum prepared by GHD on November 10, 2021 that summarizes the findings of the VMT assessment of the proposed Greentree Development project based on the City’s interim thresholds utilizing the City’s most current travel demand model (January 2021). The VMT analysis memorandum is included in Appendix 4.19-2 and provides detailed data, including methodology, assumptions, and analysis results related to the VMT analysis. Per the City’s VMT guidance, the analysis of Project VMT was conducted for the model base year 2015, and cumulative Build Out – Northeast conditions. Table 4.19-2 presents the trips, trip lengths, VMT, and VMT per unit results of the project for existing baseline (model year 2015) conditions. Table 4.19-3 presents the trips, trip lengths, VMT, and VMT per unit results of the project for cumulative build out-northeast conditions. As shown: the proposed residential multi-family residential component of the project would exceed the VMT threshold under existing baseline conditions, while the proposed commercial development would exceed the VMT threshold under both existing baseline and cumulative conditions.

TABLE 4.19-2 EXISTING (MODEL YEAR 2015) VMT RESULTS

Land Use	Units (DU or KSF)	Trips ¹	VMT	Average Trip Length (mi)	VMT per Unit	VMT per Unit Threshold	Project Component over Threshold?
Residential Multi-Family	950	4,280	47,819	11.17	50.3	49.7	Yes
Residential Senior Housing	199	618	6,084	9.85	30.6	32.0	No
Shopping Center/Retail	299.3	4,220	37,275	8.83	124.5	103.3	Yes

1. Trips represent the trips adjusted for modeled intrazonal and internal capture trips, as appropriate. See Appendix 4.19-2 for details.

4.19 TRANSPORTATION

TABLE 4.19-3 CUMULATIVE BUILD OUT - NORTHEAST VMT RESULTS

Land Use	Units (DU or KSF)	Trips ¹	VMT	Average Trip Length (mi)	VMT per Unit	VMT per Unit Threshold	Project Component over Threshold?
Residential Multi-Family	950	4,478	42,379	9.46	44.6	47.2	No
Residential Senior Housing	199	616	5,587	9.08	28.1	29.8	No
Shopping Center/Retail	299.3	4,061	34,851	8.58	116.4	106.3	Yes

1. Trips represent the trips adjusted for modeled intrazonal and internal capture trips, as appropriate. See Appendix 4.19-2 for details.

Impact TRANS-2.1 (Residential Multi-family VMT): The project’s multi-family residential component would exceed the City’s threshold for residential VMT per dwelling unit by 1.2 percent under existing baseline conditions with the project. *This threshold would not be exceeded under cumulative conditions with the project.*

Significance Without Mitigation: Significant under existing plus project conditions. *This impact is less than significant under cumulative conditions.*

Impact TRANS-2.2 (Commercial VMT): The project’s shopping center/retail component would exceed the City’s threshold for retail VMT per KSF by 20.5 percent under existing conditions with the project, and by 9.5 percent under the cumulative build out-northeast conditions with the project.

Significance Without Mitigation: Significant under existing plus project and cumulative conditions.

The applicant considered a multitude of potential on-site reduction measures based largely on reference to multiple resources, the most widely recognized of which is Quantifying Greenhouse Gas Mitigation Measures, California Air Pollution Control Officers Association (CAPCOA), 2010. The applicant also reviewed other recent CEQA documents for similar projects in the region and consulted with City staff regarding other measures that could be considered, several of which have been included. Lastly, the applicant reviewed the City’s adopted Energy Conservation and Action Strategy (City of Vacaville 2021) (ECAS) to identify applicable VMT reduction measures that should be incorporated into the project. The measures represent applicable, feasible actions that are within the applicant’s control, and consequently, can be enforced by the City through conditions of approval. Developers of individual future projects within the specific plan boundary would be required to implement the measures that are applicable to their respective projects.

Mitigation Measure TRANS-2.1 (Residential Multi-family VMT): The project applicant shall provide the following measures to increase rates of walking and bicycling, and improve access to transit, in order to reduce the rate of VMT attributable to the residential component of the project:

- Bicycle network improvements and land for off-street bike trails to promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.

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- Bicycle parking facilities at multi-family residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Pedestrian network improvements which promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled, including provision of a grid street network with smaller block sizes north of Sequoia Street.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement and connectivity.
- Bus stops/shelters and access improvements for CityCoach service.

Mitigation Measure TRANS-2.2 (Commercial VMT): The project applicant shall ensure provision of the following measures to reduce VMT attributable to the commercial portion of the project:

- Transportation demand management (TDM) measures to reduce employee VMT, to include:
 - For businesses with 15 or more employees, transit subsidies of a minimum of 50 percent of the average daily transit cost for a minimum of 50 percent of the employees (ECAS measure).
 - For businesses with 15 or more employees, employee parking “cash out” for a minimum of 50 percent of the employees (ECAS measure).
- Bicycle network improvements and land for off-street bike trails to which promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled.
- Bicycle parking facilities at non-residential uses that exceeds minimum requirements in the California Green Building Standards Code (Tier 1/Tier 2).
- Pedestrian network improvements which promote a shift from vehicles to non-motorized modes of transportation, thereby reducing vehicle trips and vehicle miles traveled, including provision of a grid street network with smaller block sizes north of Sequoia Street.
- Traffic calming features (e.g., bulb-outs and other features at several major intersections, and narrower than standard vehicle travel lanes) to reduce vehicle speeds and improve pedestrian safety, with the goal of promoting pedestrian movement and connectivity.
- Bus stops/shelters and access improvements for CityCoach service.

Significance With Mitigation TRANS-2.1 (Residential Multi-family VMT): *Less than Significant.* Mitigation measures identified in 2.1 are measures anticipated to reduce VMT attributable to the proposed multi-family residential land uses by more than 1.2 percent based on CAPCOA data, reducing the rate of VMT to below the threshold of 49.7 miles per multi-family dwelling unit under existing plus project conditions. This impact is considered less than significant with mitigation under existing plus project conditions.

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(Under cumulative conditions with the project: this impact is less than significant with no mitigation required).

Significance With Mitigation TRANS-2.2 (Commercial VMT): *Significant and Unavoidable*. Mitigation measures identified in 2.2 are measures proven to reduce VMT, especially when implemented in conjunction with one another. The mitigation measures mentioned address Greentree Specific Plan mobility goals with connectivity and accessibility for multiple modes of transportation on key internal roadways consistent with the concept for complete streets. The roadway types support vehicle, pedestrian, and bicycle use, and will accommodate transit access, and each has been designed to prioritize specific travel modes. These features are crucial for several reasons. First, they promote relationships between neighbors by creating social interaction. Second, they provide opportunities for physical movement and improved health. Third, by providing an alternative to vehicle travel, air and greenhouse gas emissions are reduced. While adopting these mitigation measures can potentially reduce dependency on automobiles there is still a high variation in the range of potential VMT reductions that could be accomplished. With the largest reductions generally occurring when reducing employment VMT (attributable to “work trips” to and from places of employment) it is less effective in reducing VMT attributable to retail land uses in which most VMT would be generated by customers. Quantifying the effectiveness of the VMT reduction strategies cannot be calculated at this time because of the uncertainty, particularly with regard to VMT attributable to retail land uses, given the large share of trips generated by customers. The Greentree Specific Plan’s mobility plan focuses on connectivity and accessibility for multiple modes of transportation on key internal roadways consistent with the concept for complete streets. New and existing streets are also designed to include amenities that best support adjacent land and that give the streets their own character. Several street classifications have been developed as a hierarchy that intuitively connects users to desired experiences and destinations. Streets constructed to the standards for each classification work together and are interconnected. The roadway types support vehicle, pedestrian, and bicycle use, and will accommodate transit access, and each has been designed to prioritize specific travel modes. Pedestrian, bicycle and trail connectivity is a foundational design element of the proposed project. These features are crucial for several reasons. First, they promote relationships between neighbors by creating social interaction. Second, they provide opportunities for physical movement and improved health. Third, by providing an alternative to vehicle travel, air and greenhouse gas emissions are reduced – a goal that is at the vanguard of current and forward-thinking land use and mobility planning. Despite these project design features, the above modeling of VMT shows that the project would exceed the defined threshold. Therefore, this impact is considered significant and unavoidable.

TRANS-3	The project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). This impact is less than significant and no mitigation is required.
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The proposed project will be developed with street configurations that would comply with applicable design standards which may include City of Vacaville design standards as well as other applicable standards for the design of complete streets such as the Complete Streets. The City of Vacaville General

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Plan contains policies on the safe design of the roadway system that would discourage the creation of geometric hazards when applied to future roadway improvements. Development of the proposed street network will be reviewed as part of the City's project approval process, and would be required to comply with applicable safety standards and regulations, as would construction management measures.

Significance Without Mitigation: Less than significant.

TRANS-4	The project would not result in inadequate emergency access. This impact is less than significant and no mitigation is required.
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As proposed, a 20-foot paved pathway/emergency vehicle access roadway ("EVA") with gates or other measures to preclude daily vehicular traffic is planned in the south of Sequoia Drive area. It would extend through the planned senior-oriented neighborhood park south of White Sands Drive and through the open space north of White Sands Drive to enable required fire department access between Courts A and E, with identification as an approved route for first-responders and emergency crews. The route would be accessible to pedestrians and bicyclists and would provide enhanced non-vehicular public access to the senior-oriented park.

In addition, future development will be reviewed as part of the City's project approval process, and would be required to comply with existing regulations related to design features and emergency access. The City would implement the programs that require the City's coordination with local emergency response providers. Adherence to the State and City requirements combined with compliance the City's regulations will ensure that the proposed project would provide adequate emergency access.

Significance Without Mitigation: Less than significant.

4.19.4 CUMULATIVE IMPACTS

TRANS-5	VMT attributable to commercial portions of the proposed development would exceed applicable thresholds under cumulative conditions. This impact is significant and unavoidable.
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Cumulative VMT impacts are incorporated into the analysis of Impact TRA-2 and shown on Table 4.19-3, which found that cumulative VMT impacts attributable to the proposed residential land uses would be less than significant because they do not exceed the City's threshold for residential VMT per dwelling unit under cumulative build out-northeast conditions. Cumulative VMT impacts attributable to the proposed commercial land uses with Mitigation TRA-2.2 were identified as significant and unavoidable because this land use would exceed the City's threshold for retail VMT per KSF under existing conditions and cumulative build out-northeast conditions.

4.20 TRIBAL CULTURAL RESOURCES

4.20 TRIBAL CULTURAL RESOURCES

This section describes the potential impacts associated with the development of the proposed project related to tribal cultural resources. Other potential impacts to cultural resources (i.e., prehistoric, historic, paleontological, and disturbance of human remains) are evaluated in Section 4.5, Cultural Resources.

The analysis in this section is based in part on the following technical reports:

- *Archaeological Investigation Report with Tribal Letter*, EMC Planning Group, September 2019 / October 2021

4.20.1 ENVIRONMENTAL SETTING

4.20.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to Tribal Cultural Resources for the proposed project.

Federal Regulations

Archaeological Resources Protection Act

The Archaeological Resources Protection Act (United States Code, Title 16, Sections 470aa–mm) became law on October 31, 1979, and has been amended four times. It regulates the protection of archaeological resources and sites that are on federal and Indian lands.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (United States Code, Title 25, Sections 3001 et seq.) is a federal law passed in 1990 that provides a process for museums and federal agencies to return certain Native American cultural items—such as human remains, funerary objects, sacred objects, or objects of cultural patrimony—to lineal descendants and culturally affiliated Indian tribes.

State Regulations

California Public Resources Code

Archaeological resources are protected pursuant to a wide variety of state policies and regulations enumerated under the California Public Resources Code (PRC). In addition, cultural resources are recognized as a nonrenewable resource and therefore receive protection under the California PRC and CEQA.

California Public Resources Code 5097.9–5097.991 provides protection to Native American historical and cultural resources, and sacred sites and identifies the powers and duties of the NAHC. It also requires notification to descendants of discoveries of Native American human remains and provides for treatment and disposition of human remains and associated grave goods.

4.20 TRIBAL CULTURAL RESOURCES

California Health and Safety Code

California Health and Safety Code Section 7050.5 requires that if human remains are discovered on the project site, disturbance of the site shall halt and remain halted until the coroner has conducted an investigation into the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and recognizes or has reason to believe the human remains are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC.

California Register of Historical Resources

The California Register of Historic Resources is the state version of the National Register of Historic Resources program (see also Section 4.5, *Cultural Resources*). It was enacted in 1992 and became official January 1, 1993. The California Register was established to serve as an authoritative guide to the state's significant historical and archaeological resources. Resources that may be eligible for listing include buildings, sites, structures, objects, and historic districts. According to subsection (c) of PRC Section 5024.1, a resource may be listed as a historical resource in the California Register if it meets any of the four National Register criteria.

California Senate Bill 18

Existing law provides limited protection for Native American prehistoric, archaeological, cultural, spiritual, and ceremonial places. These places may include sanctified cemeteries, religious, ceremonial sites, shrines, burial grounds, prehistoric ruins, archaeological or historic sites, Native American rock art inscriptions, or features of Native American historic, cultural, and sacred sites.

Senate Bill 18 (Government Code Section 65352.3) was signed into law in September 2004 and went into effect on March 1, 2005. It places new requirements upon local governments for developments within or near "traditional tribal cultural places" (TTCP). Per SB 18, the law requires local jurisdictions to provide opportunities for involvement of California Native Americans tribes in the land planning process for the purpose of preserving traditional tribal cultural places. The Final Tribal Guidelines recommend that the NAHC provide written information as soon as possible but no later than 30 days after receiving a request to inform the lead agency if the proposed project is determined to be in proximity to a TTCP and another 90 days for tribes to respond to a local government if they want to consult to determine whether the project would have an adverse impact on the TTCP. There is no statutory limit on the consultation duration. Forty-five days before the action is publicly considered by the local government council, the local government refers action to agencies, following the CEQA public review time frame. The CEQA public distribution list may include tribes listed by the NAHC who have requested consultation or it may not. If the NAHC, the tribe, and interested parties agree upon the mitigation measures necessary for the proposed project, they would be included in the project's EIR. If both the City of Vacaville and the tribe agree that adequate mitigation or preservation measures cannot be taken, neither party is obligated to take action.

4.20 TRIBAL CULTURAL RESOURCES

SB 18 is triggered before the adoption, revision, amendment, or update of a city's general plan. Although SB 18 does not specifically mention consultation or notice requirements for adoption or amendment of specific plans, the Final Tribal Guidelines advises that SB 18 requirements extend to specific plans as well, because state planning law requires local governments to use the same process for amendment or adoption of specific plans as general plans (defined in Government Code § 65453). In addition, SB 18 provides a new definition of TTCP requiring a traditional association of the site with Native American traditional beliefs, cultural practices, or ceremonies, or the site must be shown to actually have been used for activities related to traditional beliefs, cultural practices, or ceremonies. (Previously, the site was defined to require only an association with traditional beliefs, practices, lifeways, and ceremonial activities.) SB 18 law also amended Civil Code Section 815.3 and adds California Native American tribes to the list of entities that can acquire and hold conservation easements for the purpose of protecting their cultural places.

Assembly Bill 52

AB 52 (Public Resources Code (PRC) section 21080.3.1 and Government Code Section 21084.3(c)) took effect July 1, 2015 and requires inclusion of a new section in CEQA documents titled Tribal Cultural Resources, which include heritage sites. Under AB 52, a tribal cultural resource is defined similar to tribal cultural places under SB 18—sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or eligible for inclusion in the California Register of Historic Resources or included in a local register of historical resources. Or the lead agency, supported by substantial evidence, chooses at its discretion to treat the resource as a tribal cultural resource.

Similar to SB 18, AB 52 requires consultation with tribes at an early stage to determine whether the project would have an adverse impact on the TCR and define mitigation to protect them. Per AB 52, within 14 days of deciding to undertake a project or determining that a project application is complete, the lead agency must provide formal written notification to all tribes who have requested it. The tribe then has 30 days of receiving the notification to respond if it wishes to engage in consultation. The lead agency must initiate consultation within 30 days of receiving the request from the tribe. Consultation concludes when both parties have agreed on measures to mitigate or avoid a significant effect to a tribal cultural resource, or a party, after a reasonable effort in good faith, decides that mutual agreement cannot be reached. Regardless of the outcome of consultation, the CEQA document must disclose significant impacts on tribal cultural resources and discuss feasible alternatives or mitigation that avoid or lessen the impact.

Local Regulations

City of Vacaville General Plan

The Conservation and Open Space Element of the City of Vacaville General Plan provides the following policies to protect and enhance tribal cultural resources:

- **Policy COS-P6.1:** Consult with those Native American Tribes with ancestral ties to the Vacaville city limits regarding proposed new development projects and land use policy changes.

4.20 TRIBAL CULTURAL RESOURCES

4.20.1.2 EXISTING CONDITIONS

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the proposed project, and the results were negative (EMC 2019). The NAHC provided a list of with three tribes—Cortina Rancheria – Kletsel Dehe Band of Wintun Indians, United Auburn Indian Community of the Auburn Rancheria, and Yocha Dehe Wintun Nation. The City contacted these tribes on September 4, 2021, and received a response from the Yocha Dehe Wintun Nation.

Solano County is known for having had a relatively high population density in prehistoric times. The Patwin peoples controlled the area west of the Sacramento River to the crest of the Coast Ranges. The Patwin lived by hunting, fishing, and gathering, and inhabited semi-permanent villages, the remnants of which have been found in the hills around Vacaville. The California Historical Resources Information System (CHRIS) identifies dozens of recorded prehistoric archaeological resources in Vacaville. These resources consist of the following: habitation sites, containing evidence of resource procurement and social organization; burial sites; bedrock mortars, representing use of technology in food processing; and isolated stone tools, found in contexts other than typical archaeological sites (Vacaville 2015).

However, an archival search through the Northwest Information Center, file #18-2005, of the CHRIS, revealed no recorded archaeological resources within the property site, but three previous studies have been recorded overlapping parts of the property site, and date from 1965-1996. There is one recorded archaeological resource within a quarter mile of the site; an historic site recorded in 1992, and nine studies within a quarter mile of the project site, ranging from 1984-2016 (EMC Planning Group 2019).

4.20.2 IMPACT DISCUSSION

TCR-1	The proposed project would not cause a substantial adverse change in the significance of a Tribal Cultural Resource.
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The proposed project would result in a substantial adverse change in the significance of a tribal cultural resources if it altered resources listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources or a resource determined to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. As discussed in Chapter 4.5, *Cultural Resources*, no sensitive resources eligible for listing in the California Register of Historical Resources, or in a local register of historical resources have been recorded within the project site or within a half-mile radius. Furthermore, as described in Chapter 3.0, Project Description, the project site was previously the location of a golf course and currently has existing structures on-site. These reflect prior grading and development on the project site which suggests a low possibility of unearthing tribal cultural resources on the project site.

The City began the consultation process under SB 18 and AB 52 by contacting the Native American Heritage Commission (NAHC) to inform them about the proposed project. In response, the NAHC completed a record search of Sacred Lands File (SLF) for the project location and the results were negative. Pursuant to AB 52, the NAHC provided a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the proposed project. With the list of tribes, the City

4.20 TRIBAL CULTURAL RESOURCES

contacted local tribal representatives by letter, inviting them to initiate consultation. The purpose of the letter was to inform nearby tribes of the project. A response was received from the Yocha Dehe Wintun Nation on October 18, 2021; the Tribe stated that there are no known cultural resources near the project site, but if any cultural resources are found onsite, the Tribe requests tribal collaboration with an archaeologist.

In addition to the contact letters and the negative NAHC record search, the federal, State, and City historic registers do not indicate any site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe designated on the project site. However, it remains possible that a currently unknown tribal cultural resource could be encountered during construction activities. Without mitigation measures, unearthing tribal cultural resources could result in a significant impact. Therefore, the impact would be potentially significant without the implementation of mitigation measures. Mitigation Measures CULT-2 and CULT-3 provided in Chapter 4.5 of this EIR, *Cultural Resources*, would apply, which include procedures to follow if a tribal cultural resource is unearthed on the project site.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: TCR-1 would be potentially significant.

Mitigation Measures

Implement Mitigation Measures CULT-2 and CULT-3, and in addition, implement following Measure TCR-1:

Mitigation Measure TCR-1: If human remains are found during construction, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of Solano County is contacted to determine that no investigation of the cause of death is required.

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

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

4.20 TRIBAL CULTURAL RESOURCES

Level of Significance After Mitigation: TCR-1 would be less than significant with the incorporation of mitigation.

4.20.3 CUMULATIVE IMPACTS

TCR-2	The proposed project would not, in combination with past, present, and reasonably foreseeable projects, result in significant cumulative impacts to tribal cultural resources.
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Cumulative impacts from projects in the City and surrounding areas have the potential to negatively affect tribal cultural resources. However, like the proposed project, future projects would be required to comply with AB 52 and PRC Section 21083.2(i), which addresses accidental discoveries of archaeological sites and resources, including tribal cultural resources. As discussed previously, no tribal cultural resources have been identified on the project site or within the immediate vicinity. As discussed in Chapter 4.5, *Cultural Resources*, the proposed project would comply with federal and State laws protecting cultural resources. Implementation of Mitigation Measures CULT-2 and CULT-3 provided in Chapter 4.5, *Cultural Resources*, and Mitigation Measure TCR-1 would ensure that archaeological, cultural resources, and tribal cultural resources if discovered on the project site, are protected, and that discovered human remains, including those associated with native American tribes are handled appropriately. Thus, given that the proposed project would have a less than significant impact on tribal cultural resources with mitigation, the proposed project's contribution to impacts on tribal cultural resources would not be considered cumulatively considerable. Therefore, cumulative impacts to tribal cultural resources would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: TCR-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.20.4 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant tribal cultural resources impacts if it would:

1. Cause a substantial adverse change in the significance of a Tribal Cultural Resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1. In applying the criteria set forth in subdivision (c) of the Public Resource Code Section 5024.1 for the purposes of this

4.20 TRIBAL CULTURAL RESOURCES

paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.20.5 REFERENCES

Vacaville, City of. 2015. The City of Vacaville's General Plan.

<https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000>

EMC Planning Group. 2019, September 4. *Archaeological Investigation Report*. Appendix 4.8-2.

4.20 TRIBAL CULTURAL RESOURCES

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4.21 UTILITIES AND SERVICE SYSTEMS

4.21 UTILITIES AND SERVICE SYSTEMS

This chapter describes the regulatory framework and existing conditions on the project site related to utilities and services systems.

The analysis in this section is based in part on the following technical reports:

- *Collection System Impacts of Proposed Green Tree Redevelopment (Revised)*, West Yost, November 4, 2021. A complete copy of this report is included as Appendix 4.14-1.
- *Water Supply Assessment Report for the Greentree Development Project*, NV5, October 2021. A complete copy of this report is included as Appendix 4.14-2.
- *Draft Hydrologic Analysis and Preliminary Stormwater Management Plan for the Green Tree Project*, Balance Hydrologics, February 23, 2022. A complete copy of this report is included as Appendix 4.14-3, of this Draft EIR.

4.21.1 WASTEWATER TREATMENT AND COLLECTION

4.21.1.1 ENVIRONMENTAL SETTING

Regulatory Background

Federal Regulations

Clean Water Act

The Clean Water Act establishes regulations to control the discharge of pollutants into the waters of the United States and regulates water quality standards for surface waters (US Code, Title 33, §§ 1251 et seq.). Under the act, the US Environment Protection Agency is authorized to set wastewater standards and runs the National Pollutant Discharge Elimination System (NPDES) permit program. Under the NPDES program, permits are required for all new developments that discharge directly into Waters of the United States. The federal Clean Water Act requires wastewater treatment of all effluent before it is discharged into surface waters.

State Regulations

State Water Resources Control Board: Statewide General Waste Discharge Requirements

The General Waste Discharge Requirements specify that all federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California need to develop a Sewer Master Plan. The plan evaluates existing sewer collection systems and provides a framework for undertaking the construction of new and replacement facilities to maintain proper levels of service. The master plan includes inflow and infiltration

4.21 UTILITIES AND SERVICE SYSTEMS

studies to analyze flow monitoring and water use data, a capacity assurance plan to analyze the existing system with existing land use and unit flow factors, a condition assessment and sewer system rehabilitation plan, and a financial plan with recommended capital improvements and financial models.

Senate Bill 244

Senate Bill (SB) 244 requires cities and counties to address the infrastructure needs of unincorporated disadvantaged communities in city and county general plans. For cities and counties, SB 244 requires that, before the due date for adoption of the next housing element after January 1, 2012, the general plan land use element must be updated to:

- Identify unincorporated disadvantaged communities.
- Analyze for each identified community the water, wastewater, stormwater drainage, and structural fire protection needs.
- Identify financial funding alternatives for the extension of services to identified communities.

Local Regulations

Sanitary Sewer Management Plan

The City of Vacaville's Sanitary Sewer Management Plan (SSMP) contains information on City programs and plans for operation and maintenance of the sewer collection system. Each element of the SSMP describes how the City complies with the Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems.

The SSMP was originally adopted by the City of Vacaville on July 9, 2009, and recertified on July 23, 2019. As required by the State Water Resources Control Board (State Water Board), SSMP self-audits are completed every two years. The most recent self-audit was finalized in September 2021. The City's SSMP is subject to change as needed to comply with regulations (Vacaville 2021a).

Vacaville General Plan

The City of Vacaville General Plan includes the following policies regarding the collection, transmission, treatment, and disposal of wastewater:

- **Policy PUB-P13.1** Maintain wastewater conveyance, treatment, and disposal infrastructure in good working condition in order to supply municipal sewer service to the City's residents and businesses.
- **Policy PUB-P13.2** Provide for the replacement of future obsolete or deteriorated wastewater infrastructure in long-range strategic capital planning.
- **Policy PUB-P13.3** Require that new habitable structures located within the city limits connect to the public wastewater collection system.

4.21 UTILITIES AND SERVICE SYSTEMS

- **Policy PUB-P13.4** Plan, construct, and maintain wastewater treatment facilities to provide a level of wastewater treatment that meets State discharge requirements and to plan for expanding wastewater treatment capacity, consistent with anticipated needs.
- **Policy PUB-P14.1** Assess the adequacy of wastewater infrastructure in existing developed areas, and program any needed improvements in coordination with new infrastructure that will serve developing areas.
- **Policy PUB-P14.2** Replace existing sewers, lift station pumps, and associated equipment and facilities with larger facilities as necessary to serve intensified land use in developed areas.
- **Policy PUB-P14.3** Ensure that new development provides adequate funding for all wastewater infrastructure and facilities.
- **Policy PUB-P14.4** Prohibit any development that will not maintain adequate standards for wastewater service. All wastewater service standards shall be met prior to project occupancy.
- **Policy PUB-P14.5** Require that new development designate sewer easements or routes when tentative maps or specific plans are approved.
- **Policy PUB-P14.6** Prohibit extension of wastewater infrastructure into the Upper Lagoon Valley that would promote its urban development.
- **Policy PUB-P14.7** Long-range strategic capital development plans for areas with concentrations of unoccupied Business Park or Technology Park shall be in accordance with the sewer master plan that may include one or more unassigned “point loads” in order to accommodate large employers with high wastewater flows.
- **Policy PUB-P15.1** Require buffer landscaping and multiple use, where feasible, of wastewater utility sites and rights-of-way to harmonize with adjoining uses.
- **Policy PUB-P15.2** Seek out cost effective and environmentally sustainable methods of distributing and using recycled water for non-potable uses.

City of Vacaville Municipal Code Chapter 13.08

The purpose of Chapter 13.08, Sewers, of the Vacaville Municipal Code, is to prevent the introduction of pollutants in waste discharges which would adversely affect the sewer system, the operation of the treatment facilities, the quality of the effluent from the treatment plant, the quality of the receiving waters, or contaminate the resulting sludge through regulation and control of the quality and quantity of the waste discharged into the City’s system by any dischargers (Vacaville 2011).

4.21 UTILITIES AND SERVICE SYSTEMS

4.21.1.2 EXISTING CONDITIONS

Wastewater Collection

The City owns and operates the wastewater collection system in Vacaville, which consists of gravity and pressure sewers, lift stations, and associated facilities. The City performs routine wastewater collection system flow monitoring at various permanent metering locations throughout the City and at the Easterly Wastewater Treatment Plant (WWTP). Additionally, the City maintains a collection system model for the purpose of stimulating peak flow conditions in major sewers to determine existing and future needs for collection system improvements. Based on this model, the City uses Development Impact Fees to replace undersized facilities, giving priority to those facilities that are expected to reach capacity in the near future.

Wastewater Treatment

The Easterly Wastewater Treatment Plant (WWTP), located east of the City, near Elmira, provides treatment of wastewater from residential, commercial, and industrial dischargers throughout the City. Effluent from the Easterly WWTP is discharged into Old Alamo Creek adjacent to the WWTP site. Current wastewater flows are within the design capacity of the WWTP.

The City of Vacaville has an adopted Sanitary Sewer Management Plan that responds to the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems and provides a general framework for collection system operation, maintenance, and overflow prevention.

4.21.1.3 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant utilities and service systems impacts if it would:

1. 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.
2. 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.

4.21.1.4 IMPACT DISCUSSION

UTIL-1	Sewer and wastewater treatment systems are adequate to meet project requirements.
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Future development as a result of the proposed project would require the installation of new or expanded sewer laterals and mains in order to accommodate development on the project site.

4.21 UTILITIES AND SERVICE SYSTEMS

Under existing conditions, the only gravity sewer exceedances are associated with the parallel sewers in Leisure Town Road between Ulatis Drive and Elmira Road (refer to Table 2 in Appendix 4.14-1). Specifically, a marginal exceedance in those lines causes excessive upstream surcharging under modeled peak wet weather flow conditions and in the 30-inch diameter Leisure Town Road trunk sewer. The addition of the proposed project flows would slightly exacerbate the existing modeled exceedance.

For existing conditions, adding the proposed project flows is estimated to increase peak wet weather flows at the Leisure Town Road Lift Station from 5.39 million gallons per day (MGD) to 6.27 MGD (West Yost 2021). Based upon a recent pump curve analysis, the firm capacity of the station is estimated to be 4,500 gallons per minute (GPM) or 6.48 MGD. As a result, in the absence of any other new upstream flow inputs, the addition of the proposed project flows would not trigger any upsizing of pumps at the lift station.

Under buildout conditions, the addition of the flows from the Northern Area would slightly exacerbate non-excessive surcharge conditions (i.e., surcharging that does not come within 8 feet of the ground surface) in the 27-inch diameter Leisure Town Road trunk sewer north of the lift station (refer to Table 3 of Appendix 4.14-1). The addition of the proposed project flows would slightly exacerbate excessive surcharging in the 30-inch diameter Leisure Town Road trunk sewer between Ulatis Creek and Ulatis Drive under modeled buildout flow conditions. However, the excessive surcharging would be eliminated by upsizing that line to 36-inch diameter (West Yost 2021). The existence of non-excessive surcharging would not typically trigger any system improvements but instead would place the facilities in question on a “watch-list” where those facilities would be monitored to confirm that the modeled results accurately reflect actual conditions.

The 30-inch diameter Leisure Town Road trunk sewer that runs from the outlet of the Leisure Town Road lift station twin force mains to Ulatis Drive has been modeled as being undersized for buildout development conditions. Accordingly, two different flow routing schemes are considered for the buildout flow conditions. The first assumption is that all flows from the Leisure Town Road lift station twin force mains would be directed into the 30-inch diameter trunk line, as is currently the case. The second downstream flow routing assumption is that flow from the Leisure Town Road lift station twin force mains would be split between the 30-inch diameter trunk sewer and a currently inactive parallel 18-inch line that connects to the existing 18-inch diameter sewer in Stonegate Drive and Fallen Leaf Drive.

If flow split downstream of Ulatis Creek is assumed, surcharging would be significantly reduced in the 30-inch diameter Leisure Town Road trunk sewer versus a no-split alternative, but excessive surcharging would still occur (see Table 4 of Appendix 4.14-1). Moreover, the flow split would trigger excessive surcharging in the Fallen Leaf Drive sewer. Therefore, according to City standards, if buildout flows occur as modeled, an upsizing improvement on the 30-inch diameter Leisure Town Road trunk sewer would be necessary either with or without the addition of the proposed project flows.

The addition of the proposed project flows is estimated to increase peak wet weather flows from 11.3 MGD to 12.1 MGD at the Leisure Town Road lift station under buildout flow conditions, whereas the firm capacity of the station is estimated to be 6.48 MGD. As per the June 2021 Vaca Valley Parkway and Leisure Town Road Sewer Lift Station Improvements Project Preliminary Design Report (Lift Station Predesign

4.21 UTILITIES AND SERVICE SYSTEMS

Report), significant improvements would be needed to accommodate a future flow condition of 11.89 MGD.

It should be noted, however, that that analysis also assumed an additional major industrial flow input not otherwise specified in either the City's General Plan or the Northeast Sector Sewer Master Plan (NESSMP). As a result, the target flow rate of 11.89 MGD in that report compares closely with the 12.13 MGD buildout flow value. A review of the pump curve information presented in the Lift Station Predesign Report indicates that the assumed buildout configuration could accommodate up to approximately 9,400 GPM, or about 13.5 MGD. Therefore, the addition of the proposed project flows would not require further improvements beyond those specified in the Lift Station Predesign Report, provided that no significant flows beyond those identified in the City's General Plan and in the NESSMP are added.

Based on the analysis, for existing conditions, the only improvement that would be needed to support the proposed project would be the improvements on Leisure Town Road between Ulatis Drive and Elmira Road (DIF 38A). The existing facilities show marginally excessive surcharging under existing flow conditions, and planned improvements are currently in the design phase. For buildout conditions, the proposed project's payment of DIF fees would cover the following City planned projects which were identified in the City's Master Plan:

- Upsizing of the Leisure Town Road lift station pumps and motor controls, with associated electrical improvements and modification to the discharge piping valves, as well as wet well improvements, a new concrete masonry unit (CMU) building to accommodate the larger equipment, and acquisition of additional land to accommodate the building.
- The construction of the planned DIF 38A replacement sewer. The proposed project would not change the required size of the replacement sewer. The DIF 38A replacement is funded by development impact fees, so the share of cost attributable to the proposed project redevelopment would be covered by payment of applicable fees.

The following potential projects will remain as long-term watch projects as they were identified in the City's Master Plan. Therefore, these projects would be added and/or incorporated with a later DIF study that will fall within the horizon year timeframe, if necessary, and will be covered under the proposed project's payment of DIF fees.

- Upsizing of the 30-inch diameter Leisure Town Road trunk sewer between Ulatis Creek and Ulatis Drive
- Upsizing of the 27-inch diameter Leisure Town Road trunk sewer upstream of the Leisure Town Road lift station

The proportion of the proposed project flows relative to those in the 30-inch diameter trunk sewer downstream are summarized in Table 4.21-1, *Average Dry Year Weather Flow, Leisure Town Road Lift Station and 30-inch Diameter Trunk Sewer*.

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TABLE 4.21-1 AVERAGE DRY YEAR WEATHER FLOW, LEISURE TOWN ROAD LIFT STATION AND 30-INCH DIAMETER TRUNK SEWER

Quantity	ADWF, MGD		Percent Project
	Without Project	With Project ¹	
Existing Conditions	1.184	1.532	22.7%
General Plan Buildout Total	3.050	3.398	10.2%
General Plan Growth Portion	1.866	2.214	15.7%

Source: West Yost 2021

ADWF = Average Dry Weather Flow

¹ ADWF from proposed project estimated to be 0.348 MGD

The proposed project would not change the City’s planned projects included in the Master Plan.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-1 would be less than significant.

Mitigation Measures

No mitigation measures are required.

CUMULATIVE IMPACT

UTIL-2	The proposed project would not result in cumulative impacts with respect to sewer and wastewater treatment systems.
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The area considered for cumulative impacts to wastewater facilities is the Easterly WWTP service area. Cumulative population increases and development within the service area would increase the overall regional demand for wastewater treatment service. By adhering to the wastewater treatment requirements established by the Central Valley Regional Water Quality Control Board (RWQCB) through the NPDES permit, wastewater from the project site that is processed through the Regional Collection System would meet established standards. As the wastewater from all development within the service area would be treated similarly under the NPDES, no cumulatively significant exceedance of RWQCB wastewater treatment requirements would occur. Further, as discussed in Impact UTIL-1, the proposed project would not change the City’s planned projects included in the Master Plan. Therefore, there would be no new impact related to construction of new or upgraded sewer and wastewater treatment systems.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.21 UTILITIES AND SERVICE SYSTEMS

4.21.2 WATER SUPPLY AND DISTRIBUTION SYSTEMS

4.21.2.1 ENVIRONMENTAL SETTING

Regulatory Background

Federal Regulations

Federal Safe Drinking Water Act

The Safe Drinking Water Act (SDWA), the principal federal law intended to ensure safe drinking water to the public, was enacted in 1974 and has been amended several times since it came into law. The Act authorizes the U.S. Environmental Protection Agency (EPA) to set national standards for drinking water, called the National Primary Drinking Water Regulations, to protect against both naturally-occurring and man-made contaminants. These standards set enforceable maximum contaminant levels in drinking water and require all water providers in the United States to treat water to remove contaminants, except for private wells serving fewer than 25 people. In California, the State Water Resources Control Board (SWRCB) conducts most enforcement activities. If a water system does not meet standards, it is the water supplier's responsibility to notify its customers.

State Regulations

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), which was passed in California in 1969 and amended in 2013, the SWRCB has authority over State water rights and water quality policy. This Act divided the state into nine regional basins, each under the jurisdiction of a Regional Water Quality Control Board (RWQCB) to oversee water quality on a day-to-day basis at the local and regional level. RWQCBs engage in a number of water quality functions in their respective regions. RWQCBs regulate all pollutant or nuisance discharges that may affect either surface water or groundwater. The City of Vacaville is overseen by the Central Valley RWQCB.

Urban Water Management Planning Act

The Urban Water Management Planning Act of 1983, California Water Code Sections 10610 et seq., requires preparation of a plan that:

- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands in normal, single-dry, and multiple-dry years.
- Plans for water supply and assesses reliability of each source of water, over a 20-year period, in 5-year increments.

4.21 UTILITIES AND SERVICE SYSTEMS

- Implements conservation strategies and the efficient use of urban water supplies. Significant new requirements for quantified demand reductions have been added by the Water Conservation Act of 2009 (SBX7-7), which amends the act and adds new water conservation provisions to the Water Code.

The Urban Water Management Planning Act states that every urban water supplier that provides water to 3,000 or more customers or provides over 3,000 acre-feet of water per year (afy) should make every effort to ensure the appropriate level of reliability in its water service to meet the needs of its various categories of customers during normal, dry, and multiple-dry years.

Mandatory Water Conservation

Following Governor Brown's declaration of a state of emergency on July 15, 2014, the SWRCB adopted Resolution No. 2014-0038. The emergency regulation was partially repealed by Resolution No. 2017-0024. The remaining regulation prohibits several activities, including (1) the application of potable water to outdoor landscapes in a manner that causes excess runoff; (2) the use of a hose to wash a motor vehicle except where the hose is equipped with a shut-off nozzle; (3) the application of potable water to driveways and sidewalks; (4) the use of potable water in nonrecirculating ornamental fountains; and (5) the application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall. The SWRCB resolution also directed urban water suppliers to submit monthly water monitoring reports to the SWRCB.

The Water Conservation Act of 2009 (Senate Bill X7-7)

The Water Conservation Act of 2009, SB X7-7, requires all water suppliers to increase water use efficiency. The legislation sets an overall goal of reducing per capita water use by 20 percent by 2020, with an interim goal of a 10 percent reduction in per capita water use by 2015. Effective in 2016, urban retail water suppliers who do not meet the water conservation requirements established by this bill are not eligible for state water grants or loans. The SB X7-7 requires that urban water retail suppliers determine baseline water use and set reduction targets according to specified standards, it also requires that agricultural water suppliers prepare plans and implement efficient water management practices.

Water Conservation in Landscaping Act of 2006 (AB 1881)

The Water Conservation in Landscaping Act of 2006 (AB 1881) required the Department of Water Resources (DWR) to update the State Model Water Efficient Landscape Ordinance (MWELO) by 2009. The State's model ordinance was issued on October 8, 2009. Under AB 1881, cities and counties are required to adopt a State updated model landscape water conservation ordinance by January 31, 2010, or to adopt a different ordinance that is at least as effective in conserving water as the updated Model Ordinance. It also requires reporting on the implementation and enforcement of local ordinances, with required reports due by December 31, 2015.

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2015 Update of the State Model Water Efficient Landscape Ordinance (Per Governor's Executive Order B-29-15)

To improve water savings in the landscaping sector, the DWR updated the Model Ordinance in accordance with Executive Order B-29-15. The Model Ordinance promotes efficient landscapes in new developments and retrofitted landscapes. The Executive Order calls for revising the Model Ordinance to increase water efficiency standards for new and retrofitted landscapes through more efficient irrigation systems, greywater usage, and on-site stormwater capture, and by limiting the portion of landscapes that can be covered in turf.

New development projects that include landscape areas of 500 square feet or more are subject to the Ordinance. This applies to residential, commercial, industrial, and institutional projects that require a permit, plan check, or design review. The previous landscape size threshold for new development projects ranged from 2,500 square feet to 5,000 square feet.

California Green Building Standards Code

The California Green Building Standards Code (CALGreen; Title 24, California Code of Regulations, Part 11) establishes mandatory residential and nonresidential measures for water efficiency and conservation under Sections 4.3 and 5.3. The provisions establish the means of conserving water used indoors, outdoors, and in wastewater conveyance. The code includes standards for water-conserving plumbing fixtures and fittings and the use of potable water in landscaped areas.

Principles Governing CEQA Analysis of Water Supply

In *Vineyard Area Citizens for Responsible Growth, Inc., v. City of Rancho Cordova* (February 1, 2007), the California Supreme Court articulated the following principles for analysis of future water supplies for projects subject to CEQA:

- To meet CEQA's informational purposes, the EIR must present sufficient facts to decision makers to evaluate the pros and cons of supplying the necessary amount of water to the project.
- CEQA analysis for large, multiphase projects must assume that all phases of the project will eventually be built, and the EIR must analyze, to the extent reasonably possible, the impacts of providing water to the entire project. Tiering cannot be used to defer water supply analysis until future phases of the project are built.
- CEQA analysis cannot rely on "paper water." The EIR must discuss why the identified water should reasonably be expected to be available. Future water supplies must be likely rather than speculative.
- When there is some uncertainty regarding future availability of water, an EIR should acknowledge the degree of uncertainty, include a discussion of possible alternative sources, and identify the environmental impacts of such alternative sources. Where a full discussion still leaves some uncertainty about long-term water supply, mitigation measures for curtailing future development in the event that intended sources become unavailable may become a part of the EIR's approach.

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- The EIR does not need to show that water supplies are definitely ensured, because such a degree of certainty would be “unworkable, as it would require water planning to far outpace land use planning.” The requisite degree of certainty of a project’s water supply varies with the stage of project approval. CEQA does not require large projects, at the early planning phase, to provide a high degree of certainty regarding long-term future water supplies.
- The EIR analysis may rely on existing urban water management plans, as long as the project’s demand was included in the water management plan’s future demand accounting.
- The ultimate question under CEQA is not whether an EIR establishes a likely source of water, but whether it adequately addresses the reasonably foreseeable impacts of supplying water to the project.

*Local Regulations*Vacaville General Plan

The General Plan includes the following policies that promote water conservation and protect the quality and supply of surface water and groundwater resources:

- **Policy COS-P13.1** Encourage and support water conservation programs.
- **Policy COS-P13.2** Protect and monitor the wells in the City’s well field.
- **Policy COS-P13.3** Prohibit development that would adversely affect the City’s well field.
- **Policy COS-P13.4** Require new development to incorporate Best Management Practices (BMPs) for water use and efficiency and demonstrate specific water conservation measures.
- **Policy COS-P13.5** Coordinate water conservation and quality programs with the Solano County Water Agency and other appropriate water agencies.
- **Policy COS-P13.6** Whenever possible, use recycled or non-potable water for irrigation in landscaped areas.
- **Policy COS-P13.7** Explore installation of dual plumbing in large, new commercial and/or residential developments to enable future use of recycled non-potable water generated on- or off-site.
- **Policy COS-P14.1** Protect the Alamo, Encinosa, Gibson, and Ulatis Creek watersheds by minimizing point and nonpoint source pollutants.
- **Policy COS-P14.2** Integrate City planning and programs with other watershed planning efforts, including Best Management Practices (BMPs), guidelines, and policies of both the Sacramento and San Francisco Bay Regional Water Quality Control Boards.
- **Policy COS-P14.3** Encourage pest-tolerant landscapes using native plants to minimize the need for pesticides.

4.21 UTILITIES AND SERVICE SYSTEMS

- **Policy COS-P14.4** Continue educational programs and outreach to promote water quality protection and limit pollution from pesticides and nutrients from businesses, homes, and landscaped areas.
- **Policy COS-P14.5** Require the implementation of Best Management Practices (BMPs) to minimize erosion, sedimentation, and water quality degradation resulting from construction or from new impervious surfaces.
- **Policy COS-P14.6** Protect existing open spaces, natural habitat, floodplains, and wetland areas that serve as groundwater recharge areas.
- **Policy COS-P14.7** Protect groundwater recharge and groundwater quality when considering new development projects.

2020 Urban Water Management Plan

The Urban Water Management Plan (UWMP) provides information on past, present, and future water sources and demands, and acts as a guide for the City of Vacaville to plan for adequate water supply in the future. This UWMP provides a comparison of available water supplies to projected water demands through 2045, and addresses conservation measures the City has implemented to ensure a safe and reliable water supply. This plan will be used to provide a basis for determining that sufficient water supply is available for future proposed development (Vacaville 2021b).

4.21.2.2 EXISTING CONDITIONS

Vacaville's water supply comes from both surface water and groundwater, and is drawn from a variety of reserves. Residential uses make up the majority of water demand in the City (approximately 60 percent) (Vacaville 2021b). The City's current UWMP addresses the current and projected water use.

The existing City water system is comprised of two surface water treatment plants, 13 groundwater wells (10 active), nine storage tanks (reservoirs), six booster pump stations (BPS), and 292 miles of distribution and transmission pipelines ranging from 4-inches to 30-inches in diameter (NV5 2021).

The major sources of groundwater recharge in the Vacaville area are precipitation, infiltration from streets, subsurface inflow, and deep percolation of applied irrigation water in agricultural areas. Creeks, streams, flood corridors, riparian habitat, and wetlands may accommodate floodwater for groundwater recharge and stormwater management.

The 2020 UWMP states that groundwater and surface water supplies are projected to meet or exceed projected water demands, even during extended drought conditions; future water supply will be adequate to offset future water demands during a normal year, single dry year, and a five-consecutive-year drought, as shown in Table 4.21-2, *Normal Year Supply and Demand Comparison*, Table 4.21-3, *Single Dry Year Supply and Demand Comparison*, and Table 4.21-4, *Multiple Dry Years Supply and Demand Comparison*.

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TABLE 4.21-2 NORMAL YEAR SUPPLY AND DEMAND COMPARISON

	afy				
	2025	2030	2035	2040	2045
Supply Total	27,512	30,148	32,039	33,850	34,535
Demand Total	18,620	19,719	20,886	22,125	23,439
Difference	8,892	10,429	11,153	11,725	11,096

Source: Vacaville 2021b

Notes:

afy = acre-feet/year

TABLE 4.21-3 SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON

	afy				
	2025	2030	2035	2040	2045
Supply Total	19,973	22,196	23,673	25,472	26,157
Demand Total	18,620	19,719	20,886	22,125	23,439
Difference	1,353	2,477	2,787	3,347	2,718

Source: Vacaville 2021b

Notes:

afy = acre-feet/year

TABLE 4.21-4 MULTIPLE DRY YEARS SUPPLY AND DEMAND COMPARISON

		afy				
		2025	2030	2035	2040	2045
Year 1	Supply Total	23,868	25,948	27,283	28,679	29,364
	Demand Total	18,620	19,719	20,886	22,125	23,439
	Difference	5,248	6,229	6,397	6,554	5,925
Year 2	Supply Total	21,671	23,751	25,086	26,215	26,900
	Demand Total	18,620	19,719	20,886	22,125	23,439
	Difference	3,051	4,032	4,200	4,090	3,461
Year 3	Supply Total	20,127	22,207	23,542	24,404	25,089
	Demand Total	18,620	19,719	20,886	22,125	23,439
	Difference	1,507	2,488	2,656	2,279	1,650
Year 4	Supply Total	20,859	22,939	24,274	24,869	22,554
	Demand Total	18,620	19,719	20,886	22,125	23,439
	Difference	2,239	3,220	3,388	2,744	2,115
Year 5	Supply Total	23,107	25,187	26,455	26,850	27,535
	Demand Total	18,620	19,719	20,886	22,125	23,439
	Difference	4,487	5,468	5,569	4,725	4,096

Source: Vacaville 2021b

Notes:

afy = acre-feet/year

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4.21.2.3 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant utilities and service systems impacts if it would:

1. 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.
2. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.

4.21.2.4 IMPACT DISCUSSION

UTIL-3 Water supply and delivery systems are adequate to meet project requirements. [Thresholds U-1 (part) and U-2]

Table 4.21-5, *Existing Water Demands Plus Project Water Demands*, summarizes the existing water demands including the estimated demand for the proposed project. The total water demand of the existing plus project conditions is 14.70 million gallons per day (MGD) or 16,470 acre-feet per year (afy) (NV5 2021).

TABLE 4.21-5 EXISTING WATER DEMANDS PLUS PROJECT WATER DEMANDS

Land Use	Unit	Existing Citywide Demand ¹		Estimated Demand – Proposed Project		Total	
		GPD	afy	GPD	afy	GPD	afy
Residential	Dwelling unit	9,604,360	10,758.29	286,505	320.93	9,890,865	11,079.22
Non-Residential	Acre	3,435,240	3,847.97	24,477	27.42	3,459,717	3,875.39
Park	Acre	0	0	13,125	14.70	13,125	14.70
Subtotal		13,039,600	14,606	324,107	363.05	13,363,707	14,696.32
Special Users		1,339,728	1,501	0	0	1,339,728	1,501
Total		14,379,328	16,107.96	324,107	363.05	14,703,435	16,470.01

Source: NV5 2021

Notes:

GPD = gallons per day

afy = acre-feet per year

¹ The existing demand reflects a reduction of demand for 185.4 acres of Private Recreation in Non-Residential.

Table 4.21-6, *2040 Buildout Water Demands Plus Project Water Demands*, summarizes the estimated water demand at 2040 buildout including the proposed project. Overall, it is estimated that 19,516 afy will be required (NV5 2021).

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TABLE 4.21-6 2040 BUILDOUT WATER DEMANDS PLUS PROJECT WATER DEMANDS

Land Use	Unit	Total Existing and Buildout		Estimated Demand – Proposed Project		Total	
		GPD	afy	GPD	afy	GPD	afy
Residential	Dwelling unit	13,044,100	14,611.31	286,505	320.93	13,330,605	14,932.24
Non-Residential ^{1,2}	Acre	4,054,786	4,541.98	37,602	42.12	4,092,388	4,584.08
Total		17,098,886	19,153.27	324,107	363.05	17,422,993	19,516.31

Source: NV5 2021

Notes:

GPD = gallons per day

afy = acre-feet per year

¹ Includes Special Users.

² The demand reflects a reduction of demand for 185.4 acres of Private Recreation in Non-Residential.

Table 4.21-7, *Summary of Projected Available Water Supply Through 2040*, summarizes the projected available water supply for an average year, single dry-year, and multi-dry years from 2020 through 2040.

Summarized in Table 4.21-7, *Summary of Projected Available Water Supply Through 2040*, is the projected available water supply to serve the City’s needs. To serve the estimated existing average day demand and the proposed project, an estimated 16,470 afy is required and is below the existing 25,721 afy of available annual water supply. Additionally, the projected water demand at buildout, including the proposed project is estimated to be 19,516 afy, also below the available 33,850 afy in year 2040.

The City is implementing plans that include projects and programs to help ensure that the existing and planned water users within the City’s service area have an adequate supply of water. The projected water demands summarized in Table 4.21-6 which includes the demand of 324,107 GPD or 363.05 afy for the proposed project are compared with the projected supplies within the City’s service area summarized in Table 4.21-7. Table 4.21-7 demonstrates there will be adequate water supplies to serve the proposed project development along with existing and other future planned uses under average year conditions.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-3 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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TABLE 4.21-7 SUMMARY OF PROJECTED AVAILABLE WATER SUPPLY THROUGH 2040

Sources of Supply (afy)	2020			2025			2030			2035			2040		
	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years	Average Year	Single Dry Year	Multi-Dry Years
Solano Project	9,875	9,787	9,164	11,307	11,204	8,916	12,798	12,682	9,164	14,289	14,159	9,164	15,705	9,727	9,164
State Water Project	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693	7,451	449	2,693
Settlement Water	1,454	0	433	1,454	0	433	1,454	0	433	1,454	0	433	1,454	0	433
Groundwater	7,000	8,320	8320	7,300	8,740	8,740	7,700	9,160	9,160	8,100	9,700	9,700	8,100	9,700	9,700
Recycled Water	0	0	0	0	0	0	745	745	745	745	745	745	1,140	1,140	1,140
Total	27,512	18,496	20,610	25,121	18,916	21,030	25,521	19,336	21,450	25,921	19,876	21,990	25,921	19,876	21,990

Source: NV5 2021

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Cumulative Impact

UTIL-4	The proposed project would not result in cumulative impacts with respect to water supply and delivery systems.
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The area considered for cumulative impacts to water supply services is the City. Existing and future development within the City’s service area would demand additional quantities of water. Increases in population, development, and intensity of uses would contribute to increases in the overall water demand. Water conservation and recycling measures would reduce the need for increased water supply.

The City will continue to rely on the plans and policies outlined in the UWMP to address water supply shortages and interruptions to meet water demands. As development occurs, each development will be required to assess its separate and cumulative effect on water supply and water treatment/delivery systems. The existing and future land use patterns/designations and demographic projects for the City’s service area are taken into consideration during the development of water planning documents. As the City as established the current and future water supplies are sufficient to address normal, single dry year, and multiple dry year conditions, no cumulatively significant water supply or delivery impact would occur.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-4 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.21.3 STORM DRAINAGE SYSTEMS

4.21.3.1 ENVIRONMENTAL SETTING

Regulatory Background

State Regulations

The SWRCB has adopted a statewide Construction General Permit (Order No. 2012-0006-DWQ) for stormwater discharges associated with construction activity. These regulations prohibit the discharge of stormwater from construction projects that include one acre or more of soil disturbance. Construction activities subject to this permit include clearing, grading, and other disturbance to the ground, such as stockpiling or excavation, that results in soil disturbance of at least one acre of total land area. Individual developers are required to submit Permit Registration Documents (PRD) to the SWRCB for coverage under the NPDES permit prior to the start of construction. The PRDs include a Notice of Intent, risk assessment, site map, Stormwater Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTS) website.

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The NPDES Construction General Permit requires all dischargers to (1) develop and implement a SWPPP that specifies BMPs to be used during construction of the project; (2) eliminate or reduce non-storm water discharge to stormwater conveyance systems; and (3) develop and implement a monitoring program of all specified BMPs. The two major objectives of the SWPPP are to (1) help identify the sources of sediment and other pollutants that affect the water quality of stormwater discharges and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-storm water discharges.

State Water Quality Control Board's Trash Amendment

On April 7, 2015, the SWQCB adopted an amendment to The Water Quality Control Plan for Ocean Waters of California to control trash. In addition, the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California added the section, Part 1 Trash Provisions. Together, they are collectively referred to as "the Trash Amendments". The purpose of the Trash Amendments is to provide statewide consistency for the RWQCBs in their regulatory approach to protect aquatic life, public health beneficial uses, and reduce environmental issues associated with trash in State waters, while focusing limited resources on high trash generating areas.

Local Regulations

Vacaville General Plan

The General Plan includes the following policies pertaining to stormwater drainage systems:

- **Policy SAF-P2.1** Continue to develop a comprehensive system of drainage improvements to minimize flood hazards, and maintain storm drainage infrastructure in good condition.
- **Policy SAF-P2.2** Assess the adequacy of storm drainage utilities in existing developed areas, and program any needed improvements in coordination with new infrastructure that will serve developing areas.
- **Policy SAF-P2.4** Design storm drainage infrastructure to serve dual purposes to the extent possible. This includes the following:
 - Drainage facilities integrated into recreation corridors with bike paths, sidewalks, and landscaping.
 - Drainage channels integrated with transportation and environmental corridors.
 - Active and passive recreation areas incorporated into detention basins where feasible.
- **Policy SAF-P3.1 Evaluate** the storm drainage needs for each project; this evaluation should account for projected runoff volumes and flow rates once the drainage area is fully developed. In the Alamo Creek watershed upstream of Peabody Road (including Alamo, Laguna, and Encinosa creeks), require post-development 10-year and 100-year peak flows to be reduced to 90 percent of predevelopment levels. In the remainder of Vacaville, for development involving new

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connections to creeks, peak flows shall not exceed predevelopment levels for 10- and 100-year storm events.

- **Policy SAF-P3.2** Continue to require development impact fees to fund necessary storm drainage improvements, including drainage detention basins.
- **Policy SAF-P3.3** Require a Storm Drainage Master Plan to be prepared for new development projects to ensure new development adequately provides for on-site drainage facilities necessary to protect the new development from potential flood hazards and ensure that potential off-site impacts are fully mitigated.
- **Policy SAF-P3.4** Require that new development designate storm drainage easements or routes when tentative maps or specific plans are approved.
- **Policy SAF-P3.5** Prohibit extension of storm drainage infrastructure into the Upper Lagoon Valley that would promote its urban development.

4.21.3.2 EXISTING CONDITIONS

In general, creeks in Vacaville flow in east-southeasterly direction and ultimately drain into the Sacramento River via Cache Slough. The southern portion of Vacaville drains either to the Noonan Drain, which discharges ultimately to Barker Slough, or to Union Creek, which discharge to Suisun Bay. The major stream courses within the City include:

- Alamo Creek, including its tributaries Laguna Creek and Encinosa Creek
- Ulatis Creek
- Horse Creek, including its tributary Pine Tree Creek
- Gibson Canyon Creek

There are two existing reservoirs in Vacaville: Lagoon Valley Lake, which is a tributary to Laguna Creek, draining a portion of Lower Lagoon Valley, and the Basherini Reservoir located on Vine Street, which is owned and operated by the Solano Irrigation District (Vacaville 2011).

4.21.3.3 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant utilities and service systems impacts if it would:

1. 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.

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4.21.3.4 IMPACT DISCUSSION

UTIL-5	Existing and/or proposed storm drainage systems are adequate to serve the drainage requirements of the proposed project.
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The project site is the former Greentree Golf Course; the proposed project would increase impervious surfaces onsite. Acreage has been dedicated to retention basins that are part of an integrated stormwater management plan that has been designed to accommodate storm water flows from existing development west of the project site and from within the project site.

The proposed project would include storm water detention and biofiltration facilities to manage existing runoff through the project site and storm water that would be generated by new development. An approximately one-acre water well site on the north side of Street B at Leisure Town Road would be dedicated to the City. A biofiltration area on the south side of Street B will treat storm water before discharging into Old Ulatis Creek. The existing detention basin located south of Teton Drive between Yellowstone and White Sands would be removed and replaced with open space. Detention ponds are planned throughout the project site as part of the overall storm water management plan. Stormwater basins will be integrated with park and open space areas using naturalized contouring and landscaping where appropriate. Stormwater basins will be designed as “dry” basins to minimize vector control (e.g., mosquito) concerns. On-site water quality will be controlled using combination bioretention/detention basins where elevation constraints permit, and local bioretention features such as bioswales or rain gardens where necessary.

The pre-project pond system detention volume is summarized in Table 4.21-8, *Pre-Project Pond Detention Volume for 10-year and 100-year Events*. The reported detention volumes are only for water stored within the top bank of each pond and does not include overland flow, which is temporarily stored in a low point within the golf course boundary. Total detention volume within the ponds is 26.2 acre-feet for the 10-year event and 37 acre-feet for the 100-year event (Balance Hydrologics 2021).

TABLE 4.21-8 PRE-PROJECT POND DETENTION VOLUME FOR 10-YEAR AND 100-YEAR EVENTS

	10-year Peak Detention Volume (acre-feet)	100-year Peak Detention Volume (acre-feet)
Little Pond	1.1	1.1
Pond 1	1.4	2.5
Pond 2	2.1	3
Pond 3-4	12.1	15.1
Pond 6	1.1	1.9
Pond 7	4.7	7.7
Pond 8	3.8	5.7
Total	26.2	37.0

Source: Balance Hydrologics 2021

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The proposed post-project detention volumes are summarized in Table 4.21-9, *Post-Project Detention Volumes for 10- and 100-year Events*. Total required detention volume to achieve required peak flow attenuation is 46.4 acre-feet and 69.8 acre-feet for the 10-year and 100-year event, respectively. However, the current land plan includes accommodation for a total of 91.1 acre-feet of total detention, while still abiding by freeboard requirements.

TABLE 4.21-9 POST-PROJECT DETENTION VOLUMES FOR 10- AND 100-YEAR EVENTS

	Detention Capacity		10-year Peak Detention Volume (acre-feet)	100-year Peak Detention Volume (acre-feet)
	At Spillway Elevation (acre-feet)	At Freeboard Elevation (acre-feet)		
HCE Basin	9.1	8.4	6.1	7.7
HCW Basin	10.2	9.5	7.1	8.8
LI Basin	11.9	10.9	7.9	10.6
P3 Basin	18	16.5	11.8	16.6
P1 Basin	9.4	8.6	4.7	7.8
YD Basin	13.7	12.9	2.7	6.2
OUS Basin	25.1	24.3	6.1	12
Total	97.4	91.1	46.4	69.8

Source: Balance Hydrologics 2021

Despite appreciable changes in the drainage patterns from Old Ulatis Creek to Horse Creek, the proposed detention and storm drain infrastructure is sufficient to comply with the required peak flow reductions for both the 10- and 100-year event, as shown in Table 4.21-10, *Pre- and Post-Project Peak Flow Comparison for the 10- and 100-year Events*; therefore, the proposed project complies with the City of Vacaville Engineering standards. Moreover, the size of the stormwater basins will allow for full compliance with the 2-year hydromodification requirement, outlined in SWRCB’s MS4 permit, as land use details are further refined. Therefore, impacts would be less than significant.

TABLE 4.21-10 PRE- AND POST-PROJECT PEAK FLOW COMPARISON FOR THE 10- AND 100-YEAR EVENTS

	10-Year Peak Flow (cubic feet per second)		100-Year Peak Flow (cubic feet per second)	
	Pre-Project	Post-Project	Pre-Project	Post-Project
Horse Creek	225.1	199.4	329.4	308.4
Ulatis Creek	52.5	37.2	59.5	48.7
Old Ulatis Creek	52.5	40.6	59.5	56.9
Leisure Town Road Overflow	0.9	0.0	0.8	0.0

Source: Balance Hydrologics 2021

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-5 would be less than significant.

Mitigation Measures

No mitigation measures are required.

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Cumulative Impact

UTIL-6	The proposed project would not result in cumulative impacts with respect to storm drainage systems.
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Cumulative impacts are considered for the City of Vacaville. Other projects in city may increase the amount of impervious surfaces and, therefore, may increase flow rates and volumes of runoff entering storm drains in the region. Other projects would be required by MS4 permits to be sized and designed to ensure onsite retention of the volumes of runoff produced from a 24-hour, 85th percentile storm event, which is similar to a 2-year storm. Other impacts to storm drainage would be analyzed in separated CEQA processing for each cumulative project, and mitigation measures would be required as appropriate to minimize significant impacts. Consequently, the proposed project would not contribute to cumulative impacts with respect to storm drainage systems.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-6 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.21.4 SOLID WASTE

4.21.4.1 ENVIRONMENTAL SETTING

Regulatory Background

Federal Regulations

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act of 1976 (Title 40 of the Code of Federal Regulations), Part 258, contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs incorporating the federal landfill criteria. The federal regulations address the location, operation, design (liners, leachate collection, run-off control, etc.), groundwater monitoring, and closure of landfills.

State Regulations

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989 (AB 939) set a requirement for cities and counties throughout California to divert 50 percent of all solid waste from landfills as of January 1, 2000, through source reduction, recycling, and composting. To help achieve this, the Act requires that each city and county prepare a Source Reduction and Recycling Element to be submitted to the Department of

4.21 UTILITIES AND SERVICE SYSTEMS

Resources Recycling and Recovery (CalRecycle). AB 939 also established a goal for all California counties to provide at least 15 years of ongoing landfill capacity.

In 2007, SB 1016 amended AB 939 to establish a per capita disposal measurement system. The per capita disposal measurement system is based on two factors: a jurisdiction's reported total disposal of solid waste divided by the jurisdiction's population. The California Integrated Waste Management Board was replaced by CalRecycle in 2010. CalRecycle sets a target per capita disposal rate for each jurisdiction. Each jurisdiction must submit an annual report to CalRecycle with an update of its progress in implementing diversion programs and its current per capita disposal rate.

California Solid Waste Reuse and Recycling Act of 1991

The California Solid Waste Reuse and Recycling Access Act (AB 1327, California Public Resources Code Sections 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

Senate Bill 1383 and Food Recovery

To reduce food waste and help address food insecurity, SB 1383 requires that by 2025 California will recover 20 percent of edible food that would otherwise be sent to landfills, to feed people in need. The law directs jurisdictions to establish food recovery programs and strengthen their existing food recovery networks, food donors must arrange to recover the maximum amount of their edible food that would otherwise go to landfills, and food recovery organizations and services that participate in SB 1383 must maintain records.

Assembly Bills 341, and 1826

Assembly Bill 341 (Chapter 476) set a statewide solid waste diversion goal of 75 percent by 2020. AB 341, which was passed in 2011 and took effect July 1, 2012, mandates recycling for businesses producing four or more cubic yards of solid waste per week or multi-family residential dwellings of five or more units. Under AB 341, businesses and multi-family dwellings of five or more units must separate recyclables from trash and then either subscribe to recycling services, self-haul their recyclables, or contract with a permitted private recycler.

AB 1826 (California Public Resources Code Sections 42649.8 et seq.), signed into law in September 2014, requires recycling of organic matter by businesses generating such wastes in amounts over certain thresholds. This law also requires that local jurisdictions implement an organic waste recycling program to divert organic waste generated by businesses. The law took effect in April 2016.

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California Green Building Standards Code

CALGreen establishes building standards for sustainable site development. Sections 4.408 and 5.408, Construction Waste Reduction Disposal and Recycling, mandate that, in the absence of a more stringent local ordinance, a minimum of 65 percent of non-hazardous construction and demolition debris generated during most new construction must be recycled or salvaged. CALGreen requires developers to prepare and submit a Waste Management Plan for on-site sorting of construction debris, which is submitted to the City for approval, or use a waste management company with verifiable documentation. The Waste Management Plan must:

- Identify the materials to be diverted from disposal by recycling, reuse on the project, or salvage for future use or sale
- Specify if materials will be sorted on-site or mixed for transportation to a diversion facility
- Identify the diversion facility where the material collected can be taken
- Identify construction methods employed to reduce the amount of waste generated
- Specify that the amount of materials diverted shall be calculated by weight or volume, but not by both

Local Regulations

Vacaville General Plan

The General Plan includes the following policies that reduce the volume of solid waste generated in the City:

- **Policy PUB-P9.1** Improve upon, and expand, waste disposal programs and methods in order to meet or exceed State waste diversion requirements.
- **Policy PUB-P9.2** Strive for a minimum 90 percent of City residents to participate in waste diversion programs.
- **Policy PUB-P9.3** Maintain and expand the citywide curbside recycling program.
- **Policy PUB-P9.4** Maintain and expand the citywide household hazardous waste collection program.
- **Policy PUB-P9.5** Maintain and expand the citywide separate yard waste collection and composting program.
- **Policy PUB-P9.6** Continue to emphasize public education about the City's various waste reduction and diversion programs to increase participation and diversion quantities.
- **Policy PUB-P9.7** Encourage local businesses to expand their recycling efforts and to reduce packaging of products manufactured in the city.

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- **Policy PUB-P9.8** Design or improve public buildings with on-site storage facilities for recycled materials.
- **Policy PUB-P9.9** Require that construction sites provide for the salvage, reuse, or recycling of construction and demolition materials and debris.
- **Policy PUB-P9.10** Require the use of post-consumer recycled paper and other recycled materials in all City operations whenever possible.

4.21.4.2 EXISTING CONDITIONS

The City of Vacaville contracts with a private waste collection company to provide weekly solid waste, green waste, and recyclable material collection to Vacaville residents and commercial businesses. The City of Vacaville disposes of its solid waste at the Recology Hay Road landfill, which has a ceased operation date of January 1, 2077, a maximum permitted throughput of 2,400 tons per day, and a remaining capacity of 30,433,000 cubic yards (CalRecycle 2021).

4.21.4.3 STANDARDS OF SIGNIFICANCE

The proposed project would result in significant utilities and service systems impacts if it would:

1. 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.
2. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

4.21.4.4 IMPACT DISCUSSION

UTIL-7 The 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.

The proposed project would increase solid waste disposal during both construction and operation. Table 4.21-11, *Proposed Project Estimated Solid Waste Disposal*, provides an estimate of the solid waste generated by the proposed project.

TABLE 4.21-11 PROPOSED PROJECT ESTIMATED SOLID WASTE DISPOSAL

	Proposed Project			
	Count	Generation Rate	Pounds per Day (lb/day)	Tons per Year
High-Density Residential	950 units	5.31 lb/unit	5,044.5	920.6
Single-Family Residential	199 units	9.8 lb/unit	1,950.2	356
Commercial	299,345 square feet	13 lb/1,000 square feet	3,891.5	710.2
Total			10,886.2	1,986.8

Source: CalRecycle 2019

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The proposed project would generate 10,886.2 pounds of solid waste per day (1,986.6 tons per year). The Recology Hay Road landfill would accept waste from the proposed project. The increase in solid waste generated from the proposed project would represent 0.23 percent of the maximum daily throughput. The increase in solid waste disposal would be accommodated by the landfill's remaining capacity.

Additionally, the proposed project would comply with solid waste disposal requirements, including requirements to divert solid waste from landfills through recycling. During construction, the proposed project would comply with CALGreen, which requires recycling and/or salvaging for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste generated during most "new construction" projects (CALGreen Sections 4.408 and 5.408).

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-7 would be less than significant.

Mitigation Measures

No mitigation measures are required.

Cumulative Impact

UTIL-8	The proposed project would not result in cumulative impacts with respect to solid waste.
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Cumulative impacts are considered for the County and the Recology Hay Road landfill. Cumulative projects would result in increased generation of solid waste that would need to be processed at the landfill. The Recology Hay Road landfill has a ceased operation date of January 1, 2077, a maximum permitted throughput of 2,400 tons per day, and a remaining capacity of 30,433,000 cubic yards. There is adequate landfill capacity to accommodate the existing and future projects in the City. Therefore, future development would not create demands for solid waste services that would exceed the capabilities of the County's waste management system. No significant cumulative impact to landfill capacity would occur, and the proposed project would not contribute to a significant cumulative impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: UTIL-8 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.21 UTILITIES AND SERVICE SYSTEMS

4.21.5 REFERENCES

- Balance Hydrologics. 2021, June 2. Draft Hydrologic Analysis and Preliminary Stormwater Management Plan for the Green Tree Project. Appendix 4.14-3.
- California Department of Resources Recycling and Recovery (CalRecycle). 2019. Estimated Solid Waste Generations. <https://www2.calrecycle.ca.gov/WasteCharacterization/General/Rates>.
- _____. 2021. SWIS Facility/Site Activity Details: Recology Hay Road (48-AA-0002). <https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/1184?siteID=3582>.
- NV5. 2021, October. Water Supply Assessment Report for the Greentree Development Project. Appendix 4.14-2.
- Vacaville, City of. 2011. City of Vacaville General Plan. <https://www.ci.vacaville.ca.us/home/showpublisheddocument/14102/637045896849400000>.
- _____. 2021a. Sanitary Sewer Management Plan. <https://www.ci.vacaville.ca.us/government/utilities/reports-and-plans/sanitary-sewer-management-plan>.
- _____. 2021b, June. 2020 Urban Water Management Plan. <https://www.ci.vacaville.ca.us/home/showpublisheddocument/18464/637602275078170000>
- West Yost. 2021, November 4. Collection System Impacts of Proposed Green Tree Redevelopment (Revised). Appendix 4.14-1.

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4.22 WILDFIRE

This section provides a general overview of wildfire; describes wildfire hazards and risks in the project region and conditions on-site relevant to wildfire; and analyzes wildfire risk impacts.

The analysis in this section is based, in part, upon the following documents included as Appendix 4.9, of this Draft EIR:

- Phase I Environmental Site Assessment, Former Green Tree Golf Course, 999 Leisure Town Road, Vacaville, California, GeoSolve, Inc., June 24, 2021.
- *Arborist's Report*, Davey Resource Group, July 2021. A complete copy of this report is included as Appendix 4.7-2 of this Draft EIR.

4.22.1 ENVIRONMENTAL SETTING

4.22.1.1 REGULATORY FRAMEWORK

This section summarizes key federal, State, regional, and local regulations and programs related to wildfire for the proposed project.

Federal Regulations

Healthy Forests Restoration Act

The Healthy Forests Restoration Act (US Code Title 16, Chapter 84, Section 6501) was approved on December 3, 2003 to reduce wildfire risk to communities, municipal water supplies, and other at-risk federal land through planning, prioritizing, and hazardous fuel reduction projects. This act provides regulations for the protection of watersheds, forests, and rangeland, such as the land surrounding the proposed project, from catastrophic wildfires across the landscape. This includes improving systems to detect insect and disease infestations in hardwood forests.

National Cohesive Wildland Fire Management Strategy

In the Federal Land Assistance, Management, and Enhancement Act of 2009 (FLAME Act), Congress mandated the development of a national cohesive wildland fire management strategy for all lands within the United States. The strategy includes a set of guidelines for safe and effective response to wildfires, including structural protections and wildfire prevention to maximize the effectiveness of response efforts. This strategy also provides guidance on vegetation and fuels management, including designing and placing fuel treatments; increasing use of prescribed burns; and expanding the use of all methods to improve the resiliency of forests.

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State Regulations

Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection (CAL FIRE) designates fire hazard severity zones as authorized under California Government Code Sections 51175 et seq. CAL FIRE considers many factors such as fire history, existing and potential fuel (natural vegetation), flame length, blowing embers, terrain, and typical weather for the area. There are three hazard zones in state responsibility areas: moderate, high and very high. CAL FIRE designates FHSZs within three types of areas depending on what level of government is financially responsible for fire protection:

- LRA: Local Responsibility Area: cities and counties are financially responsible for wildfire protection.
- SRA: State Responsibility Area.
- FRA: Federal Responsibility Area.

Building Standards for Structures in Fire Hazard Severity Zones

California Building Code (California Code of Regulations, Title 24, Part 2) Chapter 7A

Chapter 7A of the California Building Code (CBC), Materials and Methods for Exterior Wildfire Exposure, prescribes building materials and construction methods for new buildings in a Fire Hazard Severity Zone. Chapter 7A contains requirements for roofing; attic ventilation; exterior walls; exterior windows and glazing; exterior doors; decking; protection of underfloor, appendages, and floor projections; and ancillary structures. The CBC is updated on a three-year cycle; the current 2019 CBC took effect in January 2020.

California Fire Code (California Code of Regulations, Title 24, Part 9) Chapter 49

Chapter 49 of the California Fire Code (CFC), Requirements for Wildland-Urban Interface Fire Areas, prescribes construction materials and methods in fire hazard severity zones; requirements generally parallel CBC Chapter 7A. The CFC is updated on a three-year cycle; the current 2019 CFC took effect in January 2020.

Defensible Space

California Public Resources Code Sections 4291 et seq. requires that brush, flammable vegetation, or combustible growth within 100 feet of buildings be removed. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability, may be maintained; as may single specimens of trees or other vegetation that is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Requirements regarding hazardous vegetation and fuel management are also contained in Sections 4906 and 4907 of the California Fire Code.

California Public Resources Code Section 4290 requires that all parcels one acre or larger shall provide a minimum 30-foot setback for buildings from all property lines and/or the center of the road.

4.22 WILDFIRE**Local Regulations***City of Vacaville General Plan*

The Safety Element provides the following policies protecting from wildfires in the City:

- **Policy SAF-P5.3** Require that all development adjacent to open agricultural lands comply with State law regarding defensible open space, even if the agricultural lands are designated for future development.
- **Policy SAF-P5.4** Incorporate drought-resistant and fire-resistant plants in public works projects in areas subject to wildland fires.
- **Policy SAF-P5.6** Require all development applications to be reviewed and approved by the Fire Department prior to project approval.

4.22.1.2 EXISTING CONDITIONS**Wildfire Background***Types of Wildfires*

There are three basic types of wildland fires (Natural Resources Canada 2021):

- **Crown fires** burn trees to their tops; these are the most intense and dangerous wildland fires.
- **Surface fires** burn surface litter and duff. These are the easiest fires to extinguish and cause the least damage to the forest. Brush and small trees enable surface fires to reach treetops and are thus referred to as *ladder fuels*.
- **Ground fires** occur underground in deep accumulations of dead vegetation. These fires move very slowly but can be difficult to extinguish.

Many species of native California plants are adapted to fire. Chaparral shrubs recover from fire in either of two ways: 1, woody root crowns or burls below the soil surface that survive a fire and re-sprout; and, 2, shrubs (various species of *Manzanita* and *Ceanothus*) that are killed by fire and produce seeds requiring intense heat from a fire to germinate (Rundel and Gustafson 2005). Many species of conifers have seed cones requiring fire to open (CAL FIRE 1999). Between 2010 and 2017 wildfires in California burned about 265,000 acres of forest land, 207,000 acres of shrub vegetation, 99,000 acres of grassland, 18,000 acres of desert vegetation, and 14,000 acres of other vegetation types (CAL FIRE 2018a).

Wildfire Origins

Many factors contribute to wildfires, including (Natural Resources Canada 2021):

- **Fuel.** Fuel can include live and dead vegetation on the ground, surface vegetation such as brush and small trees, and above-ground vegetation in tree canopies. Moisture content affects how vegetation burns. Lighter fuels such as grasses, leaves, and needles quick expel moisture and burn

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rapidly, while heavier fuels such as tree branches, tree trunks, and logs retain moisture and take longer to ignite.

- **Weather.** Temperature, humidity, wind speed, wind direction, cloud cover, precipitation amount and duration, and atmospheric stability all affect wildfires. A wet spring can cause increased vegetation growth, creating more fuel susceptible to ignition during a dry summer. Strong, dry winds can produce extreme fire conditions.
- **Topography.** Site and regional topography, including slope and elevation, influence fuel and weather. Terrain affects the amount and moisture of fuel, the effect of weather (such as temperature, precipitation, and wind), potential barriers to fire spread (such as roadways and bodies of water), and landforms. In general, south facing slopes are subject to greater solar radiation, making them drier and therefore creating more intense wildfires. Fire spreads more easily uphill than downhill.

These factors interact with each other in several ways. Climate change also affects these factors, for instance by affecting fuel ecosystems and weather patterns.

Although the term *wildfire* suggests natural origins, a 2017 study that evaluated 1.5 million wildfires in the United States between 1992 and 2012 found that humans were responsible for igniting 84 percent of wildfires, accounting for 44 percent of acreage burned (Balch *et al.* 2017). The three most common types of causes of human-caused wildfires are debris burning (logging slash, farm fields, trash, etc.); arson; and equipment use (Morrison 2007). Power lines can also ignite wildfires through down lines, vegetation contact, conductors that collide, and equipment failures (Texas Wildfire Mitigation Project 2021). CAL FIRE determined that 16 wildfires in northern California in October 2017 were caused by electric power and distribution lines, conductors, and the failure of power poles (CAL FIRE 2018b). Lightning is the major natural cause of wildfire in the United States (Balch *et al.* 2017).

An analysis of US Forest Service wildfire data from 1986 to 1996 determined that 95 percent of human-caused wildfires, and 90 percent of all wildfires, occurred within 0.5 mile of a road; and that about 61 percent of all wildfires and 55 percent of human-caused wildfires occurred within approximately 650 feet (200 meters) of a road. The study concluded that the increase in human-caused ignition greatly outweighs the benefits of increased access for firefighters (Morrison 2007).

There are three primary methods of wildfire spread, which are listed below:

- **Embers.** Embers are glowing or burning pieces of vegetation or construction debris that are lofted during the wildfire, which can move up to a mile ahead of a firestorm. They are most prolific cause of home ignition at a rate of two out of every three homes destroyed. These small embers or sparks may fall on the vegetation near a home (on dry leaves, needles, or twigs on the roof) and then subsequently ignite and burn down the home. Ember storms place all structures without fire resistant landscaping and construction within miles of the fire at potential risk.

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- **Direct Flame Contact.** Direct flame impingement refers to the transfer of heat by direct flame exposure. Direct contact will heat the building materials of the home. If the time and intensity of exposure is severe enough, windows will break and materials will ignite.
- **Radiant Heat.** A house can catch on fire from the heat that is transferred to it from nearby burning objects, even in the absence of direct flames or embers. Defensible space around homes significantly reduces the risk from radiant heat. A home with 100 feet of clearance from forest or shrubs will usually have minimal impact from radiant heat or direct flame.

Wildfire season in the Western region of the United States, including California, recently has lengthened from a previous average of between five and seven months to a year-round occurrence, and the number of large wildfires (i.e., greater than 1,000 acres) has increased from 140 to 250 per year. This is occurring as average annual temperature in the Western regions of the United States has risen by nearly two degrees Fahrenheit since the 1970s and the winter snowpack has declined (CAL FIRE 2018a).

Secondary Effects

The following sections describe the hazardous conditions created by wildfire effects.

Slope Instability

Post-fire conditions can pose hazards associated with unstable slopes, such as landslides, erosion, and debris flows. Post-fire landslide hazards include fast-moving, highly destructive debris flows that can occur in the period immediately following wildfires in response to high-intensity rainfall events, and flows that are generated over longer time periods that are accompanied by root decay and loss of soil strength. Fires increase the potential for debris flows by increasing the imperviousness of soil so that it repels water and destroys vegetation that would slow and absorb rainfall, and whose roots would help stabilize soil (USGS 2018). The burning of vegetation and soil on slopes more than doubles the rate that water will run off into watercourses (CGS 2021). Post-fire debris flows are particularly hazardous because they can occur with little warning, can exert great impulsive loads on objects in their paths, can strip vegetation, block drainage ways, damage structures, and endanger human life. Debris flows differ from mudflows in that debris flows are composed of larger particles. Post-fire debris flows are most common in the two years after a fire; they are usually triggered by heavy rainfall. It takes much less rainfall to trigger debris flows from burned basins than from unburned areas.

Air Pollution

Smoke is made up of a complex mixture of gases and fine particles produced when wood and other organic materials burn. The biggest health threat from smoke is from fine particles (PM_{2.5}), which are microscopic particles can penetrate the lungs and cause a range of health problems, from burning eyes and a runny nose to aggravated chronic heart and lung diseases. Exposure to particulate pollution is even linked to premature death. Some populations are more sensitive than others to smoke: for instance, people with heart or lung diseases; the elderly; children; people with diabetes; and pregnant women (Airnow 2017).

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Vegetation Changes

Frequent wildfires reduce the recovery of shrubs and trees—especially shrubs and trees that must produce seeds to regenerate after fire—and increase the invasion of non-native vegetation, which can convert native forests to non-native scrub or grassland habitat (USGS 2012). Non-native grasses are generally more flammable than the forest vegetation that is replaced; thus, such conversion exacerbates wildfire hazards (UCANR 2009). Loss of vegetation can also lead to downstream flooding.

Project Site

The subject property consists of unimproved land north of existing Gilley Way and a closed former golf course with remaining structures, parking areas, former golf course ponds that function as part of the City's storm drain system. It also contains unirrigated former turf and trees, many of which are in poor health or dying and pose a growing potential for ground fires based on accumulation of fuel load risk. The site was used as Green Tree Golf Course from about 1968 until February 2016. Redevelopment of the golf course and adjoining undeveloped parcel under the proposed project would remove all existing remnants of the former golf course, including trees and other improvements which currently represent potential fire hazards.

Fire Hazard Severity Zones

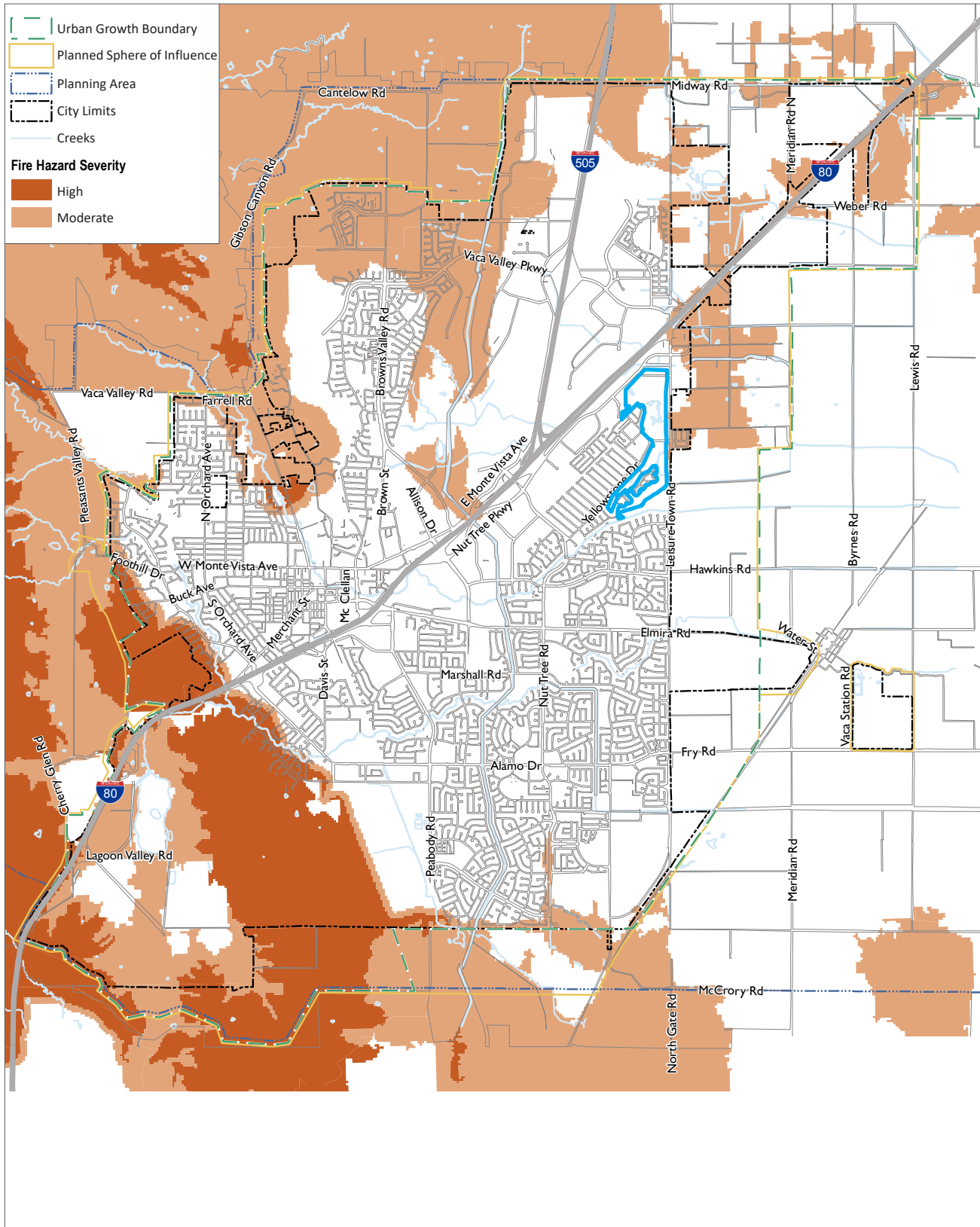
CAL FIRE publishes maps recommending fire hazard severity zones for every California county. The maps identify lands in California as falling within one of the following management areas: Local Responsibility Area (LRA), State Responsibility Area (SRA), and Federal Responsibility Area (FRA). Within each of these areas, a single agency has direct responsibility: in LRAs, local fire departments or fire protection districts are responsible; in SRAs, CAL FIRE is responsible; in FRAs, federal agencies such as the United States Forest Service, National Park Service, Bureau of Land Management, United States Department of Defense, United States Fish and Wildlife Service, and Department of the Interior are responsible.

Within the LRA, CAL FIRE designates lands as being within a Very High Fire Hazard Severity Zone (VHFHSZ) or non-VHFHSZ. The LRA maps also show the VHFHSZ and non-VHFHSZ areas within the SRA and FRA but do not differentiate lands within the SRA and FRA from each other (that is, SRA and FRA areas are mapped together).

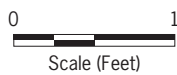
Within the SRA, CAL FIRE designates Moderate Fire Hazard Severity Zones, High Fire Hazard Severity Zones, and VHFHSZs. The SRA maps also indicate which lands area within the LRA and which are within the FRA, but do not show the hazard zones within the LRA and FRA.

The project site is within and surrounded by a CAL FIRE designated LRA (CAL FIRE 2021). As shown in Figure 4.22-1, the CAL FIRE map for the LRA identifies the project site as a non-VHFHSZ and is surrounded by non-VHFHSZ to the north, south, and west and adjacent to a moderate fire hazard severity zone to the east (Vacaville 2015). The project site is essentially level and contains of disturbed land from the previously developed golf course. The vegetation primarily consists of disked grassland and scattered trees.

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Source: CA Department of Forestry and Fire Protection, 2007



Project Boundary

Figure 4.22-1

CALFIRE Fire Hazard Severity Zones

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4.22.2 STANDARDS OF SIGNIFICANCE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the proposed project would result in significant wildfire impacts if it would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. 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.
3. 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.
4. 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.

4.22.3 IMPACT DISCUSSION

WILD-1	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not substantially impair an adopted emergency response plan or emergency evacuation plan.
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The project site is not located with a SRA. The project site is located within a LRA in a non-VHFHSZ. Additionally, the proposed project is consistent with the goals and policies within the Safety Element of the General Plan. The proposed project would remove all existing sources of fuel load as part of redevelopment, including former fairway landscaping, decaying golf course trees, and buildings. Therefore, implementation of the proposed project would have no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: WILD-1 would be no impact.

Mitigation Measures

No mitigation measures are required.

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WILD-2 **If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not, 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.**

The project site is located in a non-VHFHSZ and surrounded primarily by non-VHFHSZ. The agricultural fields located to the east of the project site is designated as LRA moderate fire hazard zone. Because the project site is previously developed, located in a developed area, and is not within or surrounded by VHFHSZ, the impact would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: WILD-2 would be less than significant.

Mitigation Measures

No mitigation measures are required.

WILD-3 If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not 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.

Project development would involve construction of infrastructure onsite to support the proposed project, including residential roads, and utility connections. Based on the analysis in Chapter 4.19, Utilities and Service Systems, the proposed project would not result in the need for expanded utility infrastructure offsite other than roadway modifications to Sequoia Drive, and the addition of signal lights which would be constructed to City specifications, under City supervision, and would meet all City of Vacaville Municipal code requirements. All these improvements would occur in previously developed areas.

Power distribution to all residential components of the project would be all electric and would be underground. Power distribution to the site would be connections from nearby existing utility infrastructure.

As mentioned under WILD-1 and WILD-2, the project site is in is not located in an SRA or VHFHSZ. Infrastructure associated with the proposed project would be designed to comply with all applicable regulations relating to fire safety, including the CBC and the CFC. Compliance with these would ensure the proposed project is built safely and would reduce the risk of impacts to the environment. Impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: WILD-3 would be less than significant.

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Mitigation Measures

No mitigation measures are required.

WILD-4	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the project would not 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.
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As discussed above the project site is not located in a SRA or VHFHSZ and project development would not exacerbate wildfire risk on-site. After proposed grading and creation of building pads, development would not exacerbate post-fire slope instability.

During construction, the project would comply with National Pollution Discharge Elimination System (NPDES) best management practices to minimize erosion and control runoff including protecting stockpiles of construction materials from being transported from the site by wind or water, stabilizing construction entrances so as to inhibit sediments from being washed offsite, and slope stabilization.

The project site is essentially level and management of stormwater and erosion would help to prevent risk of downslope or downstream folding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the project would not expose people or structures to significant risks related to these, and impacts would be less than significant.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: WILD-4 would be less than significant.

Mitigation Measures

No mitigation measures are required.

4.22.4 CUMULATIVE IMPACTS

WILD-5	The proposed project would not result in cumulative impacts regarding wildfire when combined with past, present, and reasonably foreseeable projects.
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The area surrounding the project site is already developed, and the proposed project is not located within a VHFHSZ or an SRA, and would be designed to comply with the CBC, CFC, and related regulations pertaining to safety, the proposed project would not contribute to cumulative impacts regarding wildfire and there would be no impact.

LEVEL OF SIGNIFICANCE

Level of Significance Before Mitigation: WILD-5 would be no impact.

Mitigation Measures

No mitigation measures are required.

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5. Significant Unavoidable Adverse Impacts

Section 15126.2 of the California Environmental Quality Act (CEQA) Guidelines requires that “direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short- and long-term effects.”

Chapter 2, Executive Summary, contains Table 2-1, which summarizes the impacts, mitigation measures, and levels of significance before and after mitigation. While actions from the Project and mitigation measures, where feasible, would reduce the level of impact to less than significant, the following impacts would remain significant and unavoidable after mitigation measures are applied:

Air Quality

- AIR-1 The project would conflict with or obstruct implementation of the applicable air quality plan.
- AIR-2 The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under applicable federal or State ambient air quality standard.

Greenhouse Gas Emissions

- GHG-1 The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-3 The proposed project would result in cumulative greenhouse gas emissions impacts.

Transportation

- TRANS-2 The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
- TRANS-4 The project would contribute to cumulative impacts related vehicle miles traveled (VMT).

5. SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

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6. Alternatives to the Proposed Project

6.1 INTRODUCTION

6.1.1 PURPOSE AND SCOPE

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) include a discussion of reasonable project alternatives that would “feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any significant effects of the project and evaluate the comparative merits of the alternatives” (CEQA Guidelines § 15126.6[a]). As required by CEQA, this chapter identifies and evaluates potential alternatives to the proposed project.

Section 15126.6 of the CEQA Guidelines explains the foundation and legal requirements for the alternatives analysis in an EIR. Key provisions are:

- “[T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.” (15126.6[b])
- “The specific alternative of ‘no project’ shall also be evaluated along with its impact.” (15126.6[e][1])
- “The no project analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” (15126.6[e][2])
- “The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.” (15126.6[f])
- “Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries..., and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent)” (15126.6[f][1]).

6. ALTERNATIVES TO THE PROPOSED PROJECT

- “Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.” (15126.6[f][2][A])
- “An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.” (15126.6[f][3])

For each development alternative, this analysis:

- Describes the alternative.
- Analyzes the impact of the alternative as compared to the proposed project.
- Identifies the impacts of the project that would be avoided or lessened by the alternative.
- Assesses whether the alternative would meet most of the basic project objectives.
- Evaluates the comparative merits of the alternative and the project.

According to Section 15126.6(d) of the CEQA Guidelines, “[i]f an alternative would cause...significant effects in addition those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.”

6.1.2 DEVELOPMENT OF PROJECT ALTERNATIVES

The range of alternatives included for analysis in an EIR is governed by the “rule of reason.” The selection and discussion of alternatives fosters informed decision-making and informed public participation. This is accomplished by providing sufficient information to enable readers to reach conclusions themselves about such alternatives. This approach avoids assessing an unmanageable number of alternatives or analyzing alternatives that differ too little to provide additional meaningful insights about their environmental effects. The alternatives addressed in this Draft EIR were selected in consideration of one or more of the following factors:

- The extent to which the alternative would accomplish most of the basic objectives of the project.
- The extent to which the alternative would avoid or reduce any of the identified significant environmental effects of the project.
- The feasibility of the alternative, taking into account site suitability and parcel sizes, and consistency with applicable public plans, policies, and regulations.
- The appropriateness of the alternative in contributing to a reasonable range of alternatives necessary to permit a reasoned choice.

The alternatives analyzed in this EIR were ultimately chosen based on each alternative’s ability to feasibly attain the basic project objectives while avoiding or reducing one or more of the project’s significant effects. The analysis provides readers with adequate information to compare the effectiveness of

6. ALTERNATIVES TO THE PROPOSED PROJECT

identified mitigation or significant adverse impacts and to enable readers to make decisions about the project.

6.1.3 PROJECT OBJECTIVES

As described in Section 3.2, the following objectives have been established for the proposed project and will aid decision makers in their review of the project, the project alternatives, and associated environmental impacts.

1. Respect existing adjacent neighborhoods by maximizing compatibility of new development with these neighborhoods, minimizing new vehicular through-traffic, integrating expanded pedestrian connectivity and recreational opportunities, introducing traffic calming measures, and facilitating access to local-serving commercial uses;
2. Incorporate a viable, high quality commercial retail/service commercial center that will serve the needs of the new neighborhoods within the project site, as well as existing neighborhoods in the project vicinity;
3. Provide opportunities for a variety of housing types at a range of price points to increase the City's housing stock and promote affordability to a range of income levels, with a focus on workforce, senior, and "missing middle" housing products;
4. Allow a mix of commercial retail and residential uses within the area designated Mixed-Use Overlay to provide options for additional, diverse residential product types, tailor commercial retail/services to the needs of project residents and existing residents in the project vicinity, and activate the commercial center;
5. Incorporate strong recreational elements including two neighborhood parks, an integrated multi-use trail system, and passive open space;
6. Design a circulation plan that incorporates complete street concepts and includes extensive pedestrian and bicycle facilities to provide connectivity throughout the project site; includes traffic calming measures to be selected from a range of proven measures such as bulb-outs within the site and on adjacent neighborhood streets to slow traffic speeds for enhanced pedestrian and bicycle safety, and incorporates a small format roundabout at Yellowstone Drive/Sequoia Drive to optimize traffic flow while facilitating safe pedestrian and bicycle connections across Sequoia Drive.
7. North of Sequoia planning objectives include the following:
 - Provide residential land uses at higher densities to enable development of a variety of housing types/products including workforce housing and move-up "missing middle" housing;
 - create local-serving commercial retail and service commercial development opportunities described previously;

6. ALTERNATIVES TO THE PROPOSED PROJECT

- create flexibility to allow ground floor retail with residential above by enabling mixed-use development in a limited portion of the area;
 - locate larger format commercial retail sites along Orange Drive;
 - provide a neighborhood park that serves the existing and new neighborhoods located south of the highway;
 - design circulation improvements that create and connect distinct development blocks, improve efficiency of the circulation network by providing connections to adjacent neighborhoods and facilities, incorporate pedestrian and bicycle facilities, and incorporate traffic calming features for pedestrian and bicycle safety;
 - provide sufficient land for storm water management facilities; and
 - ensure consistency with the Jepson Parkway Concept Plan.
8. South of Sequoia planning objectives include the following:
- Provide a single-family, senior residential community;
 - ensure lot size/density compatibility with the existing adjacent residential neighborhoods;
 - provide a smaller park and passive use open space as recreation amenities for new senior residents that are also accessible to adjacent existing neighborhoods;
 - create an extensive multi-use trail network;
 - reserve sufficient land to address storm water management needs;
 - create a circulation network that minimizes through traffic and effects on existing adjacent neighborhoods; and
 - integrates pedestrian and bicycle facilities, provides enhanced emergency vehicle access, and achieves consistency with the Jepson Parkway Concept Plan.

6.1.4 SUMMARY OF SIGNIFICANT IMPACTS

As described above, apart from the No Project Alternative, other alternatives chosen as part of the reasonable range of alternatives should be chosen due their ability to feasibly attain most of the basic objectives of the project and avoid or lessen the project's significant impacts. The proposed project would result in four significant and unavoidable impacts.

Air Quality

- AIR-1 The project would conflict with or obstruct implementation of the applicable air quality plan.

6. ALTERNATIVES TO THE PROPOSED PROJECT

- AIR-2 The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under applicable federal or State ambient air quality standard.

Greenhouse Gas Emissions

- GHG-1 The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-3 The proposed project would result in cumulative greenhouse gas emissions impacts.

Transportation

- TRANS-2 The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
- TRANS-4 The project would contribute to cumulative impacts related vehicle miles traveled (VMT).

6.2 ALTERNATIVES REJECTED FROM FURTHER CONSIDERATION

In accordance with CEQA Guidelines Section 15126.6, there were no alternatives suggested or rejected as infeasible during the Notice of Preparation (NOP) scoping process. However, the City nonetheless identified potential alternatives for consideration, yet ultimately eliminated these alternatives from further analysis in the EIR. Suitable alternatives are those which:

1. Can substantially reduce the proposed project's significant impacts;
2. Can attain most of the basic project objectives;
3. Are potentially feasible; and
4. Are reasonable and realistic.

Alternatives that do not meet each of these four criteria may be eliminated from further consideration in the EIR. The following alternatives have been considered by the City but rejected for their failure to meet the four criteria and, therefore, will not be analyzed further in this EIR.

6.3 ALTERNATIVES CONSIDERED AND REJECTED

The following is a discussion of project alternatives considered during the scoping and planning process and the reasons why they were not selected for detailed analysis in this EIR.

6. ALTERNATIVES TO THE PROPOSED PROJECT

6.3.1 ALTERNATIVE LOCATION

CEQA requires that the discussion of alternatives focus on alternatives to the project or its location that can avoid or substantially lessening any significant environmental effects of the project. The key question and first step in the analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR (CEQA Guidelines § 15126[5][B][1]). Key factors in evaluating the feasibility of potential offsite locations for EIR project alternatives include:

- If it is in the same jurisdiction.
- Whether development as proposed would require a General Plan Amendment.
- Whether the project applicant could reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent) (CEQA Guidelines Section 15126.3[f][1]).

The project applicant does not own or control other comparably sized and located property within the City. While there are other comparably sized sites within the city located east of Leisure Town Road, these sites consist of greenfield annexation sites. Furthermore, these sites are currently agricultural land with an Urban Reserve land use designation. As the City has the 1185.4-acre Greentree site available for infill, the process for converting Urban Reserve lands would be infeasible as it would fail Subsection B of Vacaville Municipal Code Section 14.04.038.020, Process for Converting Urban Reserve Lands. Consequently, there are no other areas within the city that are comparable in size, or that are not already approved for development.

While the project requires the approval of a General Plan Amendment and Zone Change, the intent of the zone change is to enable residential development at a variety of densities, with a wide range of housing types, including active-adult detached single-family and workforce-oriented housing; as well as commercial including neighborhood serving uses; public parks; trails and open space; circulation improvements, and infrastructure facilities.

In general, any development of the size and type proposed by the project would have similar impacts on aesthetics, air quality, energy, geology and soils, greenhouse gas emissions, land use and planning, noise, population and housing, recreation, transportation, utilities and service systems, and wildfire. Depending on the location and whether the site is a greenfield, it could have more severe impacts related to agriculture and forestry resources, biological resources, cultural resources, and tribal cultural resources. With the exception of air quality, greenhouse gas emissions, and transportation impacts, under the proposed project, the above impacts were found to be less than significant or less than significant with mitigation incorporated. A development with similar size and type of uses would create similar air quality and greenhouse gas emissions impacts if placed elsewhere in the city. The City has determined that there is no alternative project site that could meet the objectives of the proposed project and reduce significant impacts of the project as proposed.

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6.3.1.1 REDUCED RESIDENTIAL DENSITY ALTERNATIVE

A reduced density alternative would result in fewer residences, which would theoretically reduce traffic and thereby reduce impacts identified for the project, such as air quality and greenhouse gas (GHG) emissions. However, such an alternative would conflict with CEQA Guidelines Section 15041(c), which states that for a project that includes housing development, a Lead or Responsible Agency shall not reduce the proposed number of housing units as an alternative to lessen a particular significant effect on the environment if that agency determines that there is another feasible alternative that would provide a comparable lessening of the significant effect. Further, such an alternative would not achieve or would only partially achieve project objectives of providing for residential land uses at higher densities.

A reduced residential density alternative would not be consistent with regional planning that requires accommodation of regional housing needs. By restricting residential development, the environmental impact of the projected growth would increase development pressure elsewhere in the region. As a reduced development density conflicts with CEQA Guidelines Section 15041(c) and regional plans, would relocate impacts outside of the city, and would not meet the project objectives, this alternative was not evaluated in the EIR.

6.4 ALTERNATIVES SELECTED FOR FURTHER ANALYSIS

Based on the criteria listed above, the following alternatives have been determined to represent a reasonable range of alternatives which have the potential to feasibly attain most of the basic objectives of the project but may avoid or substantially lessen any of the significant effects of the project. These alternatives are analyzed in detail in this section:

- No Project Alternative- This alternative is required by state law and considers the continued use of the project consistent with the existing zoning regulations.
- Reduced Commercial Development Alternative

An EIR must identify an “environmentally superior” alternative and if the No Project Alternative is identified as environmentally superior, the EIR is then required to identify as environmentally superior an alternative from among the others evaluated. Each alternative's environmental impacts are compared to the proposed project and determined to be environmentally superior, neutral, or inferior.

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6.4.1 PROPOSED PROJECT ENVIRONMENTAL SIGNIFICANCE

Table 6-1, *Proposed Project Environmental Topic Significance Summary*, summarizes the environmental conclusions based on the analysis contained in this Draft EIR.

TABLE 6-1 PROPOSED PROJECT ENVIRONMENTAL TOPIC SIGNIFICANCE SUMMARY

Environmental Topic	No Impact	Less Than Significant	Less Than Significant With Mitigation	Significant and Unavoidable
Aesthetics		✓		
Agriculture and Forestry Resources	✓			
Air Quality				✓
Biological Resources			✓	
Cultural Resources			✓	
Energy		✓		
Geology and Soils and Mineral Resources			✓	
Greenhouse Gas Emissions				✓
Hazards and Hazardous Materials		✓		
Hydrology and Water Quality		✓		
Land Use and Planning		✓		
Noise and Vibration			✓	
Population and Housing		✓		
Public Services		✓		
Parks and Recreation		✓		
Transportation				✓
Tribal Cultural Resources			✓	
Utilities & Service Systems		✓		
Wildfire		✓		

6.5 NO PROJECT ALTERNATIVE

The No Project Alternative is required to discuss the existing conditions at the time the notice of preparation is published and evaluate what would reasonably be expected to occur in the foreseeable future if the proposed project is not approved (CEQA Guidelines, Section 15126.6(e)). Pursuant to CEQA, this alternative is also based on current plans and consistent with available infrastructure and community services. Whereas the existing commercial and commercial recreation zoning would accommodate potential future uses permitted or conditionally permitted in these zoning districts, it is conservatively

6. ALTERNATIVES TO THE PROPOSED PROJECT

assumed for purposes of this analysis that under the No Project Alternative the proposed project would not be approved, and no additional development would occur as proposed. The project site would remain as a closed golf course with adjoining undeveloped lands north of Gilley Way, and residential and commercial development would not occur.

6.5.1 AESTHETICS

Impacts associated with aesthetics include degradation of scenic vistas, scenic resources, and increased light and glare. Under the No Project Alternative, no new development would occur on the project site. Therefore, the existing visual character and resources near and on the project site would be preserved in their current state, including the deteriorating former golf course structures, roadways, fairways, and ponds. Given that no development has been assumed to occur under this alternative, no new sources of light and glare would be created. As there would be no change to the project site with this alternative, the existing facilities would continue to deteriorate, thereby degrading the existing visual character and quality of the site and its surroundings, as seen from various public viewpoints, but would not obstruct a defined scenic vista. Despite the potential visual deterioration, this impact would be less than the proposed project's less than significant impact.

6.5.2 AGRICULTURE AND FORESTRY RESOURCES

The project site is designated as Urban and Built-Up Land. Therefore, impacts under both this alternative and the proposed project would be the same and would not be significant.

6.5.3 AIR QUALITY

Under this alternative, no new development is assumed to occur; therefore, no new construction activities and associated exhaust and fugitive dust emissions would occur. Without the proposed project, the project site would not result in an increase in vehicle trips and building energy use. Therefore, the No Project Alternative would eliminate regional and localized air emissions during construction and operation compared to the proposed project. As this alternative would not have the construction activities or increased operational emissions like the proposed project, these would be no impact and the impacts to air quality would be less than those of the proposed project.

6.5.4 BIOLOGICAL RESOURCES

Under this alternative, no construction activities would occur. Therefore, this alternative would not result in impacts on biological resources. Under the proposed project, impacts would be less than significant with mitigation incorporated. Therefore, impacts under this alternative would be less than those identified for the proposed project.

6. ALTERNATIVES TO THE PROPOSED PROJECT

6.5.5 CULTURAL RESOURCES

Under the No Project Alternative, no grading and excavation activities would occur at the project site. Accordingly, this Alternative would not result in the potential to impact archaeological resources during ground-disturbing activities. Since no development would occur, there would be no potential damage to cultural resources. The impacts of the proposed project, which required mitigation measures to be reduced to a less than significant level, would be eliminated.

6.5.6 ENERGY

The No Project Alternative would not generate a temporary increase in energy and fuel use during construction activities and would not generate a long-term increase in fuel use and energy during project operation. Therefore, no impact would occur under this alternative and the less than significant energy impacts of the proposed project would not occur under this alternative.

6.5.7 GEOLOGY AND SOILS AND MINERAL RESOURCES

Under this alternative, no new development would occur, and no ground-disturbing activities would occur. Therefore, impacts related to geology and soils, including paleontological resources, would not occur under this alternative, and compared to the proposed project, no mitigation measures would be required.

6.5.8 GREENHOUSE GAS EMISSIONS

The No Project Alternative would not generate an increase in GHG emissions from construction activities, or additional GHG emissions from operational activities. As there would be no change to the project site with this alternative, the significant and unavoidable impacts related to GHG emissions as determined in this Draft EIR would not occur under this alternative.

6.5.9 HAZARDS AND HAZARDOUS MATERIALS

Under this alternative, no new development would occur onsite. Hazards to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during construction activities would not occur under this alternative. The proposed project's impacts related to hazards and hazardous materials would not occur under this alternative.

6.5.10 HYDROLOGY AND WATER QUALITY

This alternative would not result in construction activities, and therefore the less than significant impacts to hydrology and water quality, as identified in the Draft EIR, would not occur under this Alternative. However, the No Project Alternative assumes no development and, therefore, the flood control benefits to the surrounding area west of Greentree of replacing the existing golf course ponds with larger and more efficient detention basins under the proposed project would not be realized. Nevertheless, because the existing flooding is a pre-existing condition that would not change under the No Project Alternative, it is considered to be less than significant.

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6.5.11 LAND USE AND PLANNING

Unlike the proposed project, this alternative would not require a zone change. While the proposed project would require a zone change, the proposed project would not conflict with policies and zoning that would result in substantial physical impacts to the environment. Because the site would remain undeveloped and not require a zone change, this alternative would not result in the less than significant land use impacts identified for the proposed project.

6.5.12 NOISE

Under this alternative, the project site would remain undeveloped and would not introduce additional long-term traffic or stationary noise sources to the project site. Additionally, this alternative would not include construction, so no construction-related noise impacts would occur. No short-term construction noise impacts or new long-term operational noise impacts would occur under this alternative. Impacts would be less compared to the proposed project, which required mitigation measures to reduce impacts to less than significant.

6.5.13 POPULATION AND HOUSING

The No Project Alternative would not introduce new residents to the project site and, therefore, would not directly impact population growth in the city. Moreover, this alternative would not create new employment in the city. Like the proposed project, the No Project Alternative would not displace housing or people. The No Project Alternative would not help to implement General Plan goals and policies related to accommodation of higher density housing; however, this is not considered to be a significant impact under CEQA. Therefore, this alternative would eliminate the proposed project's less than significant impacts related to population and housing.

6.5.14 PUBLIC SERVICES

The No Project Alternative would not increase demand for public services and facilities in the city. Compared to the proposed project's less than significant impacts, this alternative would have no impact.

6.5.15 PARKS AND RECREATION

The No Project Alternative would not increase demand for recreational facilities in the city. The No Project Alternative would not provide for additional local recreational facilities, including parks, trails and public open space to serve the adjoining senior neighborhood west of the project site; however, this is not considered to be a significant impact under CEQA. Compared to the proposed project's less than significant impacts, this alternative would have no impact.

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6.5.16 TRANSPORTATION

Under this alternative, the site would not be developed; therefore, an increase in population would not occur and it would not generate vehicle trips or vehicle miles traveled (VMT). As there would be no change to the project site with this alternative, the significant and unavoidable impacts related to transportation as determined in this Draft EIR would not occur under this alternative. The No Project Alternative would not provide for completion of frontage improvements along Leisure Town Road or reconstruct the existing roundabout at Yellowstone and Sequoia Drives; however, this is not considered to be a significant impact under CEQA.

6.5.17 TRIBAL CULTURAL RESOURCES

The project site would remain in its existing conditions under the No Project Alternative. Therefore, no ground-disturbing activities would occur, and any tribal cultural resources onsite, if present, would not be affected. Impacts would be eliminated compared to the proposed project, which required mitigation measures to reduce impacts to less than significant.

6.5.18 UTILITIES AND SERVICE SYSTEMS

No new development would occur on the project site under this alternative. Therefore, there would be no increase in demand for potable water, wastewater generation, or solid waste disposal. Overall, the proposed project's less than significant impacts would be eliminated. The No Project Alternative would not provide the additional land needed for enlargement of the sewer lift station adjoining Sequoia Drive and Leisure Town Road, or the two water well sites identified in the proposed project; however, since this property could be acquired by the City through alternative means, this is not considered to be a significant impact under CEQA.

6.5.19 WILDFIRE

The project site is located within a Local Responsibility Area in a non-Very High Fire Hazard Severity Zone. This alternative would not result in an increase in population, but would leave an infill site of 185.4 acres of dying ground cover, abandoned wood-frame buildings, and trees directly adjoining existing homes. This condition may worsen over time as trees, ground covers, and unprotected buildings remain as potential sources of fuel load. Development under the proposed project would be subject to compliance with the most current version of the California Fire and Building Codes, which would reduce the proposed project's impact to less than significant impact. There would be no impact under the No Project Alternative.

6.5.20 CONCLUSION

The No Project Alternative would avoid impacts to agriculture and forestry resources, air quality, biological resources, cultural resources, energy, geology and soils and mineral resources, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, parks and recreation, transportation, tribal cultural resources, and utilities and service systems. This alternative would not meet any of the project objectives.

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6.6 REDUCED COMMERCIAL DEVELOPMENT ALTERNATIVE

The Reduced Commercial Development Alternative would reduce the commercial building footprint by 15 percent from 299,345 square feet to 255,000 square feet. Under this alternative, the rezone, General Plan Amendment, and Green Tree Park Policy Plan Amendment would still be required similar to the proposed project.

6.6.1 AESTHETICS

Impacts associated with aesthetics include the degradation of scenic vistas, scenic resources, and increased light and glare. Under this alternative, the proposed commercial building footprint would be reduced by 15 percent. While scenic resources and scenic vistas could be more visible from the project site and surrounding area under this alternative, the reduction would not be substantial. As this alternative would decrease the commercial building footprint, impacts would be less than the proposed project because it would block less views of scenic resources from the adjacent roadway compared to the proposed project. Impacts would under this alternative would be less than significant.

6.6.2 AGRICULTURE AND FORESTRY RESOURCES

The project site is designated as Urban and Built-Up Land. Therefore, impacts under this alternative and the proposed project would be the same and would not be significant.

6.6.3 AIR QUALITY

Under this alternative, air quality impacts would be reduced, compared to the proposed project, during the construction and operational phases as the commercial development footprint would be reduced by 15 percent. During the construction phase, construction activities and associated exhaust and fugitive dust emissions would occur; however, the emissions generated during these activities would be less than the proposed project because the duration of construction would be reduced. Similarly, during the operational phase, this alternative would generate fewer vehicle trips and building energy due to the decreased building footprint. Overall, though this alternative would result in less emissions compared to the proposed project; however, impacts would also be significant and unavoidable.

6.6.4 BIOLOGICAL RESOURCES

This alternative would result in similar impacts on biological resources as the proposed project. This alternative would potentially require less vegetation removal onsite as the footprint of commercial buildings would be reduced, thereby reducing impacts to wildlife species. Impacts under this alternative would be likely be less than those of the proposed project, which required the implementation of mitigation measures. The mitigation measures would also apply to this alternative.

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6.6.5 CULTURAL RESOURCES

This alternative would have a decreased commercial development footprint compared to the proposed project. However, both this alternative and the proposed project would require mitigation in the event cultural resources are uncovered during grading activities. Therefore, impacts would be similar to the proposed project, and would be less than significant with mitigation incorporated.

6.6.6 ENERGY

This alternative would result in a decreased commercial building footprint compared to the proposed project. The operational phase of this alternative would generate less building energy due to the decreased building footprint. Further, construction activities under this alternative would have reduced energy demands as the commercial building footprint would be reduced by 15 percent. Compared to the proposed project, this alternative would result in less impact than the proposed project related to energy consumption; impacts would be less than significant.

6.6.7 GEOLOGY AND SOILS AND MINERAL RESOURCES

Like the proposed project, this alternative would be required to comply with building and seismic codes and regulations, as well as standard procedures if paleontological resources are discovered during ground-disturbing activities. Although the development footprint would be less than the proposed project's footprint, impacts would be similar. Impacts would be less than significant with mitigation incorporated compared to the proposed project.

6.6.8 GREENHOUSE GAS EMISSIONS

During the operational phase of this alternative, less building energy would be generated due to the decreased commercial development footprint compared to the proposed project. Further, construction activities associated with this alternative would have reduced GHG emissions as the commercial development footprint would be reduced by 15 percent. Overall, though this alternative would generate less greenhouse gas emissions compared to the proposed project; however, like the proposed project, impacts would be significant and unavoidable.

6.6.9 HAZARDS AND HAZARDOUS MATERIALS

As with the proposed project, this alternative would use hazardous materials during construction, including construction materials such as fuels, paints, and solvents in limited quantities. Similar to the proposed project, hazards to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials during construction activities could still occur. Operational activities under this alternative could result in similar uses of hazardous materials as with the proposed project. Like the proposed project, compliance with regulations and guidelines of federal, state, and local agencies related to the use, storage, and transport of hazardous materials would be required and would ensure impacts are less than significant. As with the proposed project, compliance with California Building Code and California Fire Code, such as installation of sprinklers, protection systems

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such as fire extinguishing systems and alarms, fire hydrants, water fire flow requirements, and access points to accommodate fire equipment, would ensure impacts from wildfires would be less than significant. Therefore, impacts would be similar to the proposed project and would be less than significant.

6.6.10 HYDROLOGY AND WATER QUALITY

Like the proposed project, this alternative would be required to comply with the National Pollutant Discharge Elimination System Construction General Permit requirements and implementation of various BMPs to reduce water quality impacts. Further, this alternative would result in a reduction of impervious surfaces compared to the proposed project due to the decrease in commercial development footprint. Therefore, impacts to hydrology and water quality impacts of this alternative would be less than the proposed project and would be less than significant.

6.6.11 LAND USE AND PLANNING

Both this alternative and the proposed project would require a rezone, General Plan Amendment, and Green Tree Park Policy Plan Amendment. As with the proposed project, no physical impacts to the environment would occur under this alternative with respect to inconsistency with plans or policies. Impacts would be similar to the proposed project and would be less than significant.

6.6.12 NOISE

This alternative would have a reduced commercial development footprint compared the proposed project, and due to the reduced building footprint, construction under this alternative would be shorter than the proposed project. Consequently, construction noise impacts would be reduced under this Alternative. The operational phase of this alternative would result in similar operational traffic-related noise impacts, but would be reduced compared to the proposed project, and would also be less than significant.

6.6.13 POPULATION AND HOUSING

Like the proposed project, this alternative would include 1,149 dwelling units, which would generate approximately 2,963 new residents. Therefore, this alternative would not displace housing or people as the project site is currently undeveloped. Therefore, impacts would be similar and less than significant.

6.6.14 PUBLIC SERVICES

Residential uses generate a higher demand for emergency service calls (e.g., police, fire) than nonresidential land uses. Development of the proposed project would include 1,149 dwelling units, which would generate approximately 2,963 new residents. This alternative would develop the same number of residential units; however, the commercial development footprint would be reduced by 15 percent. This alternative would be required to pay development impact fees and comply with applicable regulations and standard conditions to ensure that impacts related to public services are less than significant. This

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alternative is anticipated to generate a similar number of service calls and would have a similar demand for public services as with the proposed project; impacts would be less than significant.

6.6.15 PARKS AND RECREATION

As with the proposed project, this alternative would increase the use of existing neighborhood and regional parks or other recreational facilities, due to the increase of population. However, it would include new additional parkland within the project site and would exceed the City's requirements for new development projects. In addition, the proposed project would include an extensive trail system and a large open space area, including approximately 28.9 acres of publicly accessible trails and open space. As with the proposed project, the payment of impact fees would be required. Therefore, impacts would be similar and less than significant.

6.6.16 TRANSPORTATION

This alternative would have a reduced commercial development footprint compared to the proposed project. As described in Chapter 4.17, *Transportation*, the commercial component of the proposed project would generate 5,071 trips and 42,932 VMT. This alternative would have a 15 percent reduction in commercial development compared the proposed project. Thus, trips and VMT generated by the commercial component of this alternative may generally be decreased proportionate to the reduction in square footage. Conversely, a reduction in local support services could lead to longer trips for those services, thereby increasing VMT. Overall, though this alternative would result in less impacts related to transportation compared to the proposed project, impacts would be significant and unavoidable.

6.6.17 TRIBAL CULTURAL RESOURCES

This alternative would have a reduced commercial development footprint compared to the proposed project. However, potential impacts to tribal cultural resources would be similar to the proposed project and would be less than significant after mitigation.

6.6.18 UTILITIES AND SERVICE SYSTEMS

Because this alternative would result in a reduction in commercial square footage compared to the proposed project, it would generate less demand for water, wastewater, and solid waste services compared to the proposed project. Therefore, utilities and service systems impacts would be less than those of the proposed project. Like the proposed project, compliance with local, state, and federal regulations would ensure that impacts would be less than significant.

6.6.19 WILDFIRE

The project site is located within a LRA in a non-Very High Fire Hazard Severity Zone. As with the proposed project, development under this alternative would be subject to compliance with the most current version of the California Fire and Building Codes, which would have the same mitigating effect as it would for the proposed project. Therefore, impacts would be similar and less than significant.

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6.6.20 CONCLUSION

The Reduced Commercial Development Alternative would result in less impacts related to air quality, energy, GHG emissions, noise, and transportation. This alternative would result in similar impacts related to agriculture and forestry resources, biological resources, cultural resources, geology and soils and mineral resources, hazards and hazardous materials, land use and planning, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire. However, this alternative would result in fewer neighborhood serving uses as commercial retail space would be reduced compared to the proposed project. It would also reduce revenues to pay for public services, and would conflict with the basic objectives of the proposed project by reducing the ability to accommodate local retail and service needs. This reduction in services for local residents may lead to increased VMT, would reduce an important source of revenue to help pay for the extensive public infrastructure required for the balance of the project, and could therefore preclude implementation of the proposed project.

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires a lead agency to identify the “environmentally superior alternative.” As discussed previously, the No Project Alternative would result in fewer impacts than those resulting from the proposed project; thus it would be environmentally superior. However, in cases where the environmentally superior alternative is the “no project” alternative, CEQA requires that the EIR must identify an environmentally superior alternative among the other alternatives. The Reduced Commercial Development Alternative would meet some of the project objectives, but fails to satisfy Objectives 2 and 4, because this Alternative would reduce the footprint of commercial development. More importantly, the Reduced Commercial Development Alternative could fail to achieve the essential criteria of feasibility. The level of development called for in the Project Objectives is intended in part to do the following:

2. Incorporate a viable (i.e., “feasible”), high quality commercial retail/service commercial center that will serve the needs of the new neighborhoods within the project site, as well as existing neighborhoods in the project vicinity;
4. Allow a mix of commercial retail and residential uses within the area designated Mixed-Use Overlay to provide options for additional, diverse residential product types, tailor commercial retail/services to the needs of project residents and existing residents in the project vicinity, and activate the commercial center;
7. Create local-serving commercial retail and service commercial development opportunities, as well as locate larger format commercial retail sites along Orange Drive.

Because the Reduced Commercial Development Alternative would reduce the scale of local serving retail development called for in the proposed project, it would provide a smaller base of commercially viable development over which to spread project costs, leading to a direct conflict with above referenced Project Objectives 2, 4, and 7. This reduced scale of retail development also directly conflicts with the basic requirement of CEQA Guidelines Section 15126.6(c) prohibiting selection of a project alternative which fails to “feasibility attain” the basic objectives of the project:

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“The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects”, and “Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are : (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.”

Thus, while the Reduced Scale Commercial Development Alternative would reduce local serving retail square footage and thereby reduce GHG and VMT impacts, it could also conflict with overall project feasibility and the ability to attain the basic objectives of accommodating the range and scale of senior and workforce housing and supporting services called for in the project.

Table 6-2, Comparison of Project Alternatives to the Proposed Project, compares the environmental determination of the proposed project with each alternative.

TABLE 6-2 COMPARISON OF PROJECT ALTERNATIVES TO THE PROPOSED PROJECT

Topic	Project Environmental Determination	No Project	Reduced Commercial Development
Aesthetics	LS	SU	=
Agriculture and Forestry Resources	NI	=	=
Air Quality	SU	-	SU
Biological Resources	LSM	-	=
Cultural Resources	LSM	-	=
Energy	LS	-	=
Geology and Soils and Mineral Resources	LSM	-	=
Greenhouse Gas Emissions	SU	-	SU
Hazards and Hazardous Materials	LS	-	=
Hydrology and Water Quality	LS	-	=
Land Use and Planning	LS	-	=
Noise and Vibration	LSM	-	LSM
Population and Housing	LS	-	=
Public Services	LS	-	=
Parks and Recreation	LS	-	=
Transportation	SU	-	=
Tribal Cultural Resources	SU	-	=
Utilities & Service Systems	LS	-	=
Wildfire	LS	SU	=
Overall			

Note:

The symbols in the table indicate the following: No Impact (NI), Less Than Significant (LS), Less Than Significant with Mitigation (LSM), Significant and Unavoidable (SU); Similar Impacts (=), Less Severe Impacts (-), More Severe Impacts (+)

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In addition to reducing significant impacts, an alternative must also attempt to meet most of the Project Objectives. Table 6-3, *Comparison of Alternatives to Project Objectives*, compares each of the alternatives to the Project Objectives.

TABLE 6-3 COMPARISON OF ALTERNATIVES TO PROJECT OBJECTIVES

Objective	No Project	Reduced Commercial Development
1. Respect existing adjacent neighborhoods by maximizing compatibility of new development with these neighborhoods, minimizing new vehicular through-traffic, integrating expanded pedestrian connectivity and recreational opportunities, introducing traffic calming measures, and facilitating access to local-serving commercial uses.	Does Not Meet	Meets
2. Incorporate a viable, high quality commercial retail/service commercial center that will serve the needs of the new neighborhoods within the project site, as well as existing neighborhoods in the project vicinity;	Does Not Meet	Does Not Meet (feasibility)
3. Provide opportunities for a variety of housing types at a range of price points to increase the City’s housing stock and promote affordability to a range of income levels, with a focus on workforce, senior, and “missing middle” housing products.	Does Not Meet	May Not Meet
4. Allow a mix of commercial retail and residential uses within the area designated Mixed-Use Overlay to provide options for additional, diverse residential product types, tailor commercial retail/services to the needs of project residents and existing residents in the project vicinity, and activate the commercial center.	Does Not Meet	Does Not Meet (feasibility)
5. Incorporate strong recreational elements including two neighborhood parks, an integrated multi-use trail system, and passive open space.	Does Not Meet	Does Not Meet (feasibility)
6. Design a circulation plan that incorporates complete street concepts and includes extensive pedestrian and bicycle facilities to provide connectivity throughout the project site; includes traffic calming measures to be selected from a range of proven measures such as bulb-outs within the site and on adjacent neighborhood streets to slow traffic speeds for enhanced pedestrian and bicycle safety, and incorporates a small format roundabout at Yellowstone Drive/Sequoia Drive to optimize traffic flow while facilitating safe pedestrian and bicycle connections across Sequoia Drive.		
North of Sequoia planning objectives include the following:		
<ul style="list-style-type: none"> ▪ Provide residential land uses at higher densities to enable development of a variety of housing types/products including workforce housing and move-up “missing middle” housing; ▪ create local-serving commercial retail and service commercial development opportunities described previously; ▪ create flexibility to allow ground floor retail with residential above by enabling mixed-use development in a limited portion of the area; ▪ locate larger format commercial retail sites along Orange Drive; ▪ provide a neighborhood park that serves the existing and new neighborhoods located south of the highway; 	Does Not Meet	Meets

6. ALTERNATIVES TO THE PROPOSED PROJECT

Objective	No Project	Reduced Commercial Development
<ul style="list-style-type: none"> ▪ design circulation improvements that create and connect distinct development blocks, improve efficiency of the circulation network by providing connections to adjacent neighborhoods and facilities, incorporate pedestrian and bicycle facilities, and incorporate traffic calming features for pedestrian and bicycle safety; ▪ provide sufficient land for storm water management facilities; and ▪ ensure consistency with the Jepson Parkway Concept Plan. 		
<p>7. South of Sequoia planning objectives include the following:</p> <ul style="list-style-type: none"> ▪ Provide a single-family, senior residential community; ▪ ensure lot size/density compatibility with the existing adjacent residential neighborhoods; ▪ provide a senior-oriented, neighborhood park and passive use open space as recreation amenities for new residents that are also accessible to adjacent existing neighborhoods; ▪ create an extensive multi-use trail network; ▪ reserve sufficient land to address storm water management needs; ▪ create a circulation network that minimizes through traffic and effects on existing adjacent neighborhoods; and ▪ integrates pedestrian and bicycle facilities, provides enhanced emergency vehicle access, and achieves consistency with the Jepson Parkway Concept Plan. 	Does Not Meet	Meets
Overall	Does Not Meet	Does Not Meet (feasibility)

7. CEQA-Mandated Sections

This chapter provides an overview of the impacts of the proposed project based on the analyses presented in Chapters 4.1 through 4.19 of this Draft EIR. The topics covered in this chapter include impacts found not to be significant, growth-inducing impacts, and significant irreversible changes to the environment. A more detailed analysis of the effects that the proposed project would have on the environment, and proposed mitigation measures to minimize significant impacts, are provided in Chapter 4.

7.1 IMPACTS FOUND NOT TO BE SIGNIFICANT

California Public Resources Code Section 21003(f) states: "...it is the policy of the state that [a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical, and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." This policy is reflected in the California Environmental Quality Act (CEQA) Guidelines (Guidelines) Section 15126.2(a), which states that "[a]n EIR [environmental impact report] shall identify and focus on the significant environmental impacts of the proposed project" and Section 15143, which states that [t]he EIR shall focus on the significant effects on the environment." Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the Draft EIR.

Threshold letters correspond to the lettering in Appendix G of the CEQA Guidelines.

7.2 SIGNIFICANT IRREVERSIBLE CHANGES DUE TO THE PROPOSED PROJECT

Section 15126.2(b) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The following impacts were found to be significant:

Air Quality

- AIR-1 The project would conflict with or obstruct implementation of the applicable air quality plan.
- AIR-2 The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under applicable federal or State ambient air quality standard.

7. CEQA MANDATED SECTIONS

Greenhouse Gas Emissions

- GHG-1 The project would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- GHG-3 The proposed project would result in cumulative greenhouse gas emissions impacts.

Transportation

- TRANS-2 The project would conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
- TRANS-4 The project would contribute to cumulative impacts related vehicle miles traveled (VMT).

Section 15126.2(c) of the CEQA Guidelines requires that an Environmental Impact Report (EIR) describe any significant irreversible environmental changes that would be caused by the proposed project should it be implemented. Specifically, the CEQA Guidelines state:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highways improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The following are the significant irreversible changes that would be caused by the proposed project, should it be implemented:

Implementation of the proposed project would include construction activities that would entail the commitment of nonrenewable and/or slowly renewable energy resources; human resources; and natural resources such as lumber and other forest products, sand and gravel, asphalt, steel, copper, lead, other metals, water, and fossil fuels. Operation of the proposed project would require the use of natural gas and electricity, petroleum-based fuels, fossil fuels, and water. The commitment of resources required for the construction and operation of the proposed project would limit the availability of such resources for future generations or for other uses during the life of the project.

As increased commitment of social services and public maintenance services (e.g., police, fire, schools, libraries, and sewer and water services) would also be required. The energy and social services commitments would be long-term obligations in view of the low likelihood of returning the land to its original condition once it has been developed.

7. CEQA MANDATED SECTIONS

7.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or under-served area, or the removal or major barriers to development. This section evaluates the proposed project's potential to create such growth inducements. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only where the project growth would cause adverse environmental impacts.

During project construction, a number of design, engineering, and construction jobs would be created. This would last until buildout of the proposed project is completed. Construction employees would be absorbed from the regional labor force, and the construction of the proposed project would not necessarily attract new workers to the region. Upon buildout of the proposed project, approximately 2,963 new residents would be added to the city (see Section 4.14, *Population and Housing*). Residents of the proposed project would seek shopping, entertainment, employment, home improvement, auto maintenance, and other economic opportunities in the City of Vacaville and surrounding area. This would create an increased demand for such economic goods and services and could, therefore, encourage the creation of new businesses and/or expansion of existing businesses that address these needs. Therefore, although the proposed project would have a direct growth-inducing effect, indirect growth-inducing effects would be minimized due to the balance of land uses in the proposed project.

7. CEQA MANDATED SECTIONS

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8. Organizations and Persons Consulted

This Draft EIR was prepared by the following consultants and individuals:

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8. ORGANIZATIONS AND PERSONS CONSULTED

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