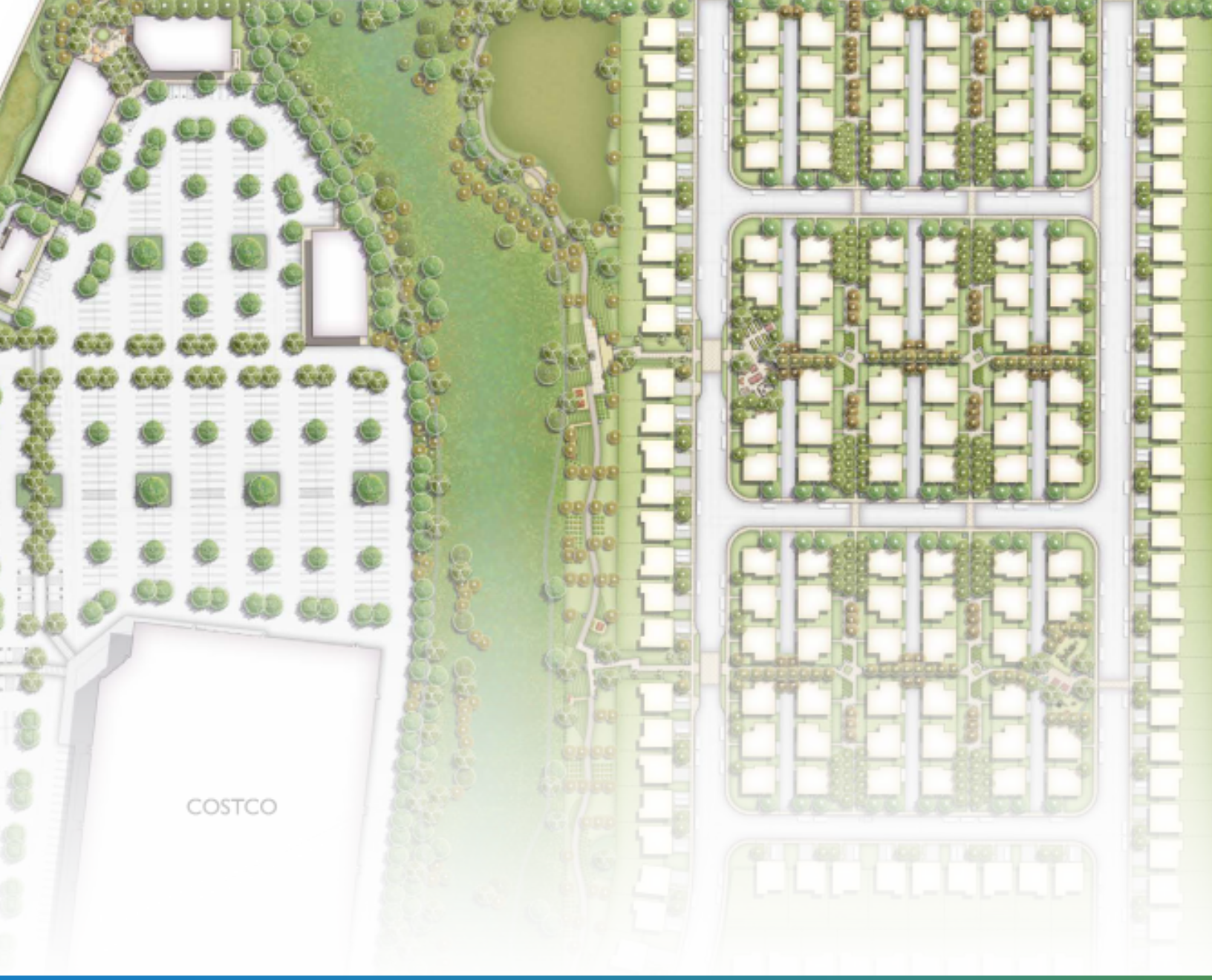

Fairview at Northgate Project

Draft Environmental Impact Report

Project Number: TM #17-0002, PD #17-0007, ZMA #17-0001, UP #18-0007
State Clearinghouse No. 2018102007

January 2020

City of VALLEJO California

Kimley»Horn

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Draft Environmental Impact Report

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STATE CLEARINGHOUSE NO. 2018102007

City of Vallejo

Planning Division

555 Santa Clara Street

Vallejo, California 94590

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JANUARY 2020

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1.0 INTRODUCTION

The City of Vallejo (City) is a Lead Agency under the California Environmental Quality Act (CEQA) and is responsible for preparing the Environmental Impact Report (EIR) for the proposed Fairview at Northgate Project (State Clearinghouse No. 2018102007). The public agency with the principal responsibility for carrying out or approving a project is the "lead agency." This EIR has been prepared in conformance with CEQA (California Public Resources Code [PRC] §21000 et seq.), California CEQA Statutes and Guidelines (California Code of Regulations [CCR], Title 14, §15000 et seq.), and the rules, regulations, and procedures for the implementation of CEQA. The principle State CEQA Guidelines sections governing the content of this document are Sections 15120 through 15132 (Content of an EIR), and Section 15161 (Project EIR).

CEQA requires all public agencies to consider the environmental consequences of projects for which they have discretionary authority. For the purposes of CEQA, the term project refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (State CEQA Guidelines §15378[a]). CEQA requires the Lead Agency to prepare an EIR if there is substantial evidence, in light of the whole record, that a project may have a significant effect on the environment. A significant effect is defined in CEQA as a substantial, or potentially substantial, and adverse physical change in the environment. Pursuant to these guidelines, the City has determined that the proposed Fairview at Northgate Project (Tentative Subdivision Map TM#17-0002 and Planned Development PD#17-0007) is a project under CEQA and the project has the potential for resulting in significant environmental effects.

1.1 EIR SCOPE, ISSUES, AND CONCERNS

EIR SCOPE

To begin the process of preparation of an EIR and to help determine the EIR scope (issues and topics proposed for discussion in the EIR), the first step is the preparation of a Notice of Preparation (NOP). The NOP is a document stating that an EIR will be prepared for a particular project and is submitted to the Office of Planning and Research (OPR) State Clearinghouse for publication and sent to applicable responsible agencies and trustee agencies, as well as federal agencies involved in the approval process. The NOP is required to provide these agencies, as well as members of the public and other interested stakeholders, with sufficient information describing the project. The intent of the NOP is to solicit comment for a 30-day period from these parties related to potential environmental effects and any particular issues they want to see discussed in the EIR. In sum, the NOP should provide adequate information for agencies and the public to make a meaningful response.

A NOP for the proposed project was prepared and issued on October 2, 2018 and the 30-day comment period expired on November 1, 2018. The NOP was circulated to local, State, and federal agencies and other interested parties, consistent with the requirements of CEQA.

The NOP indicated the following environmental topics on the listing of resources in Appendix G of the CEQA Guidelines will be addressed:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Geologic and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation and Traffic
- Utilities and Service Systems
- Energy
- Significant Unavoidable Impacts
- Cumulative Impacts
- Alternatives

As discussed above, certain projects or actions undertaken by a Lead Agency require subsequent oversight, approvals, or permits from other public agencies to be implemented. Such other agencies are referred to as "Responsible Agencies" and "Trustee Agencies." Pursuant to State CEQA Guidelines §15381 and §15386, as amended, Responsible Agencies and Trustee Agencies are respectively defined as follows:

- "Responsible Agency" means a public agency that proposes to carry out or approve a project for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency that have discretionary approval power over the project (State CEQA Guidelines §15381).
- "Trustee Agency" means 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. Trustee Agencies include… (State CEQA Guidelines §15386).

Responsible and Trustee Agencies and other entities that may use this EIR in their decision-making process or for informational purposes.

During this initial screening process, in connection with preparation of the NOP, the City assessed potential environmental impacts to Agriculture and Forestry Resources, Mineral Resources, and Wildfire as listed in Appendix G of the CEQA Guidelines. The City concluded that the proposed project would have a less than significant impact or no impact under these topics. These topics are discussed in Chapter 5.0. Consistent with CEQA Guidelines Section 15128, impacts to the remaining resources areas that were determined to be potentially significant are evaluated with the proposed project proposal in Chapter 4, Environmental Analysis.

1.2 SCOPING MEETING

A public scoping meeting was held during the 30-day NOP public review period. The scoping meeting was held on October 10, 2018 at 6:30 p.m. at the John F. Kennedy Library in the Vallejo Room, Basement Level, located at 505 Santa Clara Street in the City of Vallejo at City Hall. Nine people signed the Public Scoping Meeting Sign-in Sheet.

1.3 SCOPING RESULTS

COMMENTS ON THE NOP

In response to the NOP, comments letters were received from the following agencies and individuals:

Regional Agencies

California Department of Transportation (Caltrans) District 4

California Office of Planning and Research

Special Interest Groups and Individuals

California Native American Heritage Commission

Rene Briones

James Cisney

Jimmy Genn

Rebecca Schwartz Lesberg

Public Scoping Meeting and Comments

As discussed above, in addition to solicitation of comments through publication of the NOP, the City advertised and held a Public Scoping Meeting on October 10, 2018. Comments related to the listed resource areas were made at this meeting and are summarized below:

Project Description

Is Admiral Callaghan included in the site plan?

Commenter questioned the two-year timeline.

Is there flexibility in the location of the gas station? The ingress and egress appear to not allow enough space.

The commenter suggested having electric charging stations.

Aesthetics

Landscaping needs to be included to roadway improvements to improve visual appeal.

Who is the subconsultant for Urban Decay?

What type of fencing will be provided between the residential and open space? This could be an unattractive element and should be addressed with the privacy of adjacent residents.

What will the open space look like and how will it be cared for? By the residential component, the commercial component? Will it be part of the landscape maintenance?

The commenter does not want any unattractive or elevated signage.

Commenter stated that his house was the lowest to the east and wanted to know the type of fencing that would be installed.

The commenter questioned the appearance of the Costco and was concerned it would be concrete block.

Air Quality

Commenter requested additional information related to air quality affecting sensitive receptors. Said his son uses supplemental oxygen and is worried about harmful effects to his neighboring home.

How will the dust be controlled from getting into adjacent yards and neighborhoods?

Biological Resources

Question about a small species of frog that is unique and changes color that is present in the lowest area. Where is the report?

The combined open space and drainage should not be considered open space because they are not one in the same. The EIR should discuss usable open space and differences in the drainage and open space; differences should be more clearly defined.

The whole open space area should be landscaped, and it should be fenced to keep people out.

Cultural and Tribal Resources

The commenter noted and described the requirements of Assembly Bill 52 (AB 52) related to consultation and other requirements related to Tribal Cultural Resources; mandatory and discretionary topics to consider; confidentiality; discussion of impacts; recommendation and mitigation measures; and certification of the EIR.

The commenter noted and described the requirements of Senate Bill 18 (SB 18) related to tribal consultation, statutory time limits, and confidentiality.

The commenter noted the Native American Heritage Commission recommendations that the project should follow.

The commenter suggested the project, pursuant to CEQA Guidelines Section 15064.5 related to Cultural Resources, include records searches, field surveys, and mitigation.

Geology and Soils

Commenter noted that it is hard to read the contours and determine the grading. It would be helpful to have a description.

Commenter raised concern about the soils saying in heavy rain it became a mire.

Land Use

Commenter questioned if there was a General Plan Amendment involved.

Commenter noted pages 2-14, 6-17, and 6-23 that refer to use of the property for commercial uses.

Hazards and Hazardous Materials

The gas station site is on top of an existing stream.

Hydrology and Water Quality

The commenter expected to see drainage plans and fill reports as the project progresses.

Noise

What will be the effects of noise on adjacent properties?

Public Services

Where is the public safety easement? Access is needed due to previous fires. There is/was an easement south of Turner Parkway.

Will there be an analysis on the effects to public safety? It was not listed in the appendices.

How will the homeless be kept out of the property?

Recreation

The commenter noted that American Planning Association recommends 10 acres per 1,000 population and said that the City should be prioritizing outdoor park space for residents and park space should be emphasized in the preferred alternative.

Traffic and Circulation

Traffic on Foothill Drive is already heavy and there are safety concerns related to accidents, and pedestrians being hit. Commenter had requested improvements before, stop light/sign, bumps, etc. and wants to know the effect the project will have and what improvements will be made.

Admiral Callaghan Lane and Turner Parkway should be improved. Who will pay for the improvements?

The project will contribute more traffic to the local roads and make things more dangerous.

How will the ingress and egress be handled? Traffic already backs up with the In-N-Out and does not want traffic backing to Admiral Callaghan Lane?

What will be the effect of increased traffic on the adjacent properties?

The commenter requested an opportunity to review construction plans and was especially interested in construction impacts to the on- and off-ramps at Redwood Street and Interstate 80 (I-80).

Utilities and Service Systems

There are several springs on the site and the commenter wanted to know where they drain.

The commenter questioned the lack of discussion of the PG&E gas line.

Alternatives

Commenter suggested the northerly commercial be accessed via Turner Parkway.

Is there a way to reposition the gas station to avoid access issues?

The commenter questioned the addition of the homes and suggested using the site as a performing arts center or for other activities.

The EIR should consider an Office Park as an alternative. An Office Park would create more higher paying jobs and potentially alleviate commuter problems. The commenter requested the City acknowledge the merits of such an alternative.

The commenter noted that some previous discussion regarding the project site called for use as a commercial site, which would create jobs and tax revenue more so than the project.

Analyze the open space with appropriate buffers from the commercial and residential; do not analyze the open space buffering the uses. Reframe the purpose of the open space to be appropriately buffered from the propose adjacent uses that may degrade habitat value.

An alternative evaluating multi-family should be evaluated; the site is ideal for this use.

Cumulative Analysis

The commenter questioned what projects were being evaluated for cumulative impacts.

General CEQA Issues

What will the findings have to do with the final plan of the Costco?

Comment letter showing that the NOP was published and available for 30 days of review.

The EIR should use a correct baseline to evaluate the impacts to all resources including wildlife. This should be used to inform mitigation measures.

Non-CEQA Related Questions or Questions Outside the Scope this EIR

What is the selection process for choosing a consultant for the EIR?

Is the residential going to be a gated community?

Information has been difficult to obtain.

How will the comments be addressed?

What is the status of the land sale?

Is there a check for conflict of interests between the consultant and developer?

Request for additional information related to the planning process.

Can the In-N-Out traffic be redirected to Turner Parkway?

The commercial interests should share in the expense of the open space.

The commenter questioned whether the City would get the project as described.

The commenter stated they were pleased to see the Open Space element.

The above-listed comments and questions are not necessarily directly responded to within this document. Most of the comments and questions, through conformance to the CEQA process, would already be required elements of the analysis. Therefore, the comments and questions are discussed in the applicable sections of this EIR. To satisfy the disclosure requirements of the CEQA process, some of the questions and comments that have brought up unique circumstances and made recommendation for discussion, have been added to the EIR and included to the respective sections of the EIR.

1.4 ENVIRONMENTAL REVIEW PROCESS

An EIR is an informational document that apprises decision-makers and the general public of the potential significant environmental effects of a proposed project. The purpose of this EIR is to review the existing baseline conditions, analyze potential environmental impacts, and identify feasible mitigation measures to reduce potentially significant effects related to the proposed project.

To assist reviewers in understanding this EIR, the following terms are defined:

- **Project.** The whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.
- Environment. The physical conditions that exist in the area and which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is where significant direct or indirect impacts would occur as a result of the project. The environment includes both natural and man-made (artificial) conditions.
- **Impacts.** Impacts analyzed under CEQA must be related to a physical change. Impacts are:
    - Direct or primary impacts that would be caused by a proposed project and would occur at the same time and place; or
    - Indirect or secondary impacts that would be caused by a proposed project and would be later in time or farther removed in distance but would still be reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use; population density or growth rate; and related effects on air and water and other natural systems, including ecosystems.
- **Significant Impact on the Environment.** A substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, tribal resources, and objects of historical or aesthetic significance. An economic or social change by itself is not considered a significant impact on the

environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

- **Mitigation.** Mitigation consists of measures that avoid or substantially reduce a proposed project's significant environmental impacts by:
    - Avoiding the impact altogether by not taking a certain action or parts of an action;
    - Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
    - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
    - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
    - Compensating for the impact by replacing or providing substitute resources or environments.
- **Cumulative Impacts.** Two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. The following statements also apply when considering cumulative impacts:
    - The individual impacts may be changes resulting from a single project or separate projects.
    - The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

This EIR uses a variety of terms to describe the level of significance of adverse impacts. These terms are defined as follows:

- **Less Than Significant.** An impact that is adverse, but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.
- **Significant.** An impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less than significant level.
- **Significant and Unavoidable.** An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less than significant level through the implementation of mitigation measures.

This document analyzes the environmental effects of the proposed project to the degree of specificity appropriate to the current proposed actions, as required by Section15146 of the State CEQA Guidelines. The analysis considers the actions associated with the proposed project to determine the short-term and long-term effects associated with their implementation. The EIR focuses primarily on changes in the environment that would result from the proposed project. The EIR identifies potential impacts resulting

from the construction and operation of the proposed project and provides measures to mitigate potentially significant impacts. Those impacts that cannot be mitigated to less than significant levels are also identified.

This EIR has been prepared as a Project EIR, addressing the environmental effects of the proposed project. In accordance with Section 15121 of the State CEQA Guidelines, the primary purpose of this EIR is to provide decision-makers and the public with specific information regarding the environmental effects associated with development of the site. This EIR also identifies ways to minimize the significant effects and describes reasonable alternatives to the proposed project. Mitigation measures are provided which may be adopted as Conditions of Approval in order to reduce the significance of impacts resulting from the proposed project. In addition, this EIR is the primary reference document in the formulation and implementation of a mitigation monitoring program for the proposed project.

The City, which has the principal responsibility of processing and approving a proposed project, and other public agencies (e.g., responsible and trustee agencies) that may use this EIR in the decision making or permit process, will consider the information in this EIR, along with other information that may be presented during the CEQA process. It is not the purpose of an EIR to recommend either approval or denial of a project. Rather, the purpose of an EIR is to provide relevant information that will assist decision-makers in their decision to approve or deny a project. CEQA requires an EIR that reflects the independent judgment of the Lead Agency regarding the impacts, the level of significance of the impacts both before and after mitigation implementation, and mitigation measures proposed to reduce the impacts. Environmental impacts are not always mitigated to a level considered less than significant; in those cases, impacts are considered significant and unavoidable impacts.

The Lead Agency may choose to approve a project that would result in significant environmental effects that cannot be mitigated. If this occurs, the Lead Agency is required to prepare a "Statement of Overriding Considerations," pursuant to Section 15093 of the State CEQA Guidelines. In accordance with Section 15093(b) of the State CEQA Guidelines, if a public agency approves a project that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the agency shall state in writing the specific reasons for approving the project, based on the Final EIR and any other information in the public record for the project. This is termed, per Section 15093 of the State CEQA Guidelines, a "statement of overriding considerations."

An EIR must describe a reasonable range of feasible alternatives to the project and identify possible means to minimize the significant effects. The Vallejo Planning Commission and Vallejo City Council will consider the information in the EIR, including the public and agency comments and staff response to those comments, during the public hearing process. As a legislative action, the final decision is made by the Planning Commission, who may approve, conditionally approve, or deny the proposed project. As provided in State CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues.

The purpose of an EIR is to identify:

- The significant potential impacts of the project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to the project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less-than-significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of the project when taken into consideration with past, present, and reasonably anticipated future projects.

Upon completion of the Draft EIR, a Notice of Completion (NOC) is filed with the OPR State Clearinghouse, and a public notice is published to inform interested parties that a Draft EIR is available for review. In addition, the NOC provides information regarding the location of the Draft EIR and the known dates of any public meetings or hearings that are scheduled. The Draft EIR is circulated for a minimum 45-day period, during which time reviewers may make comments. The Lead Agency must evaluate and respond to comments in writing, describing the disposition of any significant environmental issues raised, and explaining in detail the reasons for not accepting any specific comments concerning major environmental issues. If comments received after public notice is given result in the addition of "significant new information" as defined by the State CEQA Guidelines Section 5088.5(a), the revised EIR or affected sections would be recirculated for an additional public review period with related comments and responses.

Reviewers of a Draft EIR are requested to focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

1.5 REPORT ORGANIZATION

The Draft EIR is organized into eight sections:

- Section 1.0, INTRODUCTION AND PURPOSE, provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process. It also provides summaries of the sections included in the Draft EIR, and summaries of the issues and concerns received from the public and public agencies during the NOP review period.
- Section 2.0, EXECUTIVE SUMMARY, summarizes the elements of the proposed project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation. Acknowledges alternatives that would reduce or avoid significant impacts.

- Section 3.0, PROJECT DESCRIPTION, provides a detailed description of the proposed project, including the project's location, background information, major objectives, and technical characteristics.
- Section 4.0, ENVIRONMENTAL ANALYSIS (*Impacts and Mitigation Measures*), contains a detailed environmental analysis of the existing conditions, proposed project impacts, recommended mitigation measures, and unavoidable adverse impacts (if applicable). The analysis of each environmental category in Section 4.0 is organized as follows:
    - "Environmental Setting" describes the physical conditions that exist at this time and that may influence or affect the issue under investigation.
    - "Regulatory Setting" described the Federal, State, and Local agencies and policy and regulatory documents that are applicable to the proposed project.
    - "Standards of Significance" provides the thresholds that are the basis of conclusions of significance, for which the primary source for the criteria is Appendix G of the State CEQA Guidelines (California Code of Regulations [CCR], §15000 through §15387).
    - "Project Impacts and Mitigation" describes potential environmental changes to the existing physical conditions that may occur if the proposed project is implemented.
        - A designation of "no impact" is given when no adverse changes in the environment are anticipated.
        - A "less than significant impact" would cause no substantial adverse change in the environment.
        - A "less than significant impact with mitigation incorporated" avoids substantial adverse impacts on the environment with mitigation.
        - A "significant and unavoidable impact" would cause a substantial adverse effect on the environment, and feasible mitigation measures are not available to reduce the impact to a less than significant impact.
            - "Mitigation Measures" are those specific measures that may be required of the proposed Project to avoid a significant adverse impact; minimize a significant adverse impact; rectify a significant adverse impact by restoration; reduce or eliminate a significant adverse impact over time by preservation and maintenance operations; or compensate for the impact by replacing or providing substitute resources or environment.
            - "Level of Significance After Mitigation" discusses whether the proposed project and the project's contribution to cumulative impacts can be reduced to levels that are considered less than significant.
            - "Conclusion" provides a summary of the anticipated project impacts and mitigation including significance conclusion.

- "Cumulative Impacts" describes potential environmental changes to the existing physical conditions that may occur with the proposed project, together with all other reasonably foreseeable, planned, and approved future projects.

- Section 5.0, OTHER CEQA REQUIRED SECTIONS, discusses significant environmental changes that would result from the proposed action, should it be implemented, and discusses growth-inducing impacts of the proposed project.
- Section 6.0, ALTERNATIVES, describes a reasonable range of alternatives to the proposed project or to the location of the project that could feasibly attain the basic project objectives, and provides and a determination of the environmentally superior alternative.
- Section 7.0, AGENCY CONTACTS AND PREPARERS lists persons from the Lead Agency and preparers of the EIR.

1.6 INCORPORATION BY REFERENCE

As permitted in Section 15150 of the State CEQA Guidelines, an EIR may reference all or portions of another document that is a matter of public record or is generally available to the public. Information from the documents that have been incorporated by reference has been briefly summarized in the appropriate sections of this EIR, along with a description of how the public may obtain and review these documents. These documents include:

- Propel Vallejo 2040 General Plan; (available online at: http://www.cityofvallejo.net/common/pages/DisplayFile.aspx?itemId=12181697)

  This document is appropriate to incorporate by reference because the 2040 General Plan establishes the land use designations for the project site with which the proposed project is consistent. Furthermore, the General Plan identifies the area surrounding the project site as the Callaghan-Columbus Opportunity Area as well as the I-80/SR37 Gateway Area, and specifically identifies the project site for commercial development on the western portion of the property and residential development on the eastern portion of the property.

- Propel Vallejo 2040 General Plan and Sonoma Boulevard Specific Plan EIR; (available online at: http://www.ci.vallejo.ca.us/workspaces/One.aspx?objectId=12182299&contextId=12182299)

  This document is appropriate to incorporate by reference because the Propel 2040 General Plan and Sonoma Boulevard Specific Plan Draft EIR evaluates the physical impacts on the environment associated with the City's update to General Plan Land Use designations, related to such topics as air quality, biological resources, cultural resources, traffic impacts, utilities, and public services, among other areas. As the project is consistent with the City's General Plan, the analysis contained in the Draft EIR is relevant and applicable to the proposed project.

- City of Vallejo Climate Action Plan; (available online at: https://www.cityofvallejo.net/city_hall/departments___divisions/planning_and_development_services/planning_division/climate_action_plan)

  This document is appropriate to incorporate by reference because the City's Climate Action Plan (CAP) provides goals and associated measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment to help the City achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by 2020. The proposed project is consistent with the CAP and incorporates mitigation measures to reduce greenhouse gas emissions generated by the project.

- City of Vallejo General Plan 2030 5th Cycle Housing Element Update (2015-2023) (available online at:) http://www.cityofvallejo.net/common/pages/DisplayFile.aspx?itemId=3309812

  housing element establishes housing goals for the City including housing types that are affordable to a range of income levels. The proposed project would increase the available housing stock within the City.

- City of Vallejo Municipal Code (available online: http://www.ci.vallejo.ca.us/city_hall/departments___divisions/city_attorney/vallejo_municipal_code)

  This document is appropriate to incorporate by reference because the Municipal Code contains the zoning and development standards that would govern future development on the project site. The EIR identifies that compliance with some Municipal Code chapters would reduce or avoid potential environmental effects.

The documents that are incorporated by reference are available for review on the City's website at the Internet links provided above or during counter hours from 8:30 a.m. to 4:30 p.m., Monday through Thursday and Friday 8:30 a.m. to 12:00 p.m. at the City of Vallejo Planning Development Department at 555 Santa Clara Street, Vallejo, CA 94590.

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2.0 EXECUTIVE SUMMARY

2.1 INTRODUCTION

This Draft Environmental Impact Report (Draft EIR) is an informational document intended to inform the public and decision-makers about the environmental consequences of the proposed Fairview at Northgate project (herein referenced as the proposed project). This Draft EIR is a "Project EIR" as defined in Section 15161 of the CEQA Guidelines. The Draft EIR considers the environmental impacts of the proposed project as well as the additive effects of growth throughout the City of Vallejo (City), neighboring areas of Solano County (County), and the region. These latter impacts are referred to as cumulative impacts. The Draft EIR also evaluates a range of alternatives, including different development densities for the project site. This Draft EIR has been prepared for the City, pursuant to the requirements of the California Environmental Quality Act (CEQA).

After receiving public comments on the Notice of Preparation (NOP), the proposed project was analyzed for its potential to result in environmental impacts. Impacts were evaluated in accordance with the significance criteria developed by the City that are based on criteria presented in Appendix G, "Environmental Checklist Form," of the CEQA Guidelines. The criteria in the Environmental Checklist (checklist), was used to determine if the proposed project would result in "no impact," "less than significant impact," "less than significant impact with mitigation measures," or a potentially significant impact" to a particular environmental resource. In some instances, a project may use the checklist to provide an initial discussion of a project and to screen out certain topics from a full discussion in the Draft EIR. In the case of the proposed project, this was not done, and the Draft EIR provides an analysis of all the criteria in the checklist within the pages and individual chapters of this Draft EIR. A table listing the project impacts and any associated mitigation measures is included at the end of this summary in *Table S-1: Project Impacts and Proposed Mitigation Measures*.

This Draft EIR describes the existing environmental resources on the project site and in the vicinity of the project site, analyzes potential impacts on those resources that would occur upon initiation of the proposed project, and identifies mitigation measures that could avoid or reduce the magnitude of those impacts determined to be significant. The environmental impacts evaluated in this Draft EIR concern several subject areas, including aesthetics/light and glare, air quality, biological resources, cultural and tribal resources, energy/energy conservation, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. As noted in the preceding paragraph, public comment was received during the NOP process and included written letters, and verbal and written comments provided to the City during public meetings.

These comments helped inform the discussion of this Draft EIR and helped determined the scope and framework of certain topical discussions.

Initially, this EIR is being published as a Draft EIR. The Draft EIR will be subject to review and comment by the public, as well as responsible agencies and other interested jurisdictions, agencies, and organizations for a period of 45 days. During the public review period, a hearing will be held before the City of Vallejo Planning Commission at a date to be determined to receive additional comments on the Draft EIR. The public may comment on the Draft EIR by testifying at the public hearing or may submit written comments at any time during the 45-day public review period.

Following the public review period, written responses to all comments received on the Draft EIR will be prepared. Those written responses, and any other necessary changes to the Draft EIR, will constitute the Final EIR and will be submitted to the City of Vallejo City Council for their consideration. If the City finds that the Final EIR is "adequate and complete" in accordance with the CEQA Guidelines, the City may certify the EIR. The City Council would also consider adoption of Findings of Fact pertaining to the EIR, specific mitigation measures, a Statement of Overriding Considerations (if needed), and a Mitigation Monitoring and Reporting Plan (MMRP). Upon review and consideration of the Final EIR, the hearing body may take action concerning the proposed project.

Regarding the MMRP, CEQA Guidelines Section 15097 requires public agencies to set up monitoring and reporting programs to ensure compliance with mitigation measures, which are adopted or made as a condition of project approval and designed to mitigate or avoid the significant environmental effects identified in environmental impact reports. An MMRP incorporating the mitigation measures set forth in this EIR will be considered and acted upon by the City decision-makers concurrent with adoption of the findings of this EIR and prior to approval of the proposed project.

2.2 PROJECT LOCATION

The proposed project is located to the east of the right-of-way of Admiral Callaghan Lane, south of Turner Parkway, and north of Rotary Way on a single assessor parcel (APN 0052-320-250). The commercial component of the proposed project would be accessed via Admiral Callaghan Lane and the residential component of the proposed project would be accessed via Turner Parkway. The Interstate 80 (I-80) freeway is located immediately adjacent to the west of Admiral Callaghan Lane. Regional access to the proposed project is provided via Interstate 80 (I-80) which generally trends in a northwesterly to southwesterly direction providing access through the City and San Francisco Bay Area cities to the east. Locally, the project site is accessed by Admiral Callaghan Lane adjacent to the northwest and Turner Parkway to the north. I-80 lays immediately adjacent to the northeasterly alignment of Admiral Callaghan Lane. North of Turner Parkway is an approximately 130-acre commercial development, Gateway Plaza; tracts of single-family residential development in Hunter Ranch to the east; and multi-family residential in the Quail Ridge Condominiums, as well as single-family residential, and additional commercial uses to the south.

2.3 PROJECT DESCRIPTION

The proposed project is planned to include a mixture of commercial, residential and recreation uses, and designated open space uses. The commercial element would be located in the westerly portion of the proposed project site. The residential element would be located on the easterly portion of the proposed project site. The proposed project incorporates numerous sidewalks, paseos, and a trail designed to promote a pedestrian and bicycle-friendly environment, to encourage alternative transportation between the commercial and residential project elements and improve access to the proposed open space. All components of the proposed project have been designed and planned with the intent of being responsive to the existing on-site features, topography, and other resources and constraints found on the proposed project site and within the surrounding areas, and to be compliant with pertinent planning documents, regulations, and guidelines. While the project is considered consistent with the existing General Plan and zoning designations, the project does propose a zoning map amendment to make the existing zoning classification consistent with the adopted General Plan. Each component of the proposed project is summarized in *Table 2-1: Project Summary Table*, below.

Table 2-1: Project Summary Table

Proposed Use	Acres	Square Feet (sf)	Number of Units
Commercial	**21.8**	--	--
Costco	--	152,138	--
Pad for Building #1	--	3,000	--
Pad for Building #2	--	9,400	--
Pad for Building #3	--	7,140	--
Pad for Building #4	--	7,960	--
Gasoline Station Kiosk	--	50	30 Fuel Pumps
Total		**179,688**	**30 Fuel Pumps**
Residential	**23.8**	--	**178**
Single-Family	8.1	--	86
Single-Family (with Alleys)	7.1	--	92
Basins/Greenspace	5.5	--	--
Public Roads	3.1	--	--
Open Space	**5.7**	--	--
Central Corridor (Preservation Area)	5.7	--	--
Total	**51.3**	**179,688**	**178**

COMMERCIAL – WESTERN PORTION OF THE SITE

The western portion of the project site is planned for a commercial center. The proposed project uses would accommodate 179,688 square feet (sf) of commercial building area on 21.8 acres. The commercial area is proposed for 5 separate buildings and a gasoline service station accommodating up to 30 fueling dispensers and a related 50 sf kiosk. The commercial center would have 962 parking spaces including accessible spaces for persons with disabilities.

The southern portion of the commercial center is proposed for a 152,138 sf Costco store on 17.3 acres of the 21.8-acre commercial area; this would be the largest building. Costco intends to relocate their existing Vallejo operations from the existing store with the Gateway Plaza shopping center to the proposed project site a distance of approximately 0.75-mile. The existing Costco building will be available for re-use for general commercial uses consistent with the existing zoning. The existing gas station would be decommissioned and removed from the property.

The relocated Costco would be approximately 26,700 square feet larger than the existing Costco. The Costco store is open to members weekdays between the hours of 9:00 AM and 8:30 PM. Weekend operating hours open to members are typically from 9:00 AM to 6:00 PM. The Costco store receives deliveries from approximately 2:00 AM to 10:00 AM daily. Approximately 10 trucks a day through a combination of Costco branded delivery trucks and bread trucks make deliveries to the store.

Similar to the existing warehouse, the proposed Costco store would include a tire center. The tire center installation area would be approximately 2,700 feet square feet including 5 bays. Operating hours for the tire center are anticipated to be 6:00 AM to 9:30 PM on weekdays and 6:00 AM to 7:00 PM on weekdays. The tire center would receive deliveries approximately 2 times per week.

The proposed gas station would be located in the southern portion of the commercial center parking lot. The gas station would have 30 fueling positions; an increase of 14 fueling positions from the existing station at the Gateway Plaza shopping center. Drivers would access the fueling positions via 10 feeder lanes. The Gas station would be open seven days a week between 5:00 AM and 10:00 PM. Costco fuel trucks come to the site to refill the underground fuel storage tanks approximately 12 times per day.

The northern end of the commercial area is proposed to be developed with four buildings ranging in size from 3,000 sf to 9,400 sf on approximately 4.56 acres of the 21.8-acre site. This portion of the commercial area would have 188 parking stalls, inclusive of 8 spaces reserved for disabled accessible parking. These commercial uses would be located along the Turner Parkway frontage and roughly one-third of the Admiral Callaghan Lane frontage. A restaurant with a drive-thru is proposed for the southernmost building along Admiral Callaghan Lane; potential uses for the other three buildings could include general neighborhood services such as restaurants, health and fitness clubs, medical clinics, pharmacies, salons, laundry, clothing, convenience stores, and other related services.

The proposed commercial area would take access from three driveways off of Admiral Callaghan. The selection of traffic control devices at the three intersections also reflects the City's concerns regarding traffic signal spacing and the number of traffic signals along Admiral Callaghan Lane. The driveway configurations are as follows:

- Northern Driveway: Unsignalized, separate outbound left turn and right turn lanes, southbound left turn pocket for inbound left turns;
- Middle Driveway: Signalized, two outbound left turn lanes and one outbound right turn lane, southbound left turn pocket for inbound left turns;

- Southern Driveway: Unsignalized, one outbound right turn lane, no outbound left turn allowed, southbound left turn pocket for inbound left turns.

ADMIRAL CALLAGHAN LANE IMPROVEMENTS

In conjunction with the project driveways, the project includes improvements to Admiral Callaghan Lane. Currently, Admiral Callaghan Lane is a two-lane road with one travel lane in each direction with no bike lanes or sidewalks. The project would improve Admiral Callaghan Lane to an approximately 76-foot cross-section with improvements along the project frontage. The new lane configuration for Admiral Callaghan Lane would consist of two travel lanes in each direction, an eleven-foot landscaped center median, a 5-foot wide bike lane in each direction, and a 4.5-foot wide pedestrian sidewalk on the eastern side (northbound direction) of Admiral Callaghan Lane along the project frontage. None of these proposed improvements would occur within Caltrans right-of-way to the west of Admiral Callaghan Lane.

Where Blue Rock Springs Creek crosses the southwest corner of the project site, a distance of approximately 90 feet, the proposed road widening would span the creek and would not place fill material or extend the existing culverts.

TURNER PARKWAY IMPROVEMENTS

Turner Parkway currently has two car travel lanes, a bike lane, and sidewalks in each direction with a landscaped center median along the project frontage. No roadway improvements are proposed for Turner Parkway except those associated with the residential driveways as described under the residential improvements below. The project would construct a new bus pullout on the project frontage of Turner Parkway, near the existing crosswalk at the Admiral Callaghan Lane intersection, for buses traveling in the eastbound direction. A meandering pedestrian and bicycle pathway would be constructed on the southerly side of Turner Parkway and would link the commercial and residential components of the project.

RESIDENTIAL – EASTERN PORTION OF THE SITE

The residential component would be located on the eastern portion of the project site on 23.8 acres. The project proposes 178 single-family detached units with two building types: those with a private front courtyard and alley loaded garages, and those with traditional driveways and front-loaded garages. The 92 alley-loaded residences, generally located within the interior of the project site, would have courtyards and garage access from the north-south-oriented alleys. The alleys would serve six to eight homes and would be accessed from east-west-trending 42-foot-wide interior streets. Between the interior residences, landscaped paseos would provide access to the front of the homes. Of the remaining 86 residences, 67 would be located around the perimeter of the residential area and 19 residences would be in the southern residential zone. The 86 residential units would be traditional single-family detached units on lots with a 42-foot minimum width and an 85-foot minimum depth. The traditional residential units would feature a front driveway and front entryway facing the streets and be generally oriented to the interior of the residential area. The average density for the residential uses would be 7.9 units per gross acre.

The residential component of the project would be accessed from two driveways off Turner Parkway as shown in Figure 3-8. The western residential driveway was assumed to be signalized with full access for all movements. The eastern driveway was assumed to be unsignalized with right-in/right-out access only. Signalization of the western driveway would include a modification to provide a left-turn lane into the project site and a left turn out of the project site.

OPEN SPACE – WETLANDS – CENTRAL PORTION OF THE SITE

The central 5.7-acre portion of the proposed project site would be preserved as open space. Development would be prohibited in this area. The adjacent residential developments to the south and southeast of the proposed project site drain into this area, certain portions of which are designated as wetlands pursuant to federal regulations. This open space would separate the proposed project's commercial and residential components and provide a buffer between the two uses. This area would be subject to protective restrictions that would not allow for public or private use and the open space would be secured by attractively designed perimeter fencing consistent with the appearance of open space. The open space would only be accessible via private gates located on the commercial side of the proposed project in order to facilitate maintenance activities. The proposed project anticipates that the open space would be owned, managed, and maintained by a homeowner's association (HOA) created in connection with the residential component.

PARKS AND PEDESTRIAN ACCESS

The proposed project would provide parks and privately maintained greenspace to fulfill the City's Quimby Act parkland dedication requirements. In the event an insufficient amount of parkland is dedicated per the requirements of the Quimby Act, the proposed project would be required to pay an in-lieu fee as mitigation for the amount of parkland acreage not provided. The proposed project would include approximately 1.3 acres of park area including two pocket parks and linear paseos which would be for the use of project residents. A 2.0-acre linear park/trail would be located between the residential area and the open space described above. The linear park/trail would connect to a meandering sidewalk along Turner Parkway on the north and extend to the south with connections to the residential area via three pass-thru walkways between homesites bordering the park/trail. Within the interior of the residential area, there would be a series of pedestrian paseos connecting to the parks and liner park/trail and a new meandering sidewalk on Turner Parkway. The proposed project was designed to include these walkways in order to encourage pedestrian activity within the residential community as well as from the residential community to the service-oriented uses at the north end of the commercial area and Gateway Plaza.

2.4 DISCRETIONARY ACTIONS AND APPROVALS

The City of Vallejo is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the EIR for the proposed project. Prior to development of the proposed project, discretionary permits and approvals must be obtained from local, State and federal agencies, as listed below. It is expected that these agencies, at a minimum, would consider the data and analyses contained in this EIR

when making their permit determinations. To implement the proposed project, the Project Applicant would need to obtain discretionary permits/approvals including but not limited to the following:

CITY OF VALLEJO

- Certification by the City of Vallejo that the Final EIR has been completed in compliance with CEQA and has been reviewed and considered by the decision-makers.
- Adoption by the City of Vallejo of findings regarding significant impacts and appropriate mitigation.
- Adoption by the City of Vallejo of a statement of overriding considerations for significant and unavoidable impacts, if applicable.
- Adoption by the City of Vallejo of a mitigation monitoring and reporting program (MMRP).
- Approval by the City of Vallejo of a zoning map amendment.
- Approval by the City of Vallejo of a Planned Development Master Plan.
- Approval by the City of Vallejo of a Vesting Tentative Map, subsequent Final Maps and subdivision/public improvement agreements.
- Approval by the City of Vallejo of Major Conditional Use Permit (for Costco "superstore," receipt of warehouse deliveries between 2 a.m. and 6 a.m. within 300 feet of a residential use), and drive-through restaurant).
- Approval by the City of Vallejo of Unit Plan for review of new commercial and residential architecture.
- Approval of a Public Infrastructure Construction and Reimbursement Agreement between City and Project Applicant, and Costco Loan/Costco Financing Agreement between City and Costco.
- Issuance of encroachment permits by the City of Vallejo for road work or other improvements that may be constructed in local road rights-of-way.
- Issuance of a grading permit by the City of Vallejo.
- Issuance of building permits

Future required approvals and possible permitting requirements from other public agencies may be required. Upon completion of the environmental review process and prior to construction, the proposed project would be reviewed through standard City plan check procedures to verify that the proposed project conforms to all applicable City design criteria.

VALLEJO FLOOD AND WASTEWATER DISTRICT

- Approval by VFWD of amendment to existing easement relating to relocation of sewer line encumbering the proposed project site.

- Approval by VFWD of plans and encroachment permits relating to relocation of sewer line and other storm water drain improvements.

GREATER VALLEJO RECREATION DISTRICT

- Approval of Quimby Act Fees and Park Development Fee Credits

STATE OF CALIFORNIA

- California Department of Fish and Wildlife (CDFW), Agreements/Permits/Authorizations pursuant to the California Fish and Game Code.
- California Air Resources Board – Yolo-Solano Air Quality Management District – Fugitive Dust Control Plan, Authority to Construct, Permit to Operate, any other permits as necessary.
- San Francisco Regional Water Quality Control Board (San Francisco RWQCB):
  - General Construction Stormwater Permit [Preparation of a Storm Water Pollution Prevention Plan (SWPPP).
  - Section 401 Water Quality Certification.
- Issuance of encroachment permits by the California Department of Transportation (Caltrans) – District 4 for road work or other improvements that may be required to be constructed within State-controlled right-of-way (I-80).

FEDERAL APPROVALS

- United States Army Corps of Engineers (USACE) 404 permit for wetland impacts.

2.5 AREAS OF CONTROVERSY

Pursuant to CEQA Guidelines Section 15123, this EIR acknowledges the areas of controversy and issues to be resolved that are known to the City of Vallejo and/or were raised during the EIR scoping process. These issues were identified during the NOP review period. Eight comment letters were received from agencies, organizations, and individuals in response to the NOP comment period (October 2, 2018 through October 31, 2018). These comments on the NOP are included in Appendix A.

The following list, categorized by issue, summarizes the concerns brought forth in the comment letters:

Issue Area:	Concerns Related To:
Aesthetics (EIR Chapter 4.1)	Visual impacts associated with the proximity to adjacent residences in Hunter Ranch. Analyze urban decay. Provide landscaping on Admiral Callaghan. Concerns regarding visual appearance of the fencing. The open space should be landscaped for better appearance. Question: What is the facade, structure, bulk, and color of the Costco?

Air Quality (EIR Chapter 4.2)	Project impacts on air quality and sensitive receptors in nearby areas. Dust and dirt concerns.
Biological Resources (EIR Chapter 4.3)	Wetland impacts, impacts on birds and wildlife; impacts on the creek. Use a proper baseline to identify impacts to biological resources and proper mitigation. Questions regarding existing biological resources (small frog).
Cultural and Tribal Resources (EIR Chapter 4.4)	Impacts on cultural, historical, or tribal resources and recommendation for consultation with California Native American Tribes in accordance with Assembly Bill 52, Senate Bill 18, and appropriate records search, and field survey by qualified archaeologist, and monitoring and mitigation.
Hazards and Hazardous Materials (EIR Chapter 4.7)	Desire for a public safety easement behind the existing homes.
Hydrology and Water Quality (EIR Chapter 4.8)	Drainage concerns and water quality impacts. The water from the springs needs to be properly channeled.
Land Use (EIR Chapter 4.9)	Question on the need for a General Plan Amendment. Will the project be compatible with surrounding uses?
Noise (EIR Chapter 4.10)	Noise from construction will affect adjacent residences.
Public Services (EIR Chapter 4.13)	Location of emergency ingress and egress.
Transportation and Traffic (EIR Chapter 4.15)	Trip generation, traffic congestion and impacts at I-80 on- and off-ramps, safe ingress, and egress; parking capacity. Address the traffic safety and existing circulation congestion.
Energy (EIR Chapter 4.11)	Inclusion of electric vehicle charging stations.
Utilities and Service Systems (EIR Chapter 4.15)	The gas line within the project site needs to be evaluated for safety.
Alternatives (EIR Chapter 6.0)	Consideration of an Office Park/commercial to create higher-paying jobs and reduce commuter traffic. Alternatives to provide additional buffer from commercial and residential. Analyze a multi-family alternative. Analyze an alternative to provide adequate parks for residents. Consider a performing arts center alternative.
Cumulative (EIR Chapter 4.0)	The EIR should provide a complete list of the projects being evaluated for cumulative impacts.

2.6 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2 (b) of the CEQA Guidelines requires an EIR to "describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

The specific mitigation measures summarized in Table S-1 would reduce the level of project-specific significant impacts to less than significant. Similarly, many impacts are identified that would be less than significant without the need for additional mitigation measures. Significant and unavoidable impacts were identified in the analysis.

SIGNIFICANT PROJECT-LEVEL EFFECTS

The proposed project would result in significant impacts to the following specific resource areas and pertinent significance criteria or threshold:

Air Quality

- Project emissions exceed established regional thresholds for Nitrogen Oxides (NO_X) emissions.

Project emissions associated with vehicle traffic associated with the proposed project would exceed established Bay Area Air Quality Management District (BAAQMD) regional thresholds for NO_X emissions. Even with the incorporation of mitigation measures that include Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) (MM GHG-3), traffic calming (MM GHG-4), Pedestrian Connectivity (MM GHG-5) Internal Trails (MM GHG-6), a time limitation on idling delivery trucks (MM GHG-8), and construction of a new SolTrans bus pull-out (MM TR-4), the project's mobile NO_X emissions would still exceed BAAQMD thresholds

Transportation

The project would cause the following intersections to operate at a deficient level of service during at least one peak hour:

- Intersection #6: Admiral Callaghan Lane/Turner Parkway
- Intersection #7: Admiral Callaghan Lane at Rotary Way
- Intersection #9: Redwood Street/Fairgrounds Drive/I-80 WB Ramps
- Intersection #11: Redwood Parkway/Admiral Callaghan Lane (S)
- Intersection #21: I-80 NB Ramp/Redwood Parkway
- Intersection #23 Admiral Callahan Lane/Northern Project Driveway
- Intersection #25: I-80 NB Ramp/Redwood Parkway

The project also would cause one freeway segment, listed below, to operate at an unacceptable level of service:

- Eastbound I-80 west of Redwood Parkway

The Intersections listed above #6, #7, #9, #11, #21, #22, #23, and #25, would continue to operate at a deficient level of service during one or more peak hours and therefore impacts would be significant and unavoidable. Implementation of mitigation measures which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. Other mitigation measures require payment of regional transportation impact fees and updating the signal timing coordination once the I-80/Redwood Parkway interchange has been completed. However, impacts at these eight intersections under Cumulative Plus Project conditions would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the Existing With Project or Cumulative Plus Project impacts at the I-80/Redwood Parkway interchange intersections.

2.7 ALTERNATIVES TO THE PROPOSED PROJECT

Chapter 6 of this EIR evaluates alternatives to the proposed project in accordance with the CEQA Guidelines Section 15126.6. The analysis of project alternatives takes into consideration the base assumption that all applicable mitigation measures associated with the project would be implemented with the appropriate alternatives. However, applicable mitigation measures may be scaled to reduce or avoid the potential impacts of the alternatives under consideration and may not precisely match those identified for the project. If a specific impact is not raised within the discussion of an alternative, it is because the effect is expected to be the same as that associated with the implementation of the proposed project. Detailed descriptions and analyses of the project alternatives can be found in Chapter 6 (Alternatives). The following is a summary of the alternatives evaluated in this EIR.

NO PROJECT ALTERNATIVE

The No Project Alternative assumes the proposed project would not be implemented and land uses and other improvements would not be constructed. The existing project site would remain unaltered and in its current condition. All infrastructure improvements identified in the proposed project including water, wastewater, drainage, and roadway improvements would not be constructed. Because the project site would remain unchanged, few or no environmental impacts would occur. This alternative serves as the baseline against which the effects of the proposed project and other project alternatives are evaluated.

Under this alternative none of the proposed improvements would occur and the project site would remain undeveloped.

- None of the impacts associated with the project would occur.
- Baseline growth (without project) would still occur.
- No environmental protections of any of the onsite wetlands would occur.
- Existing nuisance uses and fire hazards associated with the site would likely continue.

EXISTING ZONING ALTERNATIVE

Under this alternative the project site would be developed under the existing zoning and no zone change would be proposed. Under the Existing Zoning Alternative all 51.3 acres of the project site would remain zoned Pedestrian Shopping and Service District. This alternative would develop approximately 500,000 total square feet of commercial and retail space with approximately 1,850 parking spaces. This would be an increase of 320,300 square feet of commercial area compared to the proposed project. Development under this alternative would be similar to the type of commercial development in Gateway Plaza located across Turner Parkway from the project site. Building height for larger stores would be approximately 30 to 35 feet and smaller stores would likely be 15 to 20 feet in height.

The overall layout of this alternative would include the same 5.7-acre open space corridor in the central portion of the site which would preserve wetland areas onsite. This alternative also assumes that Costco would relocate to the project site in the same location as the proposed project. Unlike the proposed project; however, this alternative would not include any residential component and no housing would be included. Driveway access to the project site from Admiral Callaghan Lane and Turner Parkway would be the same as the proposed project.

ALL HOUSING ALTERNATIVE

Under the All Housing Alternative, only single-family residential units would be developed on the project site. The existing Costco in Gateway Plaza north of the project site would not relocate to the western portion of the property and there would be no retail component. The project design would maintain the 5.7-acre wetland designated as open space similar to the proposed project. The commercial area on the western portion of the project site would be replaced with 171 single-family homes. The eastern portion of the project would retain the same design as the proposed project and be developed with 178 single-family units. In total, the All Housing Alternative would result in 349 homes. The eastern portion of the project site would retain the same parks as the proposed project, and the residential development in the western portion of the project site would have a linear park along the eastern edge of the development. The same natural gas and sewer utility line relocation would be required under this alternative as compared to the proposed project.

WETLAND PRESERVATION ALTERNATIVE

The Wetland Preservation Alternative has been designed to minimize impacts on the wetland areas onsite. Under this design, the majority of wetland areas onsite would be preserved, and no development would occur within the wetland areas, with the exception of internal roadway crossings. The Costco and retail areas would be developed similar to the proposed project, as would the 5.7-acre open space preservation area. On the eastern portion of the site, the development footprint of the residential area would be reduced to avoid wetland impacts. A 25-foot building setback is included around the edge of the wetlands to prohibit development within this area (with the exception of roadway crossings needed for building access and emergency vehicle access). Preserving the wetland areas would result in a smaller development footprint and less area for constructing homes. Under this alternative, the residential component would be modified to include 510 multi-family residential units. The multi-family units would consist of 20 buildings located throughout the site. The building heights would range between 3-4 stories. Single-family development would not be feasible under this alternative because the number of units would be substantially reduced, and denser development scheme would be needed to support the construction and infrastructure costs associated with constructing roadways, wetland crossings, water and sewer lines, and wetland preservation costs. Under this alternative, there would be fewer opportunities for common open space areas and a linear park depending on parking requirements and where parking areas would be located.

2.8 ENVIRONMENTAL IMPACT SUMMARY

Table ES-1 (Summary of Environmental Impacts and Mitigation Measures), has been organized to correspond with the environmental issues discussed in Chapter 4 of this Draft EIR. The summary table is arranged in four columns:

- Environmental impacts (“Impact”).
- Level of significance without mitigation (“Significance Before Mitigation”).
- Mitigation measures (“Mitigation Measure”).
- The level of significance after implementation of mitigation measures (“Significance After Mitigation”).

If an impact is determined to be significant or potentially significant, mitigation measures are identified, where appropriate and feasible. More than one mitigation measure may be required to reduce the impact to a less-than-significant level. This Draft EIR assumes that all applicable plans, policies, and regulations would be implemented, including, but not necessarily limited to, City General Plan policies, laws, and requirements or recommendations of the City planning staff or Board.

Applicable plans, policies, and regulations are identified and described in the Regulatory Setting of each issue area and within the relevant impact analysis. A description of the organization of the environmental analysis, as well as key foundational assumptions regarding the approach to the analysis, is provided in Chapter 1.0, Introduction.

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Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.1 – AESTHETICS			
Impact AES-1: Scenic Vistas. Although the proposed project would result in changes to the existing visual environment of the project site as seen from Interstate (I-80) and other off-site areas, the changes would not detract from any scenic vistas and would be consistent with other easterly views along the I-80 corridor.	Less Than Significant	**None required**.	Less Than Significant
Impact AES-2: Scenic Highways. There are no officially designated State scenic highways in the City. Although State Route 37 (SR 37) is eligible for designation as a scenic highway; the site is not visible from SR-37 due to elevation changes and intervening development and vegetation.	Less Than Significant	**None required**.	Less Than Significant
Impact AES-3: Scenic Character. The project would be similar in visual character to adjacent development and would not adversely change the aesthetic character of the project vicinity.	Less Than Significant	**None required**.	Less Than Significant
Impact AES-4: Urban Decay. The relocation and expansion of the existing Costco, and the reuse of the existing Costco site, would not trigger a downward spiral of retail closures and consequent long-term vacancies due to a surplus of retail market supply such that urban decay and related adverse significant visual impacts would occur.	Less Than Significant	**None required**.	Less Than Significant
Impact AES-5: Light and Glare Impacts. The project introduces new parking lot and building lighting to an undeveloped site, which could. (without mitigation) adversely affect the visual quality of the area or wildlife including nesting birds.	Potentially Significant	**MM AES-1: Lighting Plan**. Prior to issuance of a building permit, the project applicant shall submit, to the satisfaction of the Planning & Development Services Director, a lighting plan for the project site demonstrating that outdoor lighting fixtures will not cause substantial glare and light spillover to surrounding properties including the open space area. At the Director's discretion the lighting plan can be broken up into commercial and residential	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		components. The plan shall include photometric contours, manufacturer's specifications on the fixtures, and mounting heights.	
Cumulative Aesthetic Impacts: The proposed project and all other projects would be subject to the City's design review process, which also would ensure that all proposed lighting conforms to requirements and all facades would be designed to minimize the potential for glare. Additionally, economic data indicates the project would operate successfully and not result in cumulatively considerable urban decay.	Less Than Significant	**None required**.	Less Than Significant
Chapter 4.2 - AIR QUALITY			
Impact AQ-1: Air Quality Plan. Emissions from project operations (primarily traffic) would exceed the Bay Area Air Quality Management District's (BAAQMD) thresholds for Nitrogen Oxides (NO_X), which have been established to identify projects with potential to generate substantial air pollutants. This constitutes a conflict with BAAQMD's Clean Air Plan.	Significant	**No other feasible mitigation measures have been identified.** Compliance with the Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan required per MM GHG-3, additional trip-reduction measures outlined in MM GHG-4 through MM GHG-6 and MM GHG-8, and construction of a new SolTrans bus pull-out as part of MM TR-4, would reduce the project's mobile NO_X emissions, but emissions levels would still exceed BAAQMD thresholds. No other feasible measures to reduce transportation related trips have been identified.	Significant and Unavoidable.
Impact AQ-2: Criteria Pollutants. Emissions from project construction would exceed BAAQMD's average daily thresholds without mitigation. Emissions generated by project traffic would meet all of BAAQMD's regional thresholds except for Nitrogen Oxides (NO_X).	Significant	**The following measures have been identified to reduce construction emissions. No other feasible mitigation measures to reduce transportation related NO_X emissions other than MM GHG-3, MM GHG-4 through MM GHG-6, MM GHG-8, MM TR-4 were identified for the project's exceedance of the NO_X threshold.** **MM AQ-1**: **BAAQMD Basic Construction Measures.** Prior to any grading activities, the applicant shall prepare and implement a Construction Management Plan that includes the BAAQMD Basic Construction Mitigation Measures to minimize construction-related emissions. This shall plan shall first be reviewed and	Construction and Operations (except NOx): Less Than Significant Operations (NOx only):

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		approved by the Director of Public Works/City Engineer. The BAAQMD Basic Construction Mitigation Measures are: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. 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. The use of dry power sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. 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. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. 8. 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.	Significant and Unavoidable

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		MM AQ-2: BAAQMD Additional Construction Mitigation Measures. Prior to the issuance of any grading permits, the applicant shall prepare and implement a Construction Management Plan that includes the BAAQMD Additional Construction Mitigation Measures to minimize construction-related emissions. This shall plan shall first be reviewed and approved by the Planning & Development Services Director. The applicable BAAQMD Additional Construction Mitigation Measures are: • The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time. • Idling time of diesel-powered construction equipment shall be limited to two minutes. • The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction (i.e., owned, leased, and subcontractor vehicles) will meet United States Environmental Protection Agency Tier 4 final off-road emissions standards or would achieve a project-wide fleet-average 20 percent NOX reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. • Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings). • Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOX and PM.	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		• Require the lifting and placing of HVAC units on the roof of the proposed Costco building via helicopter to only occur when no other excavation, grading, and ground-disturbing construction activities are being conducted on the project site and only once the commercial component of the project has been fully paved.	
Impact AQ-3: Sensitive Receptors. The project's highest calculated carcinogenic risk is 3.07 per million for 30-year exposure, which is below BAAQMD's 10 in one million threshold. Additionally, acute and chronic hazards would be 0.00 and 0.0007, respectively, which are below the hazard index threshold of 1.0. The project would not exceed BAAQMD's threshold for vehicle trips associated with significant carbon monoxide (CO) concentrations.	Less Than Significant	**None required**.	Less Than Significant
Impact AQ-4: Odors. The project would introduce new odor sources into the area (e.g., temporary diesel exhaust generated during construction and delivery trucks to retail area and residences). However, these odor sources would be temporary and are already present in the project area and do not result in complaints.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Air Quality Impacts: Because BAAQMD's CEQA Guidelines note that the nature of air emissions is largely a cumulative impact, and project operations would exceed BAAQMD's threshold for NOx, the project's individual emissions would potentially contribute to existing cumulatively significant adverse air quality impacts.	Significant	**Implement MM AQ-1 and MM AQ-2.** No other feasible mitigation measures have been identified. As discussed above, no other feasible measures beyond the Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan required per MM GHG-3, additional trip-reduction measures outlined in MM GHG-4 through MM GHG-6 and MM GHG-8, and construction of a new SolTrans bus pull-out as part of MM TR-4 that would reduce transportation related emissions to the project site.	Significant and Unavoidable

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.3 – BIOLOGICAL RESOURCES			
Impact BIO-1: **Special Status Species or Nesting Birds.** Without mitigation, project construction activities during bird nesting season could have adverse impacts on sensitive bird species.	Potentially Significant	**MM BIO-1: Nesting Birds.** Project activities should be initiated outside of the nesting season to the extent feasible (September 1 - January 31). However, if vegetation removal, grading, or initial ground-disturbing activities must be conducted during the nesting season, a pre-construction nesting bird survey shall be conducted by a qualified biologist prior to vegetation removal or initial ground disturbance. Nesting habitat may include grasslands, shrubs, trees, snags and open ground. The survey should be conducted in a sufficient area around the worksite to identify the location and status of any nests that could potentially be affected by Project activities. If active nests are found within the project limits of impact or close enough to these areas to affect breeding success, a work exclusion zone shall be established around each nest by a qualified biologist and confirmed by the City. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes vary dependent upon bird species, nest location, existing visual buffers and ambient sound levels, and other factors; an exclusion zone radius shall be a minimum of 25 feet (for common, disturbance-adapted species) or as large as 250 feet or more for raptors. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities outside the reduced radius are not adversely impacting the nest.	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact BIO-2: **Sensitive Biological Communities.** The project site contains three sensitive biological communities: perennial stream, anthropogenic depressions, and seasonal wetland swales. The project has been designed to avoid approximately 2.50 acres of seasonal wetlands in the central region of the project site; however, project activities would impact 2.52 acres of seasonal wetland swale and 0.08 acre of anthropogenic depression.	Potentially Significant	**Implement MM BIO-2 through BIO-5.** **MM BIO-2: Wetland Permits.** Prior to the approval of grading permits or improvement plans, the applicant shall provide, to the satisfaction of the Planning and Development Services Director, evidence that the U. S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and the San Francisco Regional Water Quality Control Board (RWQCB) have been notified in writing regarding the existence of wetlands on the property. Any permits required shall be obtained and copies submitted to the Director prior to any equipment staging, clearing, grading, or excavation work. The permit shall include authorization for temporary construction work within the wetland area. **MM BIO-3: Wetland Compensation.** Prior to the approval of grading permits or improvement plans, the applicant shall submit to the satisfaction of the Planning and Development Services Director evidence that the following measures have been completed: Provide written evidence that compensatory mitigation has been established through the purchase of mitigation credits at a qualified wetland mitigation bank established by and in agreement with the U. S. Army Corps of Engineers (USACE) and the San Francisco Regional Water Quality Control Board (RWQCB). The purchase of credits shall be a minimum of a 1:1 ratio or equal to the amount necessary as determined by USACE and RWQCB to replace impacted jurisdictional wetlands including compensation for temporal loss in accordance with approved regulatory permits (e.g., Regional Water Quality Control Board Section 401 Water Quality Certification, US Army Corps of Engineers 404 Permit, and California Department of Fish and Game Section 1602 Lake and Streambed Alteration Agreement) (minimum 1:1 ratio; more if required by other agencies). The total amount of impacted jurisdictional wetlands, as determined by the regulatory agencies,	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		shall be replaced in accordance with the total amount of impacted acreage. **MM BIO-4: Construction Fencing.** Prior to approval of grading or improvement plans, the applicant shall submit to the satisfaction of the Planning & Development Services Director evidence that the following measures have been completed: The grading or improvement plans shall identify the location of protective construction fencing. High visibility and silt fencing shall be erected at the edge of the construction/maintenance footprint if work is anticipated to occur within 50 feet of the preserved jurisdictional features and riparian areas. A qualified biological shall be present during the fence installation and during any initial grading or vegetation clearing activities within 50 feet of jurisdictional features and riparian areas which are proposed for avoidance. Temporary construction activities related to the transfer of graded soil material and equipment to and from the commercial and residential areas shall be described and included in the permit issued for grading and encroachment in the wetland area. The crossing shall be limited to a single span in a single location and shall not be moved during any grading activities. The span shall be fenced and marked and shall be removed at the earliest feasible time upon the completion of grading. The span shall be installed, operated, and removed to minimize disturbance to the wetland area to the maximum extent feasible. **MM BIO-5: Construction Staging.** Prior to the approval of grading permits or improvement plans, the applicant shall submit to the satisfaction of the Planning & Development Services Director evidence that the following measures have been completed: All equipment shall be stored, fueled and maintained in a vehicle staging area 300 feet (or the maximum distance possible) from any wetland feature. The staging area shall be no closer than 200 feet unless a bermed area is constructed between it and the wetland.	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		Within the staging area the refueling areas shall be lined to prevent fuel contamination and hazardous-material absorbent pads shall be available in the event of a spill. The grading or improvement plans shall include a note clearly stating the requirements for the staging area distances, berming requirements, and use of liner in the refueling areas.	
Impact BIO-3: **Wetlands.** The project site contains two wetland categories, seasonal wetland stream and anthropogenic depressions. Without mitigation, project construction activities could have adverse impacts on these features.	Potentially Significant	**Implement MM BIO-2 through BIO-5.** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Impact BIO-4: **Resident or Migratory Fish or Wildlife Species.** The project site has the potential to support nesting for eight special-status bird species. Without mitigation, project construction activities could adversely affect such species.	Potentially Significant	**Implement MM BIO-1.** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Impact BIO-5: **Tree Preservation Policies.** The project would remove 8 of the 15 existing trees on the project site including some of the street trees along Turner Parkway. Conformance with the City's zoning code and standard conditions of approval (COA) would ensure that all of the trees that are removed are replaced with large box sized trees.	Less Than Significant	**None required**.	Less Than Significant
Impact BIO-6: **Habitat Conservation Plan.** There would be no impact to an adopted habitat conservation plan (HCP) or natural community conservation plan as the Solano HCP has not been adopted.	No Impact	**None required**.	No Impact
Cumulative Biological Resource Impacts. Because of the disturbed nature of other cumulative	Potentially Significant	**Implement MM BIO-1 through MM BIO-5.**	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
projects in the surrounding area and the proposed project site, potential cumulative impacts on biological resources are not considerable.		No additional mitigation measures are required.	with Mitigation Incorporated
Chapter 4.4 – CULTURAL RESOURCES			
Impact CUL-1: Historical Resources. Based on information compiled in the cultural resources report, there are no historic properties present in the study area or adjacent areas.	Less than Significant	**None required**.	Less Than Significant
Impact CUL-2: Archaeological Resources. Site disturbance could result in impacts by damaging or destroying unknown buried historic and archaeological resources should they exist below the ground surface.	Potentially Significant	**MM CUL-1: Cultural Awareness Training Program**. Prior to the issuance of grading permits, a Cultural Awareness Training Program shall be provided to all construction managers and construction personnel prior to commencing ground disturbance work at the project site. The training shall be prepared and conducted by a qualified archaeologist to the satisfaction of the City of Vallejo Planning & Development Services Department. The training shall be a length of time adequate to explain applicable statutes, regulations, enforcement provisions; the prehistoric and historic environmental setting and context, local tribal groups; show sample artifacts; and what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction. The training may be discontinued to new workers to the site when ground disturbance is completed. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training. A list of the names of all personnel who attended the training and copies of the signed acknowledgment forms shall be submitted to the City Planning & Development Services Department for their review and approval. **MM CUL-2: Cultural Resources Construction Monitoring.** During mass grading activities, a qualified archaeologist shall be continuously present onsite, and on-call during trenching activities, to observe disturbance areas. The qualified archaeologist or	Less Than Significant with Mitigation Incorporated.

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		contractor shall halt work in the immediate vicinity if artifacts, exotic rock, shell or bone are uncovered during the construction. In the event such cultural resources are unearthed during ground-disturbing activities, and the qualified archaeologist is not in that location, the project operator shall cease all ground-disturbing activities within 50 feet of the find and immediately contact the qualified archaeologist. Work shall not resume until the potential resource can be evaluated by the qualified archaeologist. The qualified archaeologist shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find until the qualified archaeologist has evaluated the find, determined whether the find is culturally sensitive, and designed an appropriate short-term and long-term treatment plan. The significance of the find shall be determined by the archaeologist. If determined to be significant the archaeologist shall prepare a treatment plan in consultation with local experts, Native American Representatives, and the City Planning & Development Services Department **MM CUL-3: Discovery of Unknown Resources.** The project applicant shall continuously comply with the following requirement: In the event that unanticipated cultural or tribal cultural resources are encountered during the course of grading or construction, the project operator/contractor shall cease any ground-disturbing activities within 50 feet of the find. Cultural and/or tribal cultural resources may include prehistoric archaeological materials such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic materials such as glass, metal, wood, brick, or structural remnants. A qualified archaeologist shall evaluate the resource and recommend appropriate treatment measures, as appropriate.	
Impact CUL-3: **Human Remains.** Future ground disturbing activities during grading and construction activities could encounter buried	Potentially Significant	**MM CUL-4: Discovery of Human Remains.** The project applicant shall continuously comply with the following: If human remains are uncovered during ground-disturbing activities, the project	Less Than Significant with

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
human remains that were not identified during the cultural resource report conducted for the proposed project. This could result in damage to unknown, buried human remains and mitigation would be required.		proponent shall immediately halt work and contact the Solano County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. The City of Vallejo Police Department and City of Vallejo Planning & Development Services Department shall be contacted immediately after contact or attempted contact with the County Coroner. All excavation activities on the project site shall cease. If the County Coroner determines that the remains are Native American, the Native American Heritage Commission shall be notified, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). No further excavation activity shall occur on the site or any nearby area reasonably suspected to overlie adjacent human remains until consultation is complete with the most likely descendant, the Coroner and the City Planning & Department Services Department staff. Authorization to resume construction shall only be given by the City after consultation with the most likely descendent and shall include implementation of all appropriate measures to protect any possible burial sites or human remains.	Mitigation Incorporated
Impact CUL 4: **Tribal Cultural Resources.** Project construction could result in disturbance or destruction of unknown buried tribal cultural resources that were not located during previous study and site evaluation.	Potentially Significant	**Implement MM CUL-1 through MM CUL-4.** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Impact CUL 5: Cumulative Cultural Resource Impacts. Although in the process of development some known or unknown resources may be lost, it is not anticipated that these impacts would be cumulatively considerable. In addition, implementation of Mitigation Measures CUL-1 through CUL-4 would reduce project-specific impacts to a less than significant level.	Potentially Significant	**Implement MM CUL-1 through MM CUL-4.** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.5 – GEOLOGY AND SOILS			
Impact GEO-1: **Seismic Hazards.** According to the geotechnical report prepared for the project, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the project site, similar to that which has occurred in the past.	Potentially Significant	**MM GEO-1: Geotechnical Investigation.** Prior to construction, the project applicant shall prepare a design-level geotechnical investigation and a final geotechnical report with site-specific recommendations, which must be reviewed and approved by the City of Vallejo prior to issuance of any grading permit. All recommended remedial grading measures identified in the ENGEO reports dated April 17, 2017 shall be updated to reflect current building code requirements and be implemented unless alternative techniques developed by a certified geotechnical engineer or engineering geologist are identified as part of the final geotechnical report.	Less Than Significant with Mitigation Incorporated
Impact GEO-2: **Soil Erosion.** Once grading is complete but prior to overlaying the ground surface with structures, the potential exists for wind and water erosion to occur which could affect project site soils, causing a potentially significant impact.	Potentially Significant	**Implement MM GEO-1** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated.
Impact GEO-3: **Unstable Soils.** Conformance to current building code requirements does not guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake.	Potentially Significant	**Implement MM GEO-1** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Impact GEO-4: **Expansive Soils.** Construction of the project without site-specific soils investigation and recommendations could result in potentially significant impacts due to expansive soils.	Potentially Significant	**Implement MM GEO-1** No additional mitigation measures are required.	Less Than Significant
Impact GEO-5: **Inadequate Soils for Septic Systems.** No septic systems would be constructed as part of the project and no impacts would occur.	No Impact	**None required**.	No Impact

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact GEO-6: **Paleontological Resources/ Unique Geologic Features.** While fossils are not expected to be discovered during construction, it is possible that significant fossils could be discovered during excavation activities, even in areas with a low likelihood of occurrence. Fossils encountered during excavation could be inadvertently damaged. If a unique paleontological resource is discovered, the impact to the resource could be substantial.	Potentially Significant	**MM GEO-2: Paleontological Monitor**: Prior to the issuance of a grading permit, the project applicant shall, to the satisfaction of the Planning & Development Services Director, provide evidence that a qualified paleontologist has been retained to monitor mass grading and construction activities. The paleontological monitor may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In the event that any potentially significant paleontological resources are discovered, the paleontological monitor shall stop work inside a zone designated by him/her where additional paleontological resources could be found. A plan for the evaluation of the resource shall be submitted to the Planning & Development Services Director for approval. In the event that a paleontological resource (fossilized invertebrate, vertebrate, plan or micro-fossil) is found during construction, excavation within 50 feet of the find shall be temporarily halted or diverted until the discovery is evaluated. Upon discovery, the Planning & Development Services Director shall be notified immediately, and a qualified paleontologist shall be retained to document and assess the discovery in accordance with Society of Vertebrate Paleontology's 2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, and determine procedures to be followed before construction is allowed to resume at the location of the find. If determined to be significant, the paleontologist will prepare an excavation plan for mitigating the Project's impact on this resource, including preparation, identification, cataloging, and curation of any salvaged specimens.	Less Than Significant with Mitigation Incorporated
Cumulative Geology/Soils Impacts. Development projects would be required to be constructed in accordance with the latest edition of the California Building Code and to adhere to all current earthquake construction standards, including those relating to soil characteristics. The proposed	Potentially Significant	**Implement MM GEO-1 and MM-GEO-2** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated.

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
project would not contribute to any cumulatively considerable geologic and/or soils impacts. Therefore, cumulative effects of increased seismic risk would be less than significant.			
Chapter 4.6 – GREENHOUSE GASES			
Impact GHG-1: Greenhouse Gas (GHG) Emissions. The project would include direct and indirect GHG emissions from project commercial and residential construction and operations. Without mitigation, these emissions would exceed applicable thresholds of significance.	Potentially Significant	**MM GHG-1: Electric Powered Landscape Equipment.** Prior to issuance of building permits, the project applicant shall prepare and submit building plans to the City of Vallejo Chief Building Official that demonstrate that all new structures have outdoor electrical outlets that are accessible to maintenance workers and landscapers front and back exteriors of all residential and non-residential structures to allow the use of electric-powered equipment. **MM GHG-2: Hearth Emissions.** Prior to the issuance of building permits, the building official shall confirm that the applicable project plans and specifications do not include wood-burning and natural gas hearths. **MM GHG-3: Vehicle Trip Reduction.** The project applicant shall submit a qualifying Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan prepared by a qualified transportation consultant acceptable to the City to reduce vehicle trips by X percent. The TDM plan shall be approved by the City of Vallejo Public Works Director prior to the issuance of occupancy permits and incorporated into the project's C Covenants, Conditions, and Restrictions (CC&Rs). The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TDM plan shall include a requirement for annual reporting to the City Planning Division showing good faith compliance with plan requirements. The TDM	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		plan may be modified with the City's agreement, provided that no additional trips are generated. Examples of trip reduction measures for non-residential uses may include, but are not limited to: • Include a pedestrian access system integrated into the design of the project to encourage pedestrian travel as an alternative to automobile travel. • Post transit information (maps, schedules, fares, etc.) in a public area of Costco that is accessible to employees and patrons; • Provide a work commute trip reduction program for on-site employment that may include employer carpooling promotion, employer ride-matching assistance, preferential carpool parking on-site, employer vanpool assistance, and on-site bicycle end-trip facilities including bicycle parking. • Provide employer-subsidized transit passes; • Sponsor an employee ride-sharing program; • Provide employee lockers for personal items; • Provide employees with an employee-only restroom with a shower (only applies to Costco warehouse); • Provide secure indoor bicycle parking (racks or lockers) for employees; • Provide customer bicycle parking (racks) in safe and convenient locations; • Allow flex scheduling or compressed scheduling practices; • Provide preferential parking spaces for clean air vehicles; • Provide additional parking spaces designated for electric vehicles and electric vehicle charging stations beyond what is already required (applies only to Costco warehouse)as; and • Provide a minimum of two charging stations for electric vehicles (applies only to Costco warehouse); and	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		• If home delivery service is provided in the future, it shall be performed using low emission or alternative-fueled (electric, natural gas, hydrogen, etc.) vehicles. Examples of trip reduction measures for residential uses may include, but are not limited to: • Provide a ride-matching assistance program that will include ride-matching through a website and/or social media site and/or advertisements in community common areas; • Provide a school trip matching program via the Homeowners Association (HOA) and the local schools to match local students together for potential carpools through the HOA, PTA, and school website and/or social media site and/or promotion at the local schools; • Establish a Transit Management Association, such as through a HOA, to promote, manage, and monitor transit and mobility services and infrastructure, such as through distributing information to homeowners on transit options or through posters in inform the public; and • The Transit Management Association shall work with local automotive dealers to help promote CNG electric and hybrid electric vehicles, such as requesting that dealers offer incentive programs to residents of the project. **MM GHG-4: Traffic Calming.** The project developers shall integrate traffic calming measures into the community-wide circulation network to promote reduced speeds and encourage pedestrian and bicycle trips. Prior to the issuance of building permits, the building official shall confirm with the Public Works Director that the applicable project improvement plans and specification include traffic calming measures such as marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii,	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others where applicable. **MM GHG-5: Pedestrian Connectivity.** The project developers shall provide as part of the project and consistent with City requirements and limitations, sidewalks and crosswalks at all streets (along with general pedestrian connectivity throughout the project) to encourage pedestrian travel and offer an alternative to vehicle trips. **MM GHG-6: Internal Trails.** The project developers shall construct a multi-purpose internal trail system that includes an off-road multi-use trail and bike lanes within the street right-of-way. **MM GHG-7: Alternatively Fueled Equipment.** To the extent that such equipment is readily available and can adequately perform all tasks, Costco shall use electric-, propane-, or natural gas-powered mobile equipment (forklifts, non-street legal street sweepers, etc.) for operational activities within the project site. Existing gasoline- or diesel-powered mobile equipment may continue to be used until its service life is exhausted. **MM GHG-8: Idling Limitation.** Prior to issuance of occupancy permits for the Costco store, the project applicant shall submit to the satisfaction of the Planning & Development Services Director, an idling restriction program for heavy-duty diesel vehicles. The program shall require that all trucks comply with state regulations limiting idling to no more than 5 minutes. The program shall be implemented through signage in all loading areas and training of store personnel about the idling restrictions. **MM GHG-9: Loading Dock Electrical Hookups.** Prior to issuance of building permits for the proposed Costco store, the project applicant shall provide at least of one electrical hookup in each of the proposed loading docks that is capable of powering a truck-mounted transport refrigeration unit (TRU) with an electrical hookup option.	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		MM GHG-10: On-Site Renewable Energy. Prior to issuance of building permits for the proposed Costco store, the project applicant shall submit to the satisfaction of the Chief Building Official, a roof layout plan that illustrates how future installation of a photovoltaic system could be accommodated, including plans that identify installation of conduit from the roof to the electrical room—or to electrical panels if no electrical room is provided—to accommodate future photovoltaic system or other collector/power generation installation. Within four years of project occupancy, Costco shall install rooftop photovoltaic panels or another renewable energy source that generates at least 500,000 kilowatt hours (kWh) per year. **MM GHG-11: Additional GHG Emissions Reduction Measures.** The proposed project shall include, but not be limited to, the following list of Project Design Features, which shall be incorporated into the project to ensure compliance with BAAQMD GHG thresholds. The project applicant may submit a report to the City, prepared by a qualified independent consultant, that substantiates why specific measures are considered infeasible at that point in time and identify alternate measures that would achieve equivalent reductions. The recommended measures for reducing operational GHG emissions are listed below. The recommended measures may be updated as new technologies or methods become available, to the satisfaction of the Planning & Development Services Director. The project applicant shall be required to implement the following: **Energy Efficiency Measures** • Include conduits and space for the future addition of energy storage to optimize renewable energy generation systems and avoid peak energy use. Electrical panels should appropriately be sized to allow for future expanded use. This measure shall be verified prior to building permit issuance. • The City shall verify before issuance of all residential building permits that where appliances are offered by residential project	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		developers, Energy Star-rated appliances (or other equivalent technology) for clothes washers, dishwashers, refrigerators, and fans shall be installed in the residences. • The City shall verify before issuance of all residential and non-residential building permits that high-efficiency light bulbs and lighting fixtures are installed in residential and non-residential buildings. High-efficiency light bulbs include compact fluorescent lamps (CFLs), light-emitting diodes (LED), and other light bulbs that provide an energy efficiency of at least 75% compared to traditional incandescent bulbs. • The City shall verify before issuance of building permits that buildings comply with Title 24 Building Energy Efficiency Standards, which includes energy-efficient design practices such as high-performance glazing. Energy Star compliant systems, radiant heat roof barriers (including but not limited to high-albedo white thermoplastic polyolefin roof membrane), high-efficient HVAC with hot-gas reheat, insulation on all pipes, programmable thermostats, solar access, shading of HVAC systems from direct sunlight, use of formaldehyde-free insulation, use of recycled-content gypsum board, sealed ducts, orientation of building and incorporation of landscaping to maximize passive solar (heating during cool seasons, and minimize heat gain during hot season), and designs that take advantage of prevailing winds . • The project developers shall site and design buildings to take advantage of daylight where feasible and consistent with building purpose. • The project developers shall use lighter-colored paving or open-grid paving materials for surface parking areas or break up large expanses of paved area with shade trees or shade structures or use light-colored roofing materials.	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		Water Efficiency Measures • To the extent feasible, project developers shall landscape to preserve natural vegetation and maintain watershed integrity. This measure shall be verified prior to building permit issuance. • The project shall use native species and drought-tolerant species for a minimum of 50 percent of the ornamental plant palette in non-turf areas for all retail, common, and public areas, and residential front-yard landscaping to minimize water demand. • Use recycled water for landscape irrigation where available. This measure shall be verified prior to building permit issuance. **Solid Waste Measures** • Reuse, recycle, and divert construction waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). This measure shall be verified prior to grading permit issuance. • Provide interior and exterior storage areas for recyclables and adequate recycling containers located in public areas. Recycling bins in the storage areas shall be included to promote recycling of paper, metal, glass, and other recyclable material. These bins shall be emptied and recycled accordingly as part of the proposed project's regular solid waste disposal program. The project applicant or its successor in interest shall only contract for waste disposal services within a company that recycles waste in compliance with AB 341. This measure shall be implemented prior to issuance of an occupancy permit. **GHG Reduction Education and Information** • The project applicant or its successors or the HOA shall maintain a Fairview website that includes, but is not limited to, information about greenhouse gas (GHG) reduction opportunities to help educate project residents, as well as	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		schools, other agencies, and businesses with facilities on the project site. • The project applicant or its successors or the HOA shall include on the Fairview website information about rebates and low-interest loans to residents that make energy-saving improvements to their homes. • The project applicant or its successors or the HOA shall include on the Fairview website information about the air quality and greenhouse gas benefits of electric landscape maintenance equipment. • The project applicant or its successors or the HOA shall include on the Fairview website educational information on energy and water conservation and efficiency for project residents, customers, tenants, and large energy users. • The project applicant or its successors or the HOA shall include in the Fairview website information about energy conservation and financial incentive programs. **MM GHG-12: GHG Emissions Offsets.** The project applicant shall purchase and retire GHG offsets to reduce the project's GHG emissions for the first 30 years below the BAAQMD's thresholds of significance (i.e., below 1,100 MTCO2e per year, or 4.6 MTCO2e per service population per year [as adjusted for post-2020 GHG reduction targets], or the latest applicable threshold at the time). GHG offsets shall be purchased either with a lump sum payment prior to occupancy for the entire 30-year period, or on an annual basis for a period of thirty years from project occupancy. If annual payments are made, evidence of the purchase of GHG offsets for the first year of occupancy shall be submitted to the satisfaction of the Planning & Development Services Director prior to the issuance of occupancy permits. Evidence of the GHG offsets years 2-30 shall be submitted annually on or before the anniversary of the occupancy permit (or as adjusted by the Planning & Development Services Director). GHG offsets shall be purchased on an annual	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		basis for a period of thirty years. GHG offsets shall be consistent with the performance standards and requirements set forth below. • The GHG offsets shall be secured from an accredited registry that is recognized by the California Air Resources Board (CARB) or a California air district, or from an emissions reduction credits program that is administered by CARB or a California air district. • The GHG offsets shall represent the past reduction or sequestration that is "not otherwise required," in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.4(c)(3). • The GHG offsets shall be real, permanent, quantifiable, verifiable, and enforceable. • Recognizing that future regulatory mandates, technological advances, new renewable energy programs, or final project design features would likely result in GHG emissions that are lower than the levels presented in this EIR, the project applicant may prepare a final project GHG emissions inventory prior to issuance of the certificate of occupancy. The inventory shall be subject to verification by a City-approved third party (at applicant expense), with the final emissions estimates dictating the increment to be mitigated through purchase of GHG offsets. The offsets must also be secured by the applicant and verified by the City prior to issuance of the certificate of occupancy, thus providing full mitigation prior to completion of the project.	
Impact GHG-2: **Criteria Pollutants.** The project would comply with existing and future regulations requiring less carbon intensive energy sources. As such, the project would not conflict with any state-level regulations pertaining to GHGs.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Cumulative Greenhouse Gas Impacts. The proposed project would be consistent with the goals and policies in the CARB Scoping Plan, Plan Bay Area, and the Vallejo Climate Action Plan. As such, the cumulative impacts to GHG emissions would be mitigated on a project-by-project level, and in accordance with the established regulatory framework, through the established regulatory review process. Therefore, the project's impacts do not represent a cumulatively considerable contribution toward global GHG emissions.	Potentially Significant.	**Implement MM GHG-1 through MM GHG-12** No additional mitigation measures are required.	Less Than Significant
Chapter 4.7 – HAZARDS AND HAZARDOUS MATERIALS			
Impact HAZ-1: Transport, Use, or Disposal of Hazardous Materials. While the proposed project would involve the transportation, use, and disposal of some hazardous materials (mostly related to fuel transport for the proposed gas station), compliance with local, state, and federal regulations and County policies would ensure that the proposed project would result in less than significant impacts and no mitigation is required.	Less Than Significant	**None required**.	Less Than Significant
Impact HAZ-2: Release of Hazardous Materials. A release of diesel or gasoline into the environment would be considered a significant impact and mitigation is required to develop specific design requirements for the gas station equipment and safety features, including storm water protection.	Potentially Significant	**MM-HAZ-1: Gas Station Design Requirements.** Prior to the issuance of building permits for the Costco gas station, the project applicant shall to the satisfaction of the Planning & Development Services Director or designee, demonstrate that the following measures have been incorporated into the applicable plans and project designs to the satisfaction of the Planning & Development Services Director or their designee. All design features requiring verification of installation shall be verified and approved by the appropriate City representative prior to initiation of fueling station operations.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		1. The tank and piping monitoring system shall be designed to meet the federal underground storage tank leak detection standards of 95 percent probability of detection and 5 percent probability of false alarm. California State Water Resources Control Board also certifies the system under LG-113. 2. The project shall be designed to utilize durable petroleum-resistant sealant joint sealers to seal the concrete control joints to prevent petroleum products from entering the underlying soil at the concrete joints. 3. The storm drainage system for the fueling facility area shall be designed in accordance with State of California Best Management Practices for water quality treatment standards. Stormwater from the fueling area will be isolated and will be directed away from the perennial stream (located in the southeastern corner of the project site) to a catch basin and processed through an oil/water separator prior to discharge to the storm drain system or bioretention basin. 4. The underground tank and piping control units shall be housed inside the controller enclosure. The enclosure shall contain the power console, the dispenser interface unit, the submersible pump variable speed controllers, and the monitoring system console. An air conditioner mounted on the side of the enclosure shall have a preset thermostat to maintain a safe operating temperature. 5. The underground storage tanks and all containment sumps, including the dispenser sumps shall be double-walled fiberglass for its corrosion resistance and plasticity. The double-walled storage tank system shall include a hydrostatic interstitial space sensor that monitors the primary and secondary tank walls. An interstitial sensor shall be installed to immediately shut down the product delivery system and activate a visual/audible alarm if a tank wall is compromised.	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		6. The underground storage tanks shall be secured in place with anchoring straps (tie-downs) connected to concrete hold down deadmen. The entire tank excavation hole shall be backfilled with pea gravel and capped with an 8-inch-thick reinforced concrete slab (overburden). The tie-downs, together with the overburden, shall be designed to overcome any possible buoyancy factors and resist buckling under hydrostatic pressures. 7. All products, vapor and vent piping shall be non-corrosive and provide three levels of protection. All product piping shall be monitored with pressure line leak detection. All piping shall be double-walled to provide secondary containment. All fiberglass piping shall be additionally monitored under vacuum per California 2481 regulations such that if a breach is detected in the vacuum, the product delivery system will shut down and system will sound audible alarm. 8. All piping connections to the tanks and dispensers shall be flexible to prevent rupture from any form of ground movement. 9. The project shall be designed such that all piping slopes to the sumps at the underground storage tanks. If a piping leak occurs, the gasoline shall flow through the secondary pipe to the sump, where a sensor is triggered to immediately shutdown the system and activate an audible/visual alarm. 10. All tanks and dispensers shall be equipped with latest Phase I and Phase II Enhanced Vapor Recovery (EVR) vapor recovery air pollution control equipment technology per the California Air Resources Board regulations and associated Executive Orders. 11. Emergency shutoff switches shall be installed next to the controller enclosure and in locations near the dispensers, as dictated by the fire code. 12. The UST monitoring system incorporates automatic shutoffs. If gasoline is detected in the sump at the fuel dispenser, the	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		dispenser shuts down automatically and an alarm is sounded. If a problem is detected with a tank, the tank is automatically shut down and an alarm is sounded. 13. Each fuel dispenser includes several safety devices. Specifically, each dispenser sump is equipped with an automatic shutoff valve to protect against vehicle impact. 14. Closed-circuit television monitor cameras shall be aimed to show all fueling positions, the tank slab, and equipment enclosures. Equipment enclosures shall be mounted on canopy columns adjacent to the fuel islands. A split-screen monitor shall be located in the Costco warehouse to allow for full-time monitoring of the fueling operation. All images shall be recorded by the camera system. 15. A monitoring system to detect leaks from the tank and piping system that is programmed to activate visual/audible alarms in the event of an alarm condition shall be installed. One visual/audible alarm shall be located on the outside of the controller enclosure and a second visual/audible alarm shall be located in the Costco warehouse entry/exit area. The monitoring system shall be designed so that if power is lost to the monitoring console the facility is shut down and will not operate. 16. An independent security company shall monitor the Costco Wholesale warehouse alarm system. The alarm system shall acknowledge an alarm condition at the fueling facility and notify Costco management staff of an alarm condition should it occur after operating hours.	
Impact HAZ-3: **Proximity to an Existing or Proposed School**. The project does not propose any industrial uses which could generate hazardous emissions or involve the handling of hazardous materials, substances, or waste in	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
significant quantities that would have an impact to surrounding schools.			
Impact HAZ-4: **Significant Hazards to the Public or the Environment.** The project is not included on a hazardous site list compiled pursuant to California Government Code Section 65962.5. According to the Phase I Environmental Site Assessment prepared for the project, there were no recognized environmental conditions (as defined by ASTM Practice E 1527 13) identified in association with the project site.	No Impact	**None required**.	No Impact
Impact HAZ-5: **Airports.** There are no private or public airport facilities near the project site. The nearest airport to the site is the Napa County Airport, located approximately six miles to the northwest.	No Impact	**None required**.	No Impact
Impact HAZ-6: Emergency Response Plan or Emergency Evacuation Plan. No revisions to the City's adopted Emergency Operation Plan would be required as a result of the proposed project. Primary access to all major roads would be maintained during construction and operation of the proposed project.	No Impact	**None required**.	No Impact
Impact HAZ-7: Wildland Fires. Although the project site is not located in a Fire Hazard Safety Zone, the City would review all building plans for conformity with State and local statutes, ordinances, and regulations relating to the prevention of fire, the storage of hazardous materials, and the protection of life and property against fire, explosion, and exposure to hazardous materials. Adherence to regulations already in	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
place through the development application and review process at the City would preclude potential impacts.			
Cumulative Hazards Impacts. The incremental effects of the project related to hazards and hazardous materials, if any, are anticipated to be minimal, and any effects would be site-specific. Therefore, the project would not result in incremental effects to hazards or hazardous materials that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects.	Less Than Significant	**None required**.	Less Than Significant
Chapter 4.8 – HYDROLOGY AND WATER QUALITY			
Impact HYD-1: Water Quality Standards. Without mitigation measures to ensure that the new storm water drainage improvements satisfy the San Francisco Regional Water Quality Control Board's (SFRWQCB) requirements and all other applicable requirements and standards, construction and operational impacts associated with water quality standards and wastewater discharge requirements could be significant.	Potentially Significant	**MM HYD-1**: **Construction Water Quality Plan.** Prior to issuance of any grading permit, the applicant shall submit to the satisfaction of the Public Works Director, a Storm Water Pollution Prevention Plan (SWPPP) that satisfies the requirements of the National Pollutant Discharge Elimination System (NPDES) and State General Permit for construction. The SWPPP shall incorporate Best Management Practices (BMPs) to control runoff and sedimentation. The SWPPP shall identify specific types and sources of storm water pollutants, determine the location and nature of potential impacts, and specify appropriate control measures to eliminate any potentially significant impacts on receiving water quality from storm water runoff. The SWPPP shall comply with the most current standards established by the San Francisco RWQCB. The BMPs shall be selected from a menu according to site requirements and shall be subject to approval by the Public Works Director and San Francisco RWQCB.	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		Additionally, the project applicant shall provide to the satisfaction of the Public Works Director, evidence of a Waste Discharged Identification (WDID) number generated from the State Regional Water Quality Control Board's Stormwater Multiple Application & Reports Tracking System (SMARTS). This serves as the Regional Water Quality Control Board approval or permit under the National Pollutant Discharge Elimination System (NPDES) construction stormwater quality permit. **MM HYD-2**: **Stormwater Quality Control Plan.** Prior to issuance of a grading permit or approval of improvement plans, the project applicant shall submit to the satisfaction of the Public Works Director, a final Storm Water Quality Plan (SWQP), either within the Final Drainage Plan or as a separate document that identifies how this project will meet the City's MS4 permit obligations. Site design measures, source control measures, and Low Impact Development (LID) standards, as necessary, shall be incorporated into the design and shown on the grading or improvement plans. In addition, per the MS4 permit, projects creating and/or replacing one acre or more of impervious surface (excepting projects that do not increase impervious surface area over the pre-project condition) are also required to demonstrate hydromodification management of stormwater such that post-project runoff is maintained to equal or below pre-project flow rates for the 2 year, 24-hour storm event, generally by way of infiltration, rooftop and impervious area disconnection, bioretention, and other LID measures that result in post-project flows that mimic pre-project conditions. For the commercial area, specific source control measures for trash storage areas and the gas station shall be identified in the SWCP. **MM HYD-3: Final Drainage Plan**: Prior to the approval of grading permits or improvement plans, the applicant shall submit to the satisfaction of the Public Works Director a Final Drainage Plan to demonstrate the ability of the planned on-site storm water drainage facilities to adequately collect on-site storm water flows in accordance with all applicable standards and requirements The	

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		final drainage plan shall demonstrate that the new storm water drainage facilities can satisfy the Regional Water Quality Control Board's Municipal Regional Permit (MRP) requirements by: Minimizing impervious surfaces, as feasible, and directing flows to Integrated Management Practices (IMPs); Integrating appropriately sized IMPs to ensure post-development flows do not exceed pre-development flows; and Incorporating bio-retention in combination with site planning, minimizing impervious areas, and dispersion of runoff to meet Low Impact Development (LID) requirements.	
Impact HYD-2: Groundwater Supplies. Local groundwater is not used for the City's water supply and the City has no intention to seek or investigate groundwater supply. Therefore, the project would not result in groundwater overdraft, substantial local groundwater level drawdown, or substantially redirect storm water such that natural basin recharge would be precluded.	Less Than Significant	**None required**.	Less Than Significant
Impact HYD-3: Erosion. The proposed drainage of the site would maintain the existing northerly and southerly flows along Admiral Callaghan and would be constructed with newly installed bioretention areas adjacent to the roadway. The proposed drainage system addresses the existing deficient drainage conditions along Admiral Callaghan. However, without mitigation measures to further ensure that graded areas do not interfere with existing drainage areas, and new drainage improvements satisfy SFRWQCB requirements and all other applicable standards and requirements, impacts associated with drainage alterations and erosion could be significant.	Potentially Significant	**Implement MM HYD-1 through MM HYD-3** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact HYD-4: Flooding. The project's proposed storm water system would contain and collect storm water flows in the project site, before runoff is allowed to drain off-site. However, without mitigation measures to ensure that the new storm water improvements satisfy SFRWQCB's requirements and post-development flows do not exceed pre-development flows, impacts could be significant.	Potentially Significant	**Implement MM HYD-3** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated.
Impact HYD-5: Exceeding the Capacity of Drainage Facilities. Without mitigation measures to ensure that the new storm water drainage improvements satisfy SFRWQCB requirements and all other applicable standards and requirements, impacts associated with the altering of drainage patterns and flooding could be significant.	Potentially Significant	**Implement MM HYD-3** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Impact HYD-6: **Impede or Redirect Flood Flows.** A portion of the southwest portion of the project site is located within Zone AE, an area subject to the 1-percent-annual-chance flood event. However, none of the proposed buildings would be in this area. As a result, no impacts would occur.	No Impact	**None required**.	No Impact
Impact HYD-7: Release of Pollutants Due to Flood, Tsunami, Seiche, or Dam Failure. The majority of the project site is located outside of an identified Flood Hazard Area, and there are no levees or dams on the project site. The project site is not located within a dam inundation area and would not be affected by seiche. Lastly, the project site is not in a tsunami inundation area.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact HYD-8: Water Quality Control Plan or Sustainable Groundwater Management Plan. The proposed project would incorporate bio-retention, disperse runoff to meet Low Impact Development requirements, and minimize impervious areas. Surface runoff would be conducted to the bioretention treatment facilities at the northwest corner of the site. The bioretention facilities would be designed to meet both treatment and flow-control requirement and would support groundwater recharge.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Impacts. Future developments in the watershed would be required to comply with the State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board. Depending on the size of future projects, they would be required to obtain and comply with all required water quality permits and the Water Quality Control Plan, to minimize runoff, erosion, and storm water pollution, comply with the San Francisco Regional Water Quality Control Board's Municipal Regional Permit requirements. With compliance with State and local mandates, cumulative impacts would be less than significant, and project impacts would not be cumulatively considerable.	Potentially Significant	**Implement MM HYD-1 through MM HYD-3** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated.

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.9 – LAND USE AND PLANNING			
Impact LU-1: **Physical Division of an Established Community.** The proposed project would not introduce any roadways or infrastructure that would bisect or transect the existing land uses. The project incorporates numerous sidewalks, paseos, and a trail designed to promote a pedestrian and bicycle friendly environment, to encourage alternative transportation between the commercial and residential project elements and improve access to the proposed open space.	Less Than Significant	**None required**.	Less Than Significant
Impact LU-2: Plans, Policies, or Regulations Adopted to Avoid or Mitigate Environmental Effects. The proposed project would satisfy the intent of the General Plan by providing consistency between the General Plan and zoning designations. Additionally, issuance of the major CUP is considered consistent with the intent of the Zoning Code and would not result in a conflict with any adopted plan or policy resulting in a significant environmental effect.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Land Use / Planning Impacts. Existing as well as future cumulative development within the surrounding area is anticipated to occur in accordance with the City's General Plan and Municipal Code and be evaluated as such the same as the proposed project. Therefore, the proposed project, in conjunction with these other projects, is not anticipated to introduce incompatible uses and substantially conflict with the operation of surrounding land uses. The proposed project would not make a cumulative contribution to	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
impacts associated with conflicts with land use planning documents or related policies and regulations. These impacts are less than significant.			
Chapter 4.10 – NOISE			
Impact NOI-1: Noise. Construction activities would generally be limited to weekday daytime hours when most people would typically be out of their houses, and grading activities would conform to the time-of-day restrictions of Vallejo Municipal Code Section 12.040.070. However, mitigation is required to ensure that grading noise levels do not exceed the City's standards and time-of-day restrictions are adhered to. In addition, as a standard condition of approval for all discretionary permits, the City applies the time-of-day restrictions for grading activities to all other construction activities. Implementation of the proposed project would create new sources of noise in the project vicinity from residential sources, mechanical equipment, truck loading areas, parking lot noise, and landscape maintenance. Potential impacts from these noise sources were determined to be less than significant.	Construction: Potentially Significant Operation: Less Than Significant	**MM NOI-1: Construction Noise.** Prior to the start of grading, the Construction Manager shall provide evidence acceptable to the City of Vallejo Public Planning & Development Services Director ("Director"), that: • Construction activities shall be restricted to day time hours of between 7:00 a.m. and 6:00 p.m. Mondays through Saturdays. No construction activity shall occur on Sundays or federal holidays. The Director shall have authority to grant exceptions from this restriction for the concrete pour of the Costco store and for activities occurring within a fully sealed building envelope. • Helicopter usage shall be limited to no more than two weekdays between 9 a.m. and 5 p.m. At times when the helicopter is not actively in the process of connecting straps to and lifting and placing HVAC units on the roof of the Costco building, the helicopter shall ascend, as appropriate, to lessen the level of noise. At least 14 days prior to helicopter usage, the construction contractor shall provide written notice of such usage to residents, businesses and owners of property within 500 feet of the project site. The Director shall review and approve such notice prior to distribution. • Prior to the start of construction activities, the construction contractor shall: ○ Maintain and tune all proposed equipment in accordance with the manufacturer's recommendations to minimize noise emission.	Less Than Significant with Mitigation Incorporated

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
		○ Inspect all proposed equipment and should fit all equipment with properly operating mufflers, air intake silencers, and engine shrouds that are no less effective than as originally equipped by the manufacturer. ○ Post a sign, clearly visible at the site, with a contact name and telephone number of the City of Vallejo's authorized representative to respond in the event of a noise complaint. ○ Place stationary construction equipment and material delivery in loading and unloading areas as far as practicable from the residences. ○ Limit unnecessary engine idling to the extent feasible. ○ Use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace with human spotters. ○ Use low-noise emission equipment. ○ Limit use of public address systems. ○ Minimize grade surface irregularities on construction sites.	
Impact NOI-2: Groundborne Vibration. The use of construction equipment would not result in a groundborne vibration velocity level above the established threshold of 0.2 inch per second at Peak Particle Velocity. As a result, the proposed project would not generate groundborne vibration that could be felt at surrounding uses. The project would not involve railroads or substantial heavy truck operations, with the exception of delivery vehicles to the project site once facilities are operational.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact NOI-3: Public or Private Airstrips. According to the General Plan EIR, no private air facilities such as helipads are within ten miles of the City.	No Impact	**None required**.	No Impact
Cumulative Noise Impacts. Construction activities at other planned and approved projects would be required to take place during daytime hours, and the City and project applicants would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Each project would be required to comply with the applicable City's Municipal Code limitations on allowable hours of construction. Therefore, project construction would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable. The proposed project would not result in long-term mobile noise impacts based on project-generated traffic as well as cumulative and incremental noise levels. Therefore, the proposed project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The proposed project's contribution to noise levels would not be cumulatively considerable.	Potentially Significant	**Implement MM NOI-1** No additional mitigation measures are required.	Less Than Significant with Mitigation Incorporated
Chapter 4.11 ENERGY CONSERVATION			
Impact ENG-1: Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources. With the incorporation of energy efficiency requirements in the California Building Code and project design features, the project would not	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
result in the inefficient, wasteful, or unnecessary consumption of energy.			
Impact ENG-2: Renewable Energy or Energy Efficiency Plans. The project is consistent with regulations such as the State's Renewable Portfolio Strategy and Green Building Code (Title 24) which are aimed at increasing the use of renewable energy and energy efficient buildings, respectively.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Energy Conversation Impacts. The project would not result in significant energy consumption impacts. The project would not be considered inefficient, wasteful, or unnecessary with regard to energy. No known past, present, or reasonably foreseeable projects would compound or increase the project's energy consumption. Thus, cumulative energy impacts from related projects, in conjunction with project-specific energy consumption, would not be cumulatively significant.	Less Than Significant	**None required**.	Less Than Significant
Chapter 4.12 POPULATION AND HOUSING			
Impact POP-1: **Substantial Population Growth.** In addition to the housing units, the proposed project would create 92 new jobs from commercial businesses. While the proposed project would result in more new residents (513) than jobs, the proposed project would not substantially affect the City's jobs-housing balance.	Less Than Significant	**None required**.	Less Than Significant
Impact POP-2: **Displacement of People or Housing.** The project site does not include any existing housing and therefore would not displace	No Impact	**None required**.	No Impact

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
housing or people. Implementation of the proposed project would not displace any people, nor would it require the construction of replacement housing elsewhere.			
Cumulative Population & Housing Impacts. The proposed project is expected to generate 513 total residents and a total of approximately 92 new jobs. Additionally, the re-use of the existing Costco building would result in approximately 145 new general commercial retail jobs which are anticipated to be filled by existing residents from the surrounding area. The proposed project would not require any replacement housing or displace any existing residents. The proposed project is consistent with the General Plan which guides the development of housing and business opportunities in the City. No cumulative impacts related to displacement would occur.	Less Than Significant	**None required**.	Less Than Significant
Chapter 4.13 – PUBLIC SERVICES			
Impact PUB-1: Governmental Facilities for: Fire Protection, Police Protection, Schools, Parks. The proposed project would pay all applicable fees to provide for its fair share of increased demand for fire protection, law enforcement, and school services, as well as park resources. The proposed project has been designed to conform to all safety requirements and provides trails that would access the 5.7-acre open space area that would be available to residents as well as the surrounding neighborhoods. Through the payment of fees, and project design element, impacts to these resources would be less than significant.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.14 – RECREATION			
Impact REC-1: Local Parks. The proposed project includes 2.66 acres of parks and trails. The project will be required to dedicate land and, if necessary, pay fees to fund the construction of new parks and the maintenance of existing parks. Therefore, the additional demand for parks generated by the project would not result in the physical deterioration of existing parks and facilities within Vallejo.	Less Than Significant	**None required**.	Less Than Significant
Impact REC-2: New Recreational Facilities. All parks proposed as part of the project would occur within the existing development footprint and potential impacts are accounted for in this EIR. Therefore, recreational facilities for the project would not result in an adverse physical effect on the environment.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Recreation Impacts. The proposed project would not result in a change in parkland demand for the City of Vallejo because the project would meet its project-specific parkland requirements as well as providing a linear park/trail that would be open to the public. This would minimize the proposed project's contribution to cumulative impacts.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.15 – TRANSPORTATION			
Impact TR-1: Program Plan, Ordinance or Policy Addressing the Circulation System. The project would cause the following intersections to operate at a deficient level of service during at least one peak hour: • #7 (Adm Callaghan Lan at Rotary Way, • #9 Redwood St/Fairgrounds Dr at I-80 Ramps, • #10 Redwood Pkwy/Adm Callaghan Ln (N) at I-80 EB Off-Ramp, • #11 Redwood Pkwy at Adm Callaghan LN (S), • #21 Adm Callaghan Ln at Southern Project Driveway, • #22 Adm Callaghan Ln at Middle Project Driveway and, • #23 Adm Callaghan Ln at Northern Project Driveway In addition, project impacts to transit operations could be significant without mitigation. Implementation of mitigation measures TR-1 and TR-2, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these intersections would remain significant and unavoidable because no other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections	Significant and Unavoidable	**MM TR-1: Roadway Improvements.** Prior to the issuance of occupancy permits, the applicant shall construct, to the satisfaction of the Public Works Director, the following roadway improvement: Admiral Callaghan Lane at Turner Parkway – Add a northbound right-turn pocket lane and modify the geometry of the westbound approach to provide a right-turn lane, one left-turn lane and one left-turn pocket. **MM TR-2: Initial Signal Timing Study.** Prior to the issuance of Occupancy Permits, the City shall initiate a signal timing study for the proposed traffic signal and the existing traffic signals. The timing study shall include the same traffic signals included in the Transportation Impact Analysis prepared for the project. This study is to assist the City in optimizing traffic flow in the project vicinity and provide a baseline for a post-occupancy signal coordination study. **MM TR-3: Post Costco Occupancy Signal Coordination Study.** Within 3 months of occupancy of the Costco store (or as adjusted by the Public Works Director), the applicant shall fund and prepare, to the satisfaction of the Public Works Director, a signal timing and coordination study to confirm the EIR's traffic analysis and further optimize traffic flow in the project vicinity. The study shall include the same intersections noted in the Transportation Impact Analysis, so that refined signal timings and coordination based on actual traffic volumes and observed conditions can be implemented if necessary. Upon the Public Works Director's approval of the study, the City shall update signal timing based on the results of this study, if necessary. **MM TR-4: New Bus Pull-Out.** Prior to issuance of occupancy permits, the applicant shall, to the satisfaction of the Planning & Development Services Director, coordinate with SolTrans and construct a new bus pull-out on eastbound Turner Parkway East of	Significant and Unavoidable

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
which are significantly impacted. Potential impacts on transit access and circulation are reduced to less than significant with the implementation of mitigation measure TR-4 which requires the construction of a new bus pull-out on eastbound turner parkway in coordination with SolTrans.		Admiral Callaghan Lane. The Project applicant will construct a bus pull-out and concrete pad per Soltrans' and the City's specifications. Soltrans will provide, and the applicant will install, signage, a shelter, lighting, and trash receptacle.	
Impact TR-2: **Increase Hazards.** No obstacles to site distance are expected to result from the construction of the proposed project. Future improvements would be required to meet City of Vallejo roadway design standards. Improvement Plans for the proposed street improvements would be reviewed by City staff, including Fire Department staff, prior to construction.	Less Than Significant	**No mitigation measures are required.**	Less Than Significant
Impact TR-3: Inadequate Emergency Access. Improvement Plans require review and approval by the City of Vallejo Fire Department prior to construction. The City Fire Department reviews the plans for adequate emergency access for emergency vehicles. As a result, no impediments related to emergency vehicle access are identified.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Transportation Impacts. Under the Project Plus Cumulative scenario, the proposed project would cause the following seven intersections to operate at a deficient level of service during at least one peak hour to operate at a deficient level of service: • #6 (Adm Callaghan Ln at Turner Pkwy, • #7 (Adm Callaghan Ln at Rotary Way, • #9 Redwood St/Fairgrounds Dr at I-80 Ramps, • #11 Redwood Pkwy at Adm Callaghan LN (S),	Significant and Unavoidable.	**Implement MM TR-1 through TR-3**	Significant and Unavoidable.

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
• #21 Adm Callaghan Ln at Southern Project Driveway, • #23 Adm Callaghan Ln at Northern Project Driveway, and • #25 I-80 SB Ramp at Redwood Pkwy. One freeway segment would operate at a deficient level: I-80 Eastbound – West of Redwood Parkway. Implementation of mitigation measures TR-1 through TR-3, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these seven intersections and one freeway segment under Cumulative With Project Conditions would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections However; this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented.			

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Chapter 4.16 – UTILITIES			
Impact UT-1: Water, Wastewater Treatment, Storm Water Drainage, Electric Power, Natural Gas, or Telecommunications Facilities. The impacts associated with disturbance, construction, and operations of these lines and facilities in these areas are considered within the applicable chapters of this EIR. During ground disturbing and excavation activities to prepare these locations for the proposed roadway improvements, the underground improvements for utility service lines and facilities needed to provide services to the project site would be made. This would minimize or eliminate the need for off-site improvements outside the existing footprint of the proposed project.	Less Than Significant	**None required**.	Less Than Significant
Impact UT-2: Water Supply. The project is consistent with the 2040 General Plan, and the General Plan EIR concluded that buildout of the General Plan would not result in a significant impact on water supply for the project site. Continued water conservation efforts are expected to reduce the effects of any potential future water shortfall.	Less Than Significant	**None required**.	Less Than Significant
Impact UT-3: Wastewater Treatment Facilities. Future development under the proposed project would not result in a determination that the wastewater treatment facility does not have adequate capacity to serve the proposed project's demand.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation
Impact UT-4: Solid Waste Infrastructure. The project would require approximately 2.29 tons/day, which is 0.1% of remaining capacity at the Potrero Hills Landfill and Hay Landfill. The project would not require expansion of an existing landfill.	Less Than Significant	**None required**.	Less Than Significant
Impact UT-5: Solid Waste Regulations. The project would comply with federal, State, and local statutes and regulations including waste reduction measures, waste diversion, and inclusion of recycling programs.	Less Than Significant	**None required**.	Less Than Significant
Cumulative Utilities Impacts. The project would include all required water conservation measures as would be expected of all future projects prior to approval within the City. This would help ensure that cumulative impacts associated with water supply are less than significant. The General Plan EIR determined that the increase in wastewater generation would be well within the currently available excess dry weather design flow capacity of greater than 5.0 mgd and construction of expanded or new wastewater treatment facilities would not be required. The proposed project in conjunction with past, present and likely foreseeable future projects in the vicinity would likely utilize the Potrero Hills or Hay landfill. Both landfills have substantial capacity and are expected to serve projected demand through the lifecycle of the landfills. Cumulative impacts are less than significant and would be less than cumulatively considerable.	Less Than Significant	**None required**.	Less Than Significant

Table ES-1: Project Impacts and Proposed Mitigation Measures

Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation

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3.0 PROJECT DESCRIPTION

The purpose of this section is to describe the proposed Fairview at Northgate Project (Planned Development; PD17-0007, Tentative Subdivision Map; TM17-0002, Zoning Map Amendment; ZMA 17-0001, Use Permit; UP18-0007, and other associated approvals, (hereinafter referenced as the proposed project or project) in a useful and comprehensible manner to the public, agencies, and decision-makers. For the purposes of the California Environmental Quality Act (CEQA), a complete project description must contain the following information: a) the precise location and boundaries of the project area, shown on a detailed map, preferably topographic, along with a regional map of the project's location; b) a statement of the objectives sought by the project, which should include the underlying purpose of the project and may discuss the project benefits; 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 by the lead or other agencies for decision making, permits or other approvals (State CEQA Guidelines Section 15124). An adequate project description need not be exhaustive but should supply the information necessary for the evaluation and review of the project's effects on the environment.

This Environmental Impact Report (EIR) has been prepared to identify and evaluate potential environmental impacts associated with the proposed project. The information provided in this EIR section meets the requirements of the State CEQA Guidelines Section 15124 and provides a level of detail adequate for public and agency review and consideration of the proposed project and the potential environmental impacts associated with implementation of the proposed project.

3.1 PROJECT LOCATION

The approximately 51.3-acre vacant, undeveloped project site is located along the eastern right-of-way of Admiral Callaghan Lane, south of Turner Parkway and north of Rotary Way on a single Assessor's parcel (APN 0052-320-250). The proposed project site would be accessed via Admiral Callaghan Lane adjacent to the northwest and Turner Parkway to the north. The Interstate 80 (I-80) freeway is located immediately adjacent to the west of Admiral Callaghan Lane. **Figure 3-1: Regional Map**, shows the proposed project site in a regional context. **Figure 3-2: Vicinity Map**, presents the proposed project site and vicinity in a localized context. In this area, I-80 generally trends in a northwest to southwest direction providing access through the City of Vallejo (City). Locally, the project site is accessed by Admiral Callaghan Lane adjacent to the northwest and Turner Parkway to the north. I-80 is immediately adjacent to the northeastern alignment of Admiral Callaghan Lane. North of Turner Parkway is an approximately 130-acre commercial development, Gateway Plaza; tracts of single-family residential developments in Hunter Ranch to the east; and multi-family residential residences in the Quail Ridge Condominiums, as well as single-family residential, and additional commercial uses to the south.

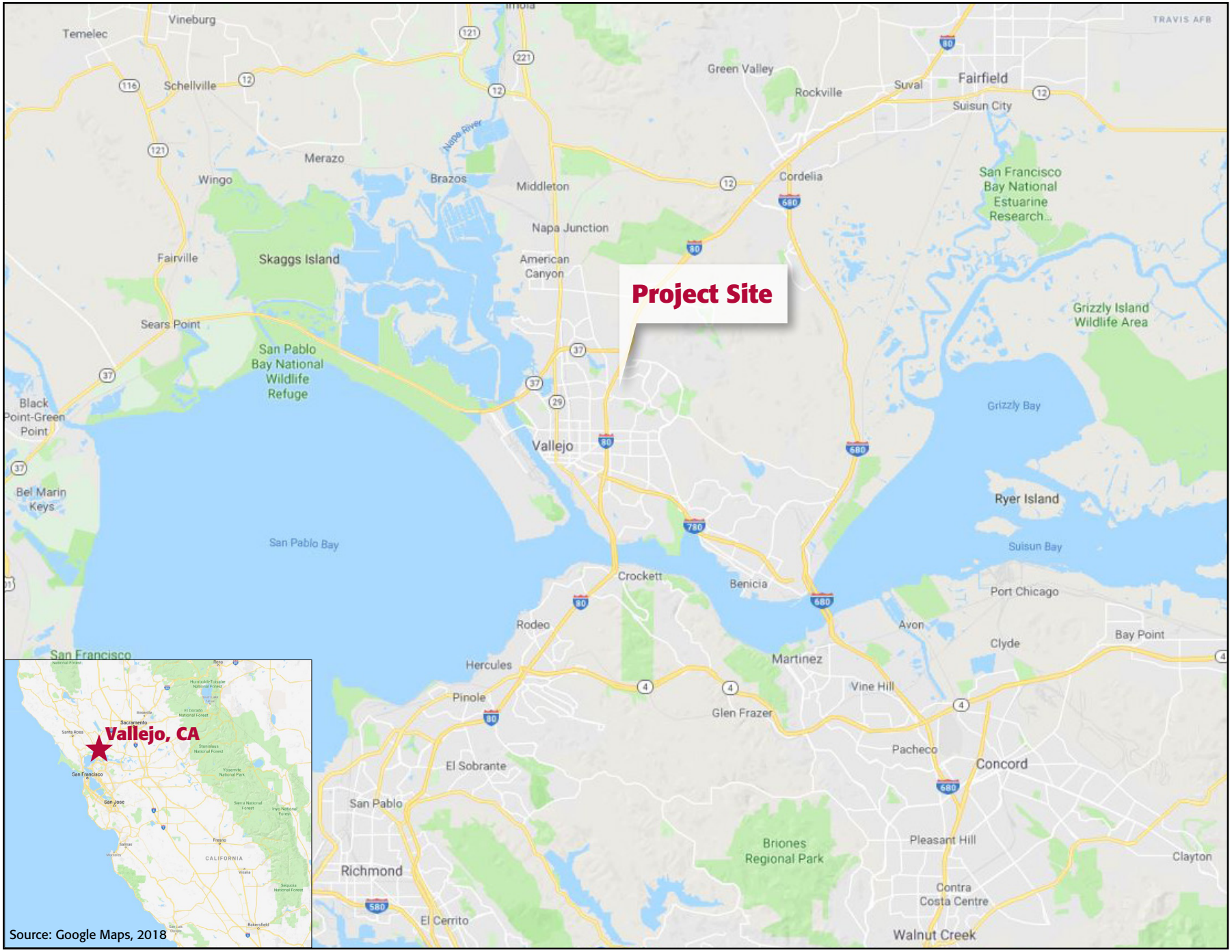


FIGURE 3-1: Regional Map
Fairview at Northgate Project

Not to scale

Kimley»Horn

Source: Google Earth, 2018

FIGURE 3-2: Vicinity Map
Fairview at Northgate Project

Not to scale

Kimley»Horn

3.2 SURROUNDING LAND USES

The project site is located in a suburban and urban environment and is bordered by existing development. Surrounding land uses consists primarily of residential, commercial, open space, and park uses, and transportation corridors (I-80 and other roadways). *Table 3-1: Surrounding Land Uses*, below provides a brief description of the surrounding uses, land use designations in the Propel Vallejo General Plan 2040 (General Plan) and zoning designations in the Zoning Code. A more detailed description of these land uses follows the table.

Table 3-1: Surrounding Land Uses

Direction from Project Site	Existing Land Uses	Existing General Plan Designation	Existing Zoning Classification
North	Turner Parkway; commercial uses north of Turner Parkway	Retail/Entertainment (RE)	Freeway Shopping and Service; Mixed-Use Planned Development
South	Multifamily apartments and condominiums; car dealership; commercial uses south of Rotary Way	Retail/Entertainment (RE); Business/Limited Residential (B/LR); Mix of Housing Types (R-MH)	Pedestrian Shopping & Service; Linear Commercial; High-Density Residential
East	Single-family residences	Primarily Single-Family (R-SF)	Low-Density Residential; Mixed Use Planned Development
West	Admiral Callaghan Lane, I-80, West of I-80: mobile home park, motel, and fairgrounds	Business/Limited Residential (B/LR); Primarily Multi-Family (R-MF); District Solano 360 (D-360)	Freeway Shopping & Service; High-Density Residential; Linear Commercial; Public Facilities

Sources: City of Vallejo – Propel Vallejo General Plan 2040, Land Use Map; City of Vallejo, Vallejo Prospector http://gis.zoomprospector.com/client/vallejo/, accessed February 22, 2019.

LAND USES TO THE NORTH

The approximately 130-acre Gateway Plaza Shopping Center is located north of Turner Parkway. The shopping center is partially bound by Admiral Callahan Lane on the west (and which traverses through the northwest corner of the shopping center); Turner Parkway on the south, which also borders the proposed project site to the north; and residential and office development to the east. The General Plan land use designation for this area is Retail/Entertainment (RE) and the zoning designation in the Zoning Code is Freeway Shopping and Service and Mixed-Use Planned Development.

LAND USES TO THE SOUTH

Land uses to the south of the project site include automotive, commercial, and residential uses. A Honda Dealership is located on the southeast corner of Admiral Callaghan Lane at Rotary Way and is immediately to the southwest boundary of the project site. The Quail Ridge Condominiums and Sundance Apartment

Homes are located to the east of the auto dealership and are immediately adjacent to the southern boundary of the project site. South of Rotary Way is Redwood Plaza, a neighborhood commercial center that includes a Safeway grocery store, Golden 1 Credit Union, Oil Changers, Fed Ex Office, Shell gas station and other small retail uses. A two-building office complex and a KinderCare facility are located east of Redwood Plaza along Rotary Way. The General Plan land use designation for this area is primarily Mix of Housing Types, Retail/Entertainment, and Business/limited Residential. The zoning designation in the Zoning Code is Pedestrian Shopping and Service and High-Density Residential.

LAND USES TO THE EAST

Single-family residences in Hunter Ranch are located east of the project site. Residences are on small parcels ranging in size from approximately 0.15 to 0.25 acre. This area is accessed from Turner Parkway on the north, Redwood Parkway on the south, and Ascot Parkway on the east. The General Plan land use designation for this area is Primarily Single-family (R-SF) and the zoning designations are Low Density Residential and Mixed Use Planned Development.

LAND USES TO THE WEST

To the west of the proposed project site is Admiral Callaghan Lane, a two-lane undivided roadway. The road right-of-way includes an approximately 50-foot-wide area that is largely unvegetated and spans the length of the western project site boundary. To the west of Admiral Callaghan is I-80, and west of I-80 is a mix of uses including a mobile home park, single-family and multi-family residential uses, commercial uses, and the Solano County Fairgrounds. The General Plan Land use designation for this area is Business/Limited Residential (B/LR), Primarily Multi-Family (R-MF), and District Solano 360 (D-360) in the General Plan, and the zoning designations are Freeway Shopping & Service, High-Density Residential, Linear Commercial, and Public.

3.3 EXISTING SETTING

REGIONAL ENVIRONMENTAL SETTING

Covering an area of approximately 50 square miles, Vallejo is bordered by the City of American Canyon and unincorporated Napa County to the north, the City of Benicia and unincorporated Solano County to the east, the Carquinez Strait to the south, and the Napa River and San Pablo Bay to the west. Adjacent to the City and to the west is the San Pablo Bay National Wildlife Refuge, and the Solano County Land Trust's Lynch Canyon Open Space is located approximately one mile north of the City. Vallejo lies along the east margin of San Pablo Bay, a northeastern lobe of San Francisco Bay. The topography in Vallejo and its Sphere of Influence (SOI) is varied, ranging from flat-lying areas such as marsh and estuarine. The environment along Mare Island and parts of the eastern margin of the Napa River includes gently sloping terrain in the central part of the City (especially the area flanking I-80 north of Curtola Parkway); hillier terrain that dominates the east-central and northeast parts of the City and include the East Bay Hills and Briones Hills to the southwest; the Vaca Mountains and Napa Valley to the north; and, the Diablo Ranges

to the southeast. Elevations range from near-sea level on the shores of the Carquinez Strait to nearly 1,000 feet above mean sea level along the crest of Sulphur Springs Mountain in the northeast part of the City.

Regional vehicular access to the City of Vallejo is provided by I-80, I-780, State Route 29 (SR-29), and SR-37. Regional transit access to the City is comprised of passenger ferry service provided by San Francisco Bay Ferry to and from the City of San Francisco; Solano County Transit (Soltrans) bus service to the Bay Area Rapid Transit (BART) District's El Cerrito del Norte and Walnut Creek stations; and Napa County Transportation and Planning Agency's VINE bus service to Napa and the El Cerrito del Norte BART station. The Napa County Airport is located approximately six miles to the north.

General Plan

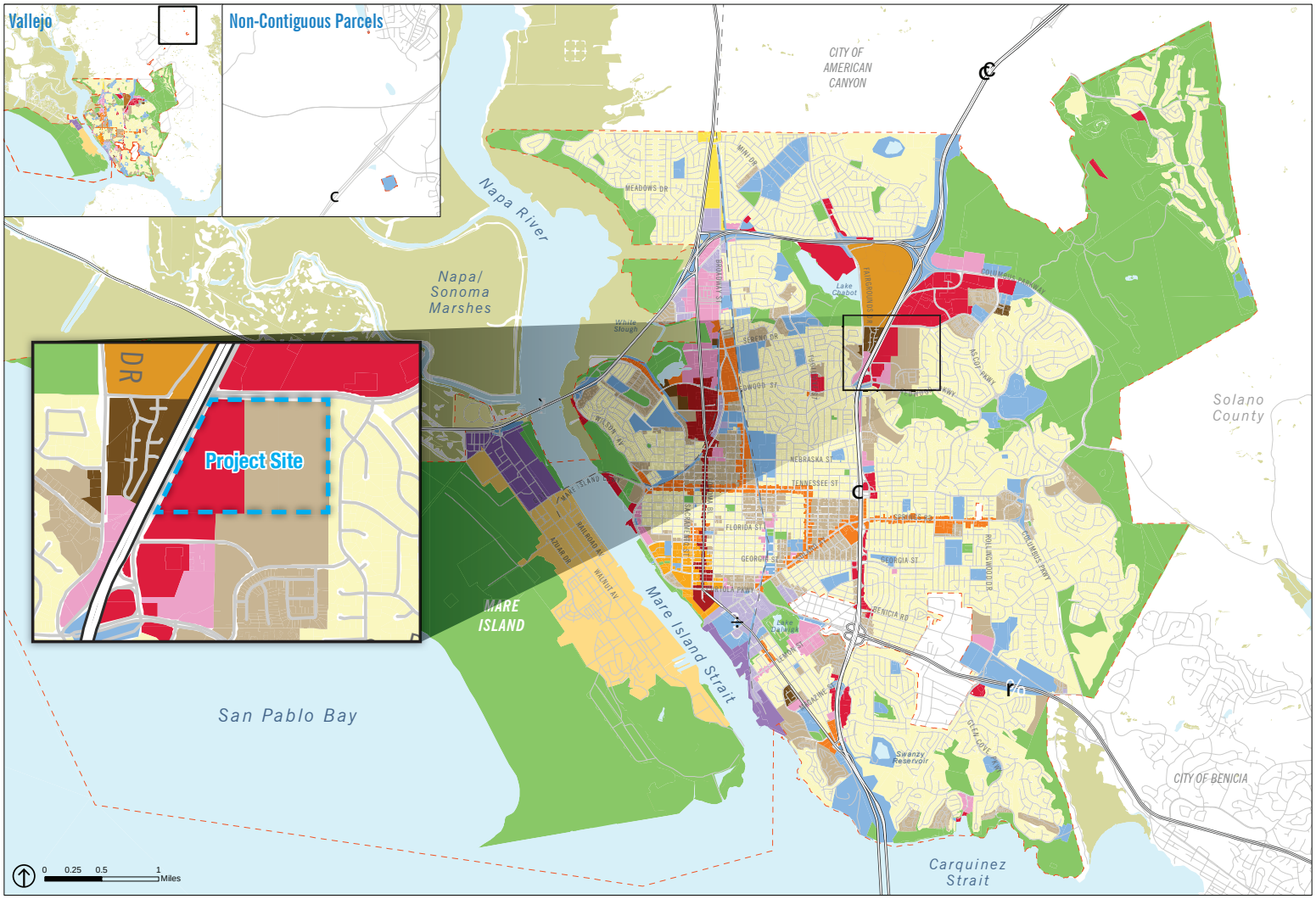
The current General Plan land use designation for the proposed project site is Retail/Entertainment on the western portion of the property and Mix of Housing Types on the eastern portion of the property.

Propel Vallejo General Plan 2040

The Propel Vallejo General Plan was intended to go beyond State requirements and includes General Plan elements to emphasize economic development; historic preservation; arts and culture; and community health. To this end, goals of the General Plan not only include protecting and improving on the City's existing physical, social, and economic conditions, but also promoting sustainability and improving the efficacy of non-automobile transportation in Vallejo. The project site has a General Plan land use designation of Retail/Entertainment on the western portion of the property and Mix of Housing Types designation on the eastern portion of the property. **Figure 3-3: General Plan Designations**, shows how the two land use designations are split over the property.

The General Plan encompasses an area of approximately 50 square miles, framed by San Pablo Bay and the Napa/Sonoma Marshes on the west, the Carquinez Strait to the south, and unincorporated Solano County open space lands to the northeast. To help delineate uses in specific areas, the General Plan also identifies Specific Plan and Master Plan areas. There are eight Specific Plan and Master Plan areas in the City, including the Northgate Specific Plan area, which lies northeast of the proposed project site. Within these Specific Plan and Master Plan areas, specific land uses are more defined and precise in their prescribed uses, layouts, and designs.

The General Plan also guides development through the identification of opportunity areas. During the General Plan planning process, key opportunity areas were identified where development could expeditiously produce a significant positive impact on quality of life. The General Plan notes that these are areas where additional attention is needed to refine and update the community's vision. One of the General Plan goals specifically addresses these areas by stating the intent is to leverage publicly owned lands and infrastructure investments to catalyze development in key opportunity areas. There are seven opportunity areas within the City; the project site is in the Callaghan-Columbus opportunity area.



Vallejo General Plan Land Use Map

Residential
- Primarily Single Family
- Mix of Housing Types
- Primarily Multi-Family

Mixed Use
- District - Downtown/Waterfront
- District - Mare Island
- District - Solano360
- District - North Gateway
- Central Corridor
- Neighborhood Corridor

Business and Industry
- Retail/Entertainment
- Business/Limited Residential
- Business/Light Industrial
- Industrial

Community
- Parks, Recreation and Open Space
- Public Facilities and Institutions

- Wetland
- Railroad
- Vallejo City Limit
- Sphere of Influence (SOI)

8/29/2017

Source: City of Vallejo Propel Vallejo General Plan 2040, 2017: Map PF-6

FIGURE 3-3: General Plan Designations
Fairview at Northgate Project

Not to scale

Kimley»Horn

Retail/Entertainment (RE)

The General Plan land use designation of Retail/Entertainment (RE) provides for general retail, services, and entertainment for local residents as well as consumers and visitors from the wider region. Permitted land uses include shopping centers, auto sales, amusement parks, hotels, restaurants, service stations, marine-related operations, offices, general retail, personal and business services, and similar commercial uses. The maximum permitted Floor Area Ratio (FAR) in the RE land use designation is 1.5.

Mix of Housing Types/Medium Density (R-MH)

The General Plan land use designation of Mix of Housing Types/Medium Density (R-MH) provides for residential neighborhoods largely characterized either by 1) single-family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller-scale apartment buildings and small commercial spaces; or 2) primarily single-use, multi-family developments with common outdoor spaces. The residential neighborhoods with single-family and other housing types are typically located in the central and more historic parts of Vallejo. Dwellings typically have front and rear yards, as well as side setbacks. Zero side lots (zero lot lines) may be appropriate where they can be visually integrated into the existing neighborhood context. Permitted land uses include single-family homes; in some instances, duplexes, triplexes, fourplexes, smaller-scale apartment buildings, and small commercial spaces; and public facilities such as schools, religious institutions, parks, and other community facilities appropriate within a residential neighborhood. For primarily single-use, multi-family development, the R-MH designation applies to residential areas primarily characterized by parcels and buildings containing multiple residences, sometimes on several floors, and, in some instances, small commercial spaces. They are similar in character to those permitted in Primarily Multi-Family (R-MF) but with a lower residential density. The maximum permitted residential density in the R-MH designation is 25 dwelling units per acre (du/ac).

ZONING

The project site has a single zoning designation; Pedestrian Shopping and Service.

Pedestrian Shopping and Service

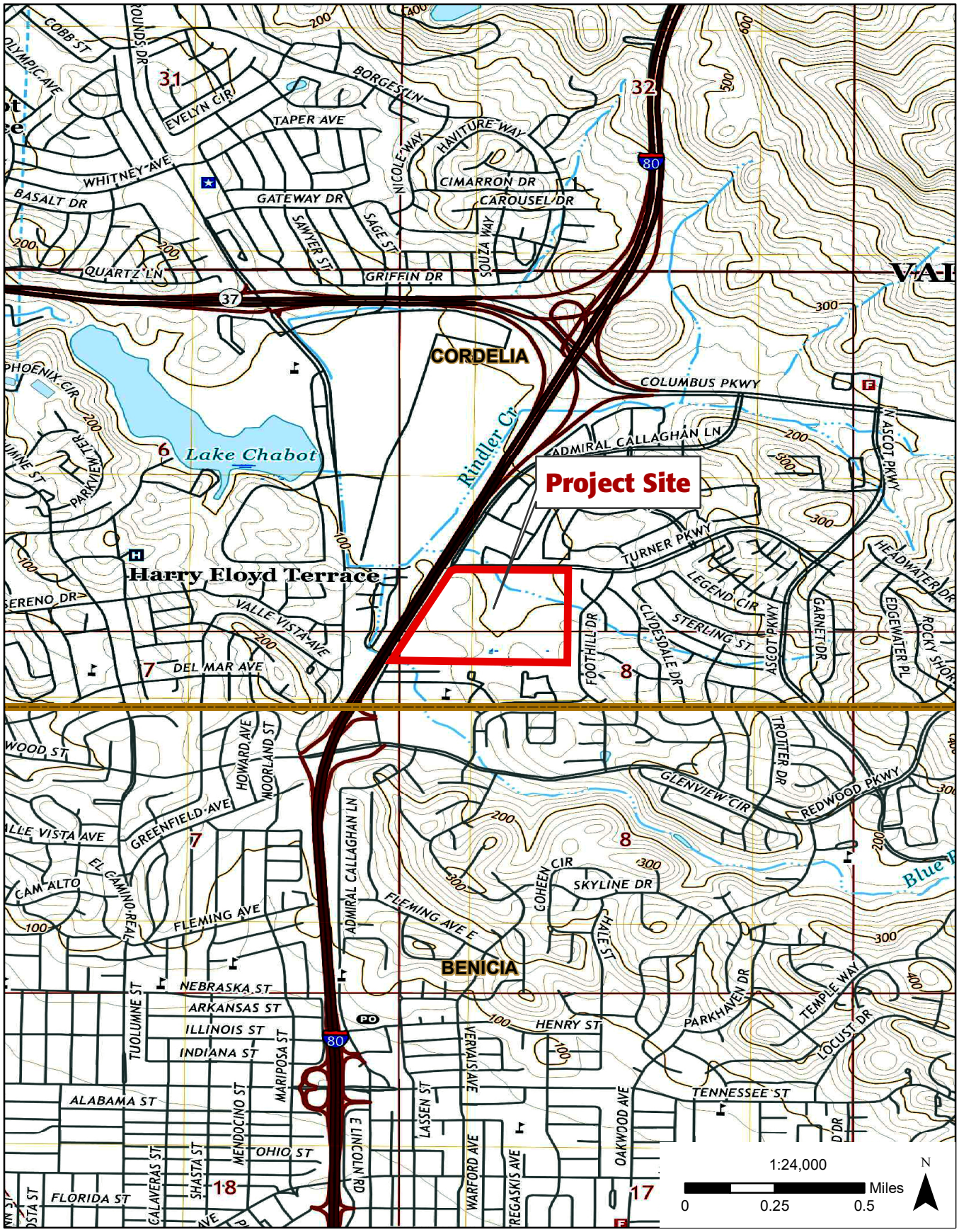
The existing zoning classification for the proposed project site is Pedestrian Shopping and Service District, which is described in Chapter 16.24 of the Zoning Code. The Zoning Code describes the intent of this zone to create and establish regulations for a pedestrian shopping and service district, in which a wide range of retail goods and services are permitted. The intent of this district is to implement the policy of the Land Use Element of the General Plan which calls for the development of pedestrian-oriented commercial shopping areas that allow comparison shopping within relatively compact areas. Typically, the pedestrian shopping and service district would be applied in the central business district of a community, or in commercial shopping centers including variety stores and often small department stores. Characteristic design features would include a continuous facade, grouped parking, and the siting of proposed structures and signs in a manner compatible with the pedestrian orientation of this district. The primary emphasis of this district is on pedestrian access with auto-oriented uses allowed only in a subordinate role.

PROJECT SITE ENVIRONMENTAL SETTING

The project site is approximately 51.3 acres and is currently undeveloped, vacant land. It is southeast of the intersection of Turner Parkway at Admiral Callaghan Lane. The site is square-shaped on the north, east, and southern boundaries, with the western side being angled to the southwest tracing the alignment of the undeveloped City right-of-way adjacent to Admiral Callaghan Lane. The eastern portion of the site is relatively flat with the western area being slightly elevated near Admiral Callaghan Lane. The topography of the project site and surrounding area is shown in **Figure 3-4: Area Topography**.

The majority of the project site (over 44 acres) is covered in non-native annual grassland with some elements of mixed woodland and intermixed coyote brush scrub. A seasonal wetland traverses the site flowing from south to north and ultimately drains into two existing culverts that convey water off the property underneath Turner Parkway. The culverts are located approximately 315 feet east of the Turner Parkway at Admiral Callaghan Lane intersection. A perennial stream, Blue Rock Springs Creek, traverses the very southwestern corner of the property (a distance of approximately 90 feet) and surface water flows on and off the property through existing underground culverts. An existing Pacific Gas and Electric (PG&E) gas pipeline and 15-foot-wide easement traverses the western portion of the property. An existing Vallejo Flood and Wastewater District (VFWD) sewer main and 15-foot-wide easement traverses the central portion of the property.

The proposed project site is surrounded by areas developed with predominantly commercial uses to the north, residential uses to the east, and a mix of residential and commercial uses to the south. Uses to the west of I-80 include residential and commercial uses and the fairgrounds.



Source: USGS, 2018 (Cordelia Quad, Benicia Quad)

FIGURE 3-4: Area Topography
Fairview at Northgate Project

Kimley»Horn

3.4 PROPOSED PROJECT

The approximately 51.3-acre vacant, undeveloped project site is proposed for a mix of commercial, residential, and recreational uses, and designated open space. The commercial development includes a 152,138 sf Costco store, which would allow Costco to relocate its existing Vallejo operation and expand the range of goods and services it provides. The commercial development would be located in the western portion of the proposed project site. The proposed open space area would buffer the planned commercial area from the planned residential area. Residential development would be located on the eastern portion of the proposed project site.

The proposed project incorporates sidewalks, paseos, and a pathway along Turner Parkway designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space. All components of the proposed project have been designed and planned with the intent of being responsive to the existing on-site features, topography, and other resources and constraints found on the proposed project site and in the surrounding areas, and to be compliant with pertinent planning documents, regulations, and guidelines.

While the project is consistent with the existing General Plan, it does propose a zoning map amendment to make the existing zoning classification consistent with the recently adopted General Plan. *Table 3-2: Existing and Proposed Land Use Designations* summarizes the changes for the proposed project. The existing and proposed zoning designations are shown in **Figure 3-5: Existing and Proposed Zoning Designations.** The project proposes a Zoning Map Amendment to change the zone from Pedestrian Shopping and Service District (PSSD) to Mixed Use Planned Development (MUPD). The change to MUPD is proposed to provide project-specific development standards for the project. The MUPD zoning would address setbacks for small lot residential development and allows for customized development standards for the proposed project. The development standards established by the MUPD zoning would allow for cohesive design elements such as street widths, building setbacks, architectural guidelines, trails, pathways, and landscaping to be implemented over the entire project site.

Table 3-2 Existing and Proposed Land Use Designations

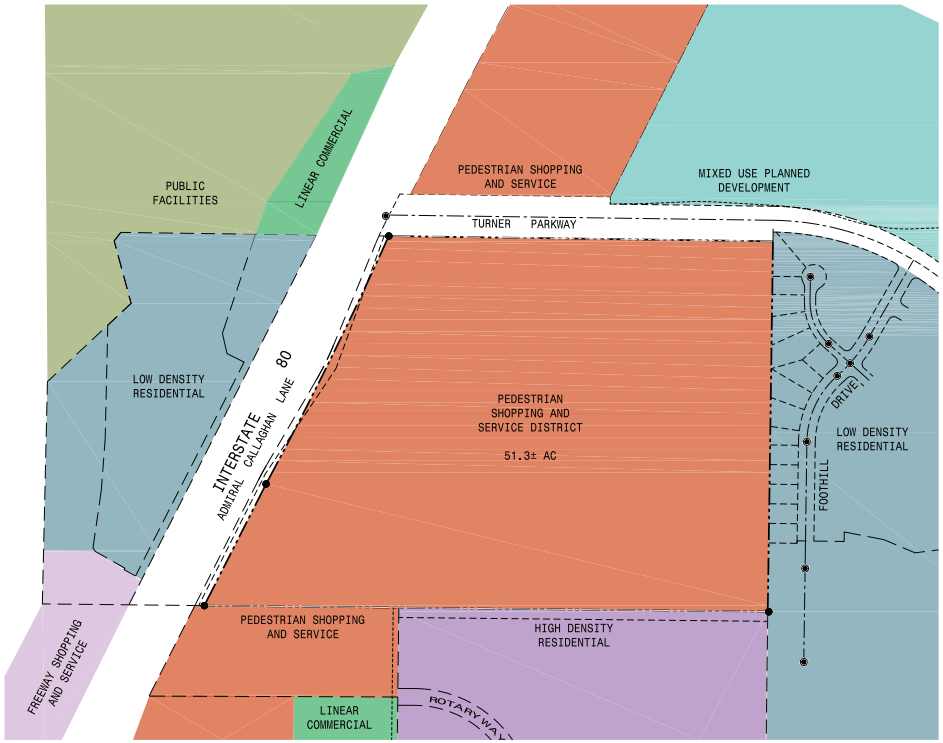
	Existing	Proposed	Change Proposed?
General Plan Designation	Retail/Entertainment and Mix of Housing Types – 51.3 acres	Retail/Entertainment and Mix of Housing Types – 51.3 acres	No
Zoning Classification	Pedestrian Shopping and Service District – 51.3 acres	Mixed-Use Planned Development – 51.3 acres	Yes

The project includes a subdivision of the 51.3-acre site into four parcels. The four parcels consist of two parcels for the commercial component of the project, one parcel for the residential component, and one parcel for the proposed open space area. The Tentative Map showing the proposed large parcel subdivision is shown in **Figure 3-6: Large Lot Parcel Tentative Map**. The proposed subdivision of the residential parcels is shown in **Figure 3-7: Small Lot Parcel Tentative Map.** Each component of the

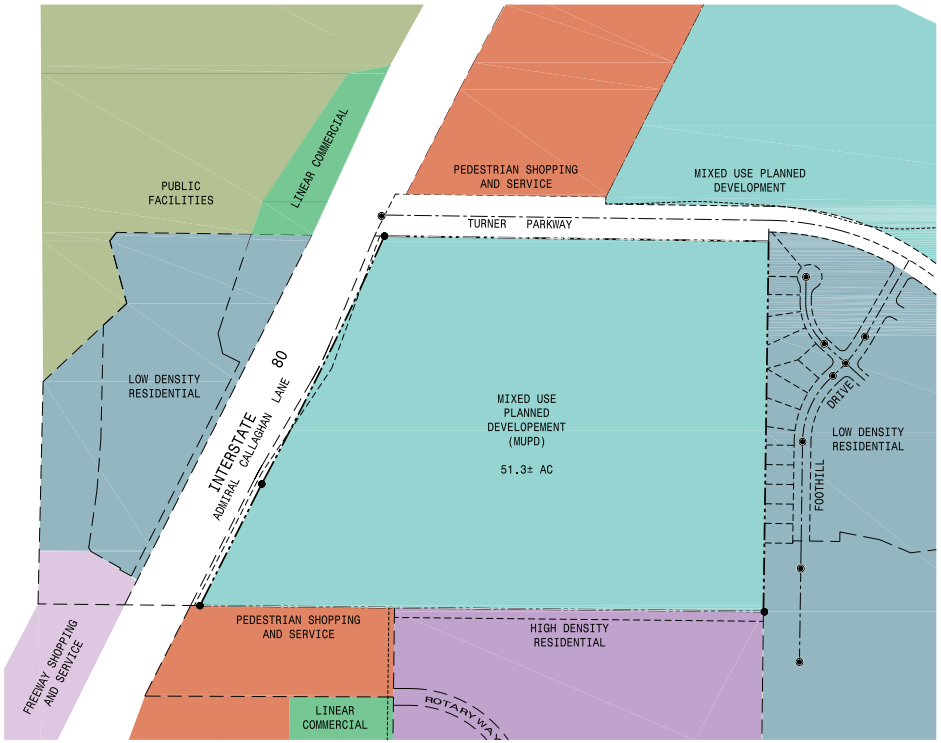
proposed project is described in detail below. Please refer to *Table 3-3: Project Summary Table*, for a breakdown of the areas of the proposed project uses and refer to **Figure 3-8: Site Plan**, for a depiction of the proposed project layout and location of proposed project uses. Among other permits, the proposed project would require City approval of a Planned Development Master Plan, and the architectural styles, as well as floor plans and elevations of the planned commercial and residential buildings, would be reviewed and approved by the City as part of the Unit Plan submittal process.

Table 3-3 – Project Summary Table

Proposed Use	Acres	Square Feet (sf)	Number of Units	Parking Spaces
Commercial	**21.8**	--	--	
Costco (Parcel 1)	*17.3*	*152,138*	--	*774*
Gasoline Station Kiosk	--	50	30 Fuel pumps	
Retail (Parcel 2)	*4.5*			*188*
Pad for Building #1		3,000	--	
Pad for Building #2	--	9,400	--	
Pad for Building #3	--	7,140	--	
Pad for Building #4	--	7,960	--	
Commercial Area Sub-Total	**21.8**	**179,688**	**30 Fuel Pumps**	**962**
Open Space (Parcel 3)	**5.7**	--	--	
Central Corridor (Preservation Area)	5.7	--	--	
Residential (Parcel 4)	**23.8**	--	**178**	
Single-Family	8.1	--	86	
Single-Family (with Alleys)	7.1	--	92	
Basins/Greenspace	5.5	--	--	
Public Roads	3.1	--	--	
Total	**51.3**	**179,688**	**178**	**962**



EXISTING ZONING



PROPOSED ZONING

LEGEND:

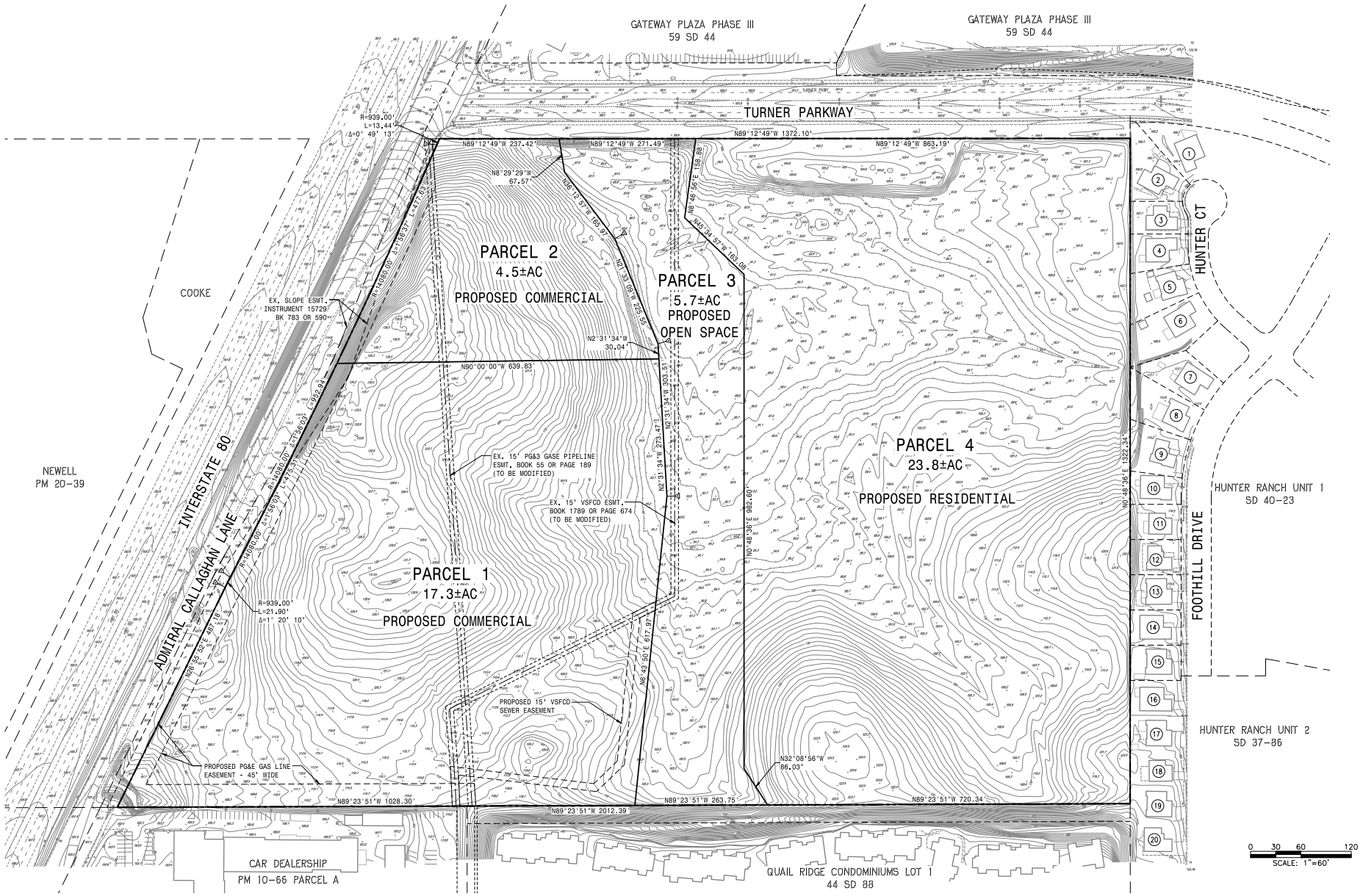
- LOW DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- MIXED USE PLANNED DEVELOPMENT
- PEDESTRIAN SHOPPING AND SERVICE
- LINEAR COMMERCIAL
- FREEWAY SHOPPING AND SERVICE
- PUBLIC FACILITIES

Source: MacKay and Somps, 2019

FIGURE 3-5: Zoning Designations
Fairview at Northgate Project

Not to scale

Kimley»Horn



Source: MacKay and Somps, 2019

FIGURE 3-6: Large Lot Tentative Map
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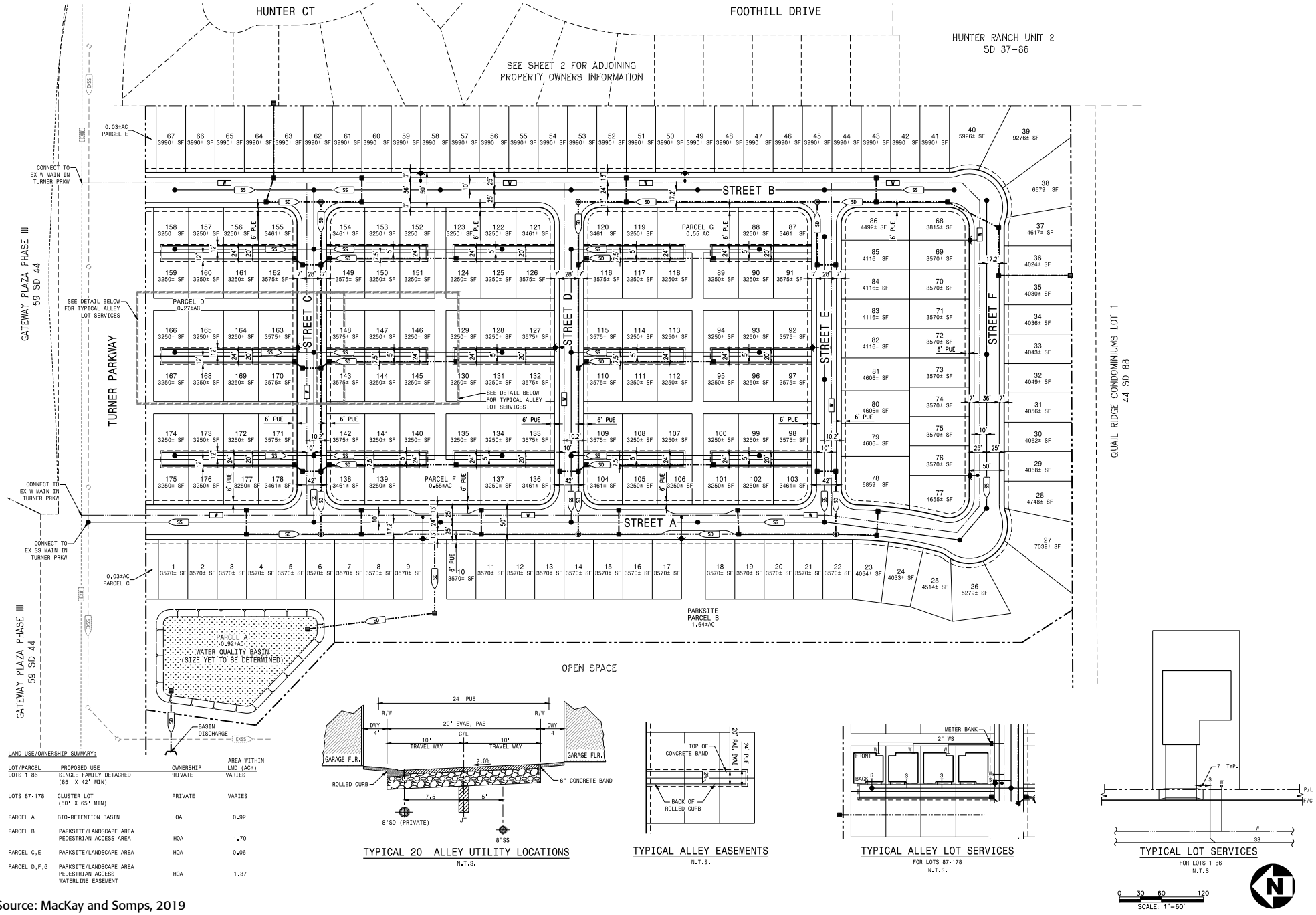

LAND USE/OWNERSHIP SUMMARY:

LOT/PARCEL	PROPOSED USE	OWNERSHIP	AREA WITHIN LMD (AC±)
LOTS 1-86	SINGLE FAMILY DETACHED (85' X 42' MIN)	PRIVATE	VARIES
LOTS 87-178	CLUSTER LOT (50' X 65' MIN)	PRIVATE	VARIES
PARCEL A	BIO-RETENTION BASIN	HOA	0.92
PARCEL B	PARKSITE/LANDSCAPE AREA PEDESTRIAN ACCESS AREA	HOA	1.70
PARCEL C,E	PARKSITE/LANDSCAPE AREA	HOA	0.06
PARCEL D,F,G	PARKSITE/LANDSCAPE AREA PEDESTRIAN ACCESS WATERLINE EASEMENT	HOA	1.37

TYPICAL 20' ALLEY UTILITY LOCATIONS
N.T.S.

TYPICAL ALLEY EASEMENTS
N.T.S.

TYPICAL ALLEY LOT SERVICES
FOR LOTS 87-178
N.T.S.

TYPICAL LOT SERVICES
FOR LOTS 1-86
N.T.S

0 30 60 120
SCALE: 1"=60'

Source: MacKay and Somps, 2019

FIGURE 3-7: Small Lot Tentative Map
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PROJECT SUMMARY:

LAND USE:
RESIDENTIAL - 23.8± AC
COMMERCIAL - 21.8± AC
OPEN SPACE - 5.7± AC
TOTAL - 51.3± AC

RESIDENTIAL SUMMARY:

LOT COUNT:
86 - 42'x85' SINGLE FAMILY LOTS
92 - 50'x60' ALLEY-LOADED LOTS
178 - TOTAL LOTS

COMMERCIAL SUMMARY:

MAJOR RETAILER: 152,138± SF
SHOPS & RETAIL: 27,490± SF

✱ SIGNALIZED INTERSECTION (TWO LOCATIONS)

✱ PROPOSED BUS STOP

Source: MacKay and Somps, 2019

FIGURE 3-8: Site Plan
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COMMERCIAL – WESTERN PORTION OF THE SITE

The western portion of the project site is planned for a commercial center. The proposed project uses would accommodate 179,688 square feet (sf) of commercial building area on 21.8 acres. The commercial area is proposed for 5 separate buildings and a gasoline service station accommodating up to 30 fueling dispensers and a related 50-sf kiosk. The commercial center would have 962 parking spaces including accessible spaces for disabled persons.

The northern end of the commercial area is proposed to be developed with smaller-scale commercial buildings and associated parking on approximately 4.56 acres of the 21.8-acre site. This portion of the commercial area would have 188 parking stalls, inclusive of 8 spaces reserved for disabled accessible parking. A restaurant with a drive-thru is proposed for the southernmost building on Admiral Callaghan Lane; potential uses for the other three buildings could include general neighborhood services such as restaurants, health and fitness clubs, medical clinics, pharmacies, salons, laundry, clothing, convenience stores, and other related services. Allowed uses are similar to commercial centers in the surrounding area (e.g., Gateway Plaza) and are specified in the proposed master plan.

The southern portion of the commercial center is proposed for a 152,138 sf Costco store on 17.3 acres of the 21.8-acre commercial area; this would be the largest building on the project site. A rendering of the proposed Costco building is shown in **Figure 3-9: Costco Building Rendering**. Costco intends to relocate their existing Vallejo operations from the existing store within the Gateway Plaza shopping center to the proposed project site a distance of approximately 0.75-mile. The existing Costco building will be available for re-use for general commercial uses consistent with the existing zoning. The existing gas station and related equipment would be decommissioned and removed from the property.[1]

The relocated Costco would be a total of 152, 138 sf, approximately 26,700 sf larger than the existing Costco. The Costco would have 774 parking stalls, of which 16 would be reserved for disabled accessible parking. The Costco building would be set back from the roadway approximately 450 feet, separated from Admiral Callaghan Lane by the parking lot. The Costco store is open to members weekdays between the hours of 9:00 AM and 8:30 PM. Weekend operating hours open to members are typically from 9:00 AM to 6:00 PM. The Costco store receives deliveries from approximately 2:00 AM to 10:00 AM daily. Approximately 10 trucks a day through a combination of Costco branded delivery trucks and bread trucks.

Similar to the existing warehouse, the proposed Costco store would include a tire center. The tire center installation area would be approximately 2,700 sf including 5 bays for tire installation. Operating hours for the tire center are anticipated to be 6:00 AM to 9:30 PM on weekdays and 6:00 AM to 7:00 PM on weekdays. The tire center would receive deliveries approximately 2 times per week.

[1] While not a part of the project, the analysis in this EIR assumes that the 125,437 square foot existing Costco building will be re-occupied with a general commercial retail use as allowed under the current zoning. This analysis assumes that a deed restriction would be placed on the existing building that would preclude discount warehouse or bulk retail sales as future uses at the site.

Source: MG2, 2018

FIGURE 3-9: Costco Building Rendering
Fairview at Northgate Project

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A Costco gas station is proposed in the southern portion of the commercial center parking lot. The gas station would have 30 fueling positions; an increase of 14 fueling positions from the existing station at the Gateway Plaza shopping center. Drivers would access the fueling positions via 10 feeder lanes. The gas station would be open seven days a week between 5:00 AM and 10:00 PM. The gas station would include a 50 sf Kiosk for employee use. Costco fuel trucks come to the site to refill the underground fuel storage tanks up to 12 times per day.

Consistent with Costco fueling stations in other Costco warehouse locations throughout California, Costco would employ the following minimal operational and design features to provide environmental safeguards at the proposed fueling station. The operational measures will be added as conditions of approval of the proposed project.

Operational Safeguards

1. The fueling facility is designed to operate as an unattended self-serve facility. However, Costco 's policy is to provide a Costco Gasoline Program trained employee and supervisor at the site during all hours of operation to assist with member safety. The Costco Gasoline training program includes an interactive test that all gasoline employees must pass before working at a Costco Gasoline facility.

2. The facility is supported by senior management in the warehouse during all gasoline station operation hours. The supervisor will be equipped with a roam telephone programmed to receive calls from the fueling facility and warehouse. Every gasoline facility is equipped with a "911" telephone that automatically contacts emergency dispatch in addition to a regular telephone line and roam phones.

3. Employees are trained to identify maintenance requirements and physically inspect the fuel islands regularly during operating hours. Their training includes the proper spill cleanup and emergency response procedures. Trained employees check for leaking hoses, malfunctioning nozzles, fuel spills, and physical damage to the dispensers and controller enclosure. During non-operating hours, the power to the dispensers is turned off and each nozzle pad is locked. Should the system require attention beyond what the trained site person could handle, the local authorized and certified service contractor would be contacted and dispatched to repair the equipment.

4. All elements of the pumps and operational safeguards are be maintained to be in good and proper operating order.

The proposed commercial area would take access from three driveways off of Admiral Callaghan Lane as shown in Figure 3-8. The selection of traffic control devices at the three intersections also considers the City’s concerns regarding traffic signal spacing and the number of traffic signals along Admiral Callaghan Lane.

The driveway configurations are as follows:

- Northern Driveway: Unsignalized, separate outbound left turn and right turn lanes, southbound left turn pocket for inbound left turns;
- Middle Driveway: Signalized, two outbound left turn lanes and one outbound right turn lane, southbound left turn pocket for inbound left turns;
- Southern Driveway: Unsignalized, one outbound right turn lane, no outbound left turn allowed, southbound left turn pocket for inbound left turns.

Admiral Callaghan Lane Improvements

In conjunction with the project driveways, the project includes improvements to Admiral Callaghan Lane. Currently, Admiral Callaghan Lane is a two-lane road with one travel lane in each direction with no bike lanes or sidewalks. The project would improve Admiral Callaghan Lane to an approximately 76-foot cross-section with improvements along the project frontage. The new lane configuration for Admiral Callaghan would consist of two travel lanes in each direction, an eleven-foot landscaped center median, a 5-foot wide bike lane in each direction, and a 4.5-foot wide pedestrian sidewalk on the eastern side (northbound direction) of Admiral Callaghan Lane along the project frontage. None of these proposed improvements would occur within Caltrans right-of-way on the western side of Admiral Callaghan Drive.

Where Blue Rock Springs Creek crosses the southwest corner of the project site, a distance of approximately 90 feet, the proposed road widening would span the creek and would not place fill material or extend the existing culverts.

Turner Parkway Improvements

Turner Parkway currently has two car travel lanes, a bike lane, and sidewalks in each direction with a landscaped center median along the project frontage. Roadway improvements include a traffic signal at the west residential driveway, associated striping, and a crosswalk. The project would construct a new bus stop with a minimum 60-foot long by 10-foot wide bus pullout on the project frontage of Turner Parkway, near the existing crosswalk at the Admiral Callaghan Lane intersection, for buses traveling in the eastbound direction. The new bus pullout would also include a concrete shelter pad behind the sidewalk, a 13' x 3' bus stop shelter, bench, trash can, solar lighting, and a bus stop sign.

RESIDENTIAL – EASTERN PORTION OF THE SITE

The residential component would be located on the eastern portion of the project site on 23.8 acres. The project proposes 178 single-family detached units with two building types: those with a private front courtyard and alley loaded garages, and those with traditional driveways and front-loaded garages. The 92 alley-loaded residences, generally located within the interior of the project site, would have courtyards and garage access from the north-south-oriented alleys. The alleys, each shared among either 6 or 8 residences, would be accessed from east-west-trending 42-foot-wide interior streets. Between the interior residences, landscaped paseos would provide access to the front of the homes. The alley loaded homes would come in three different designs styles with subtle architectural differences among the three

designs. A conceptual design of home with an alley facing garage is shown in **Figure 3-10: Residential Architecture – Alley Facing Garage**. Of the remaining 86 residences, 67 would be located around the perimeter of the residential area and 19 residences would be in the southern residential zone. The 86 residential units would be traditional single-family detached units on parcels with a 42-foot minimum width and an 85-foot minimum depth. The traditional residential units would feature a front driveway and front entryway facing the streets and be generally oriented to the interior of the residential area. These homes would also come in three different design styles with subtle variations among the designs. A conceptual design of home with a street-facing garage is shown in **Figure 3-11: Residential Architecture – Street Facing Garage**. The average density for the residential uses would be 7.9 units per gross acre.

The residential component of the project would be accessed from two driveways off Turner Parkway as shown in Figure 3-8. The western residential driveway was assumed to be signalized with full access for all movements. The eastern driveway was assumed to be unsignalized with right-in/right-out access only. Signalization of the western driveway would include a modification of the existing center median to provide a left-turn lane into the project site and a left turn out of the project site. Pedestrian improvements at this intersection include a crosswalk across Turner Parkway.

OPEN SPACE - WETLANDS

The central portion of the proposed project site would be preserved as open space would consist of 5.7 acres. Development would be precluded in this area. This area drains the existing off-site residential developments to the south and southeast of the project site. Portions of this area are designated as seasonal wetlands. This open space would separate the proposed project's commercial and residential components and provide a buffer between the two uses. This area would be subject to protective restrictions that would not allow for public or private use and the open space would be secured by attractively designed perimeter fencing consistent with the appearance of open space. The open space would be owned, managed, and maintained by a homeowners association (HOA) created in connection with the residential component of the proposed project. The open space would only be accessible via private gates in order to facilitate maintenance activities.

PARKS AND PEDESTRIAN ACCESS

The proposed project would provide parks and privately maintained greenspace to fulfill the City's Quimby Act parkland dedication requirements. The proposed project would include approximately 2.66 acres of parks and trails. The park area includes two pocket parks (0.15-acre each) and two linear paseos (0.13-acre each) which would be for the use of project residents. A 1.92-acre linear park with trail would be located between the residential area and the 5.7-acre open space area described above. The linear park and trail would connect to a 0.18-acre open space area with a meandering pathway along Turner Parkway. The proposed project was designed to include these walkways in order to encourage pedestrian activity within the residential community as well as from the residential community to the service-oriented uses at the north end of the commercial area. The proposed project would be required to pay an in-lieu fee as mitigation for any amount of parkland acreage not provided.

Front Elevation 1A

Front Elevation 1B

Front Elevation 1C

Source: ktgy, 2019

FIGURE 3-10: Residential Architecture - Alley Facing Garage
Fairview at Northgate Project

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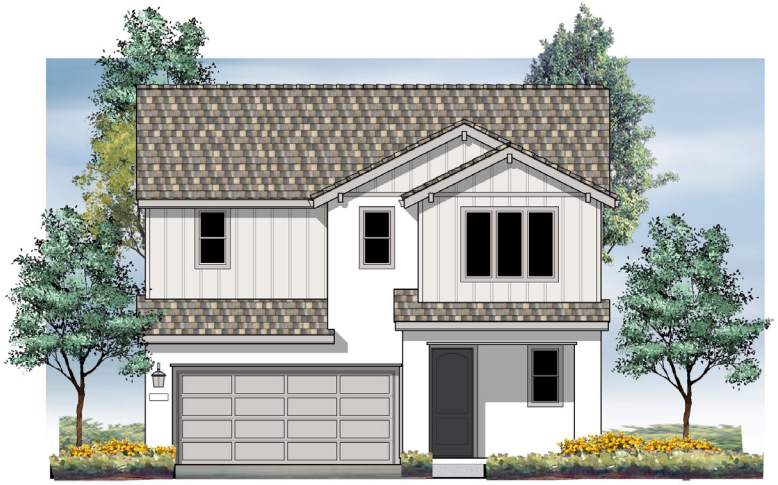
Front Elevation 1A

Front Elevation 1B



Front Elevation 1C

Source: ktgy, 2019

FIGURE 3-11: Residential Architecture - StreetFacing Garage
Fairview at Northgate Project

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HOMEOWNERS ASSOCIATION (HOA)

The proposed residential portion of the proposed project, as well as the open space and water quality basin, would be managed and maintained by an HOA. Assessments would be placed upon each residential unit to provide for proper ongoing management, maintenance, and replacement of private common area landscaping and storm drainage infrastructure including features associated with water quality/C3 requirements (i.e., the C3 Basin and C3 compliant water quality features), erosion control, parks, and open space. HOA formation documents and covenants, conditions, and restrictions (CC&Rs) would establish strict guidelines on monitoring and maintenance requirements based upon reasonable obligations set forth by the developer and any agencies having jurisdiction over any specific facility or infrastructure designated to be maintained by the HOA. The HOA and CC&Rs would be formed prior to any occupancies within the residential portion of the proposed project and all proper disclosures regarding obligations and assessments would be clearly disclosed at the time of home sales.

SIGNAGE PLAN

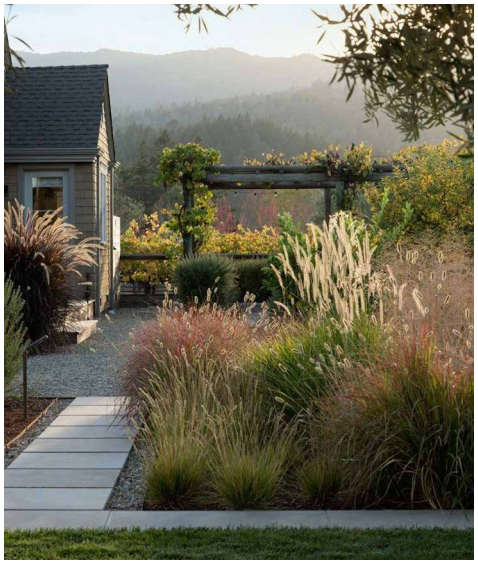
The project includes a signage plan to demonstrate that all proposed project signs would conform to Zoning Code requirements. Proposed signs would include, but not be limited to, the commercial center and businesses located therein; low ground level signs at the entrances to the residential development; new street signs on Admiral Callahan Lane and Turner Parkway; and street signs naming the entrance drives to the residential area and signs for interior streets. All signs would be in acceptable and approved locations, and of acceptable materials, colors, sizes, and illumination (if applicable) requiring City approval prior to installation.

LANDSCAPING

The proposed project has been designed to be consistent with the State of California's Model Water Efficient Landscape Ordinance (MWELO), adopted January 1, 2010 and updated on July 15, 2015. The project includes common landscape areas to enhance and preserve the natural setting. The proposed project includes a landscaping plan for both the residential and commercial areas. The proposed landscape plan is shown in **Figure 3-12: Conceptual Landscape Plan.** The project would be planted with trees within the parking lots of the commercial areas and within the residential area, bio-retention areas, and site perimeter.

Trees within the commercial area would be planted within landscaped medians, along the site perimeters, and within parking lot planting islands. The proposed landscaping in the commercial area is shown in **Figure 3-13: Conceptual Commercial Area Landscape Plan**. The tree pallet would include, but not be limited to, autumn applause ash, autumn purple ash, scarlet oak, summit ash, maidenhair tree, rustic rubra magnolia, Cleveland pear, deodar cedar, and Italian stone pine. A small retail plaza is proposed at the northwestern corner of the commercial area. This area would provide some enhanced landscaping, seating areas with tables and umbrellas, and a focal entry point with elements that could include a water feature, plantings and a sculpture. This area is shown in **Figure 3-14: Conceptual Plaza Retail Plaza Landscape Plan**. This area also provides a terminus for the meandering pathway that connects the commercial area of the project site to the residential area. The meandering pathway is shown in Figure 3-8.

1. Retail Plaza
2. 8' concrete path
3. Existing sidewalk, typ.
4. Stormwater treatment area
5. Stormwater treatment planter, typ.
6. Open Space: Linear Park and Wetland
7. Western Community Park
8. 8' Pedestrian connections through parking lot, typical
9. Costco Gas Station
10. Eastern residential play park
11. Single family homes, typ.

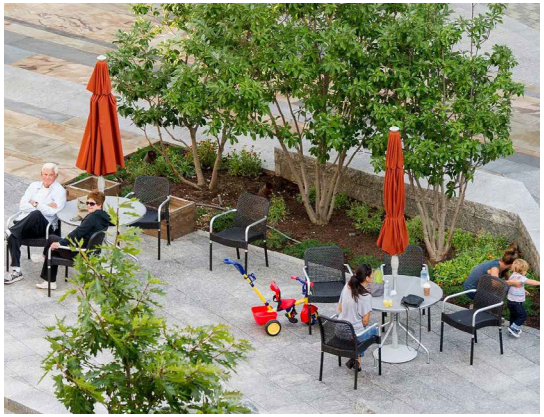


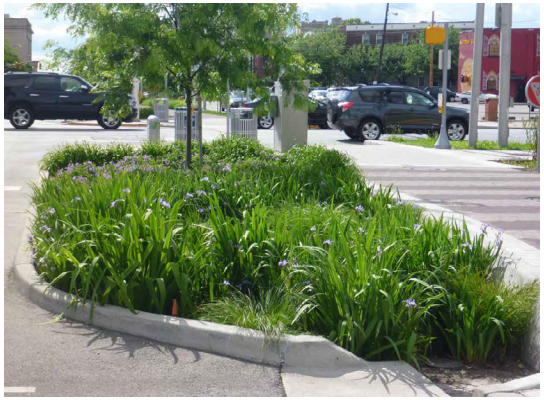
Source: Gates + Associates, 2019

FIGURE 3-12: Landscape Plan
Fairview at Northgate Project

Kimley»Horn

1. 8' concrete path
2. Native tree and shrub planting softens retail development
3. Stormwater treatment planter, typ.
4. Existing sidewalk
5. Retail Plaza
6. Drive-thru is screened from street
7. 8' wide pedestrian connections through parking lot, typical
8. Proposed PG&E gas line easement (shrub planting, no trees)
9. Costco Gas Station





0 30 60 120

Source: Gates + Associates, 2019

FIGURE 3-13: Conceptual Commercial Area Landscape Plan
Fairview at Northgate Project

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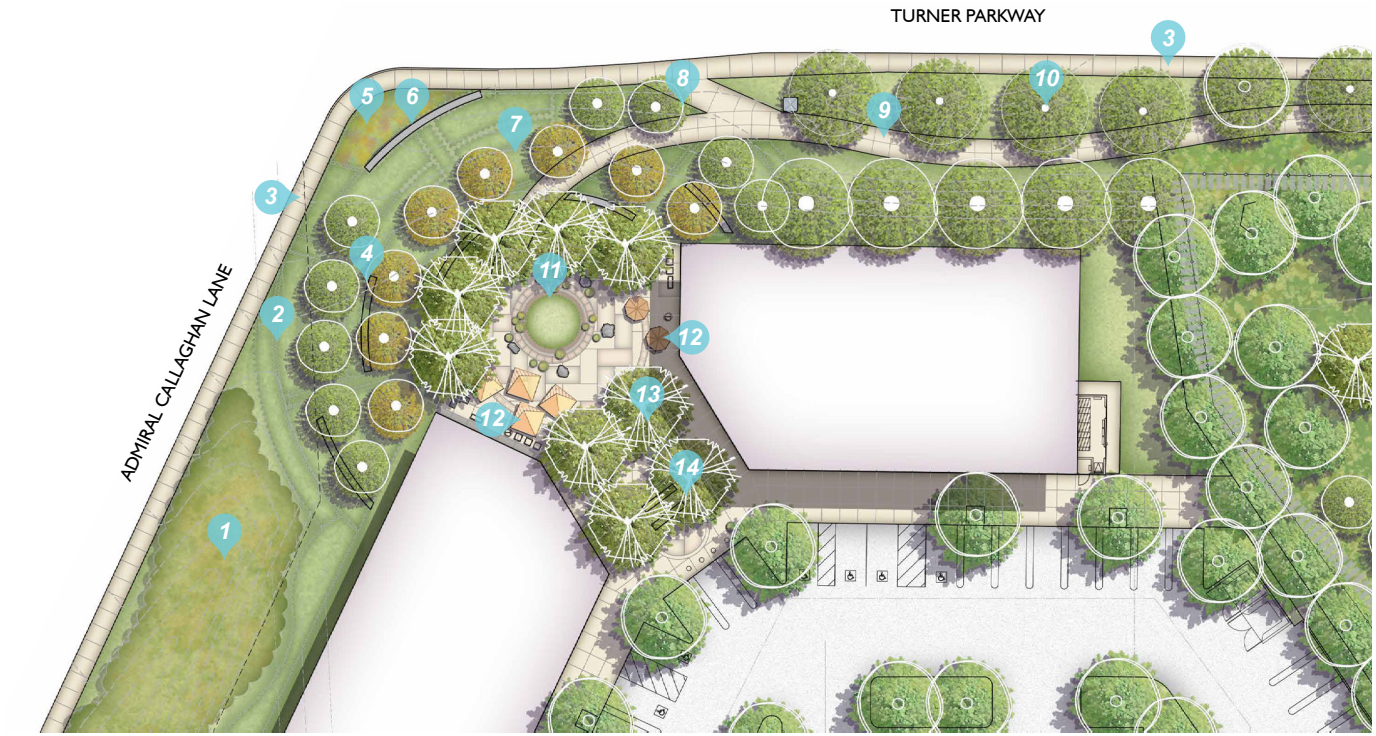

1. Proposed PG&E gas line easement (no trees)
2. Bands of ornamental grasses
3. Existing sidewalk, typ.
4. Low stone walls
5. Colorful planting
6. Signage on low stone wall
7. Bold planting in circular bands
8. Stone marker at pedestrian walk
9. 8' concrete path
10. Most existing street trees to remain on Turner Parkway
11. Raised planting with seatwalls
12. Tables and umbrellas near cafe entries
13. Seating niche with pots, seatwalls, flowering trees
14. Focal entry feature with planting

Source: Gates + Associates, 2019

0 8 16 32

FIGURE 3-14: Conceptual Retail Plaza Landscape Plan
Fairview at Northgate Project

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The residential component of the project would include several different outdoor amenities to enhance outdoor recreation and access within the residential neighborhood. **Figure 3-15: Conceptual Residential Paseo Landscape Plan**, provides an illustration of the typical landscaping for the paseos, or walkways, internal to the residential neighborhood. These areas would provide pedestrian access to the front of the homes located in this area. These walkways would consist of enhanced paving and would be lined with fruit trees and would have outdoor seating areas at various locations along the walkway. These pathways would also provide access to green spaces within the neighborhood.

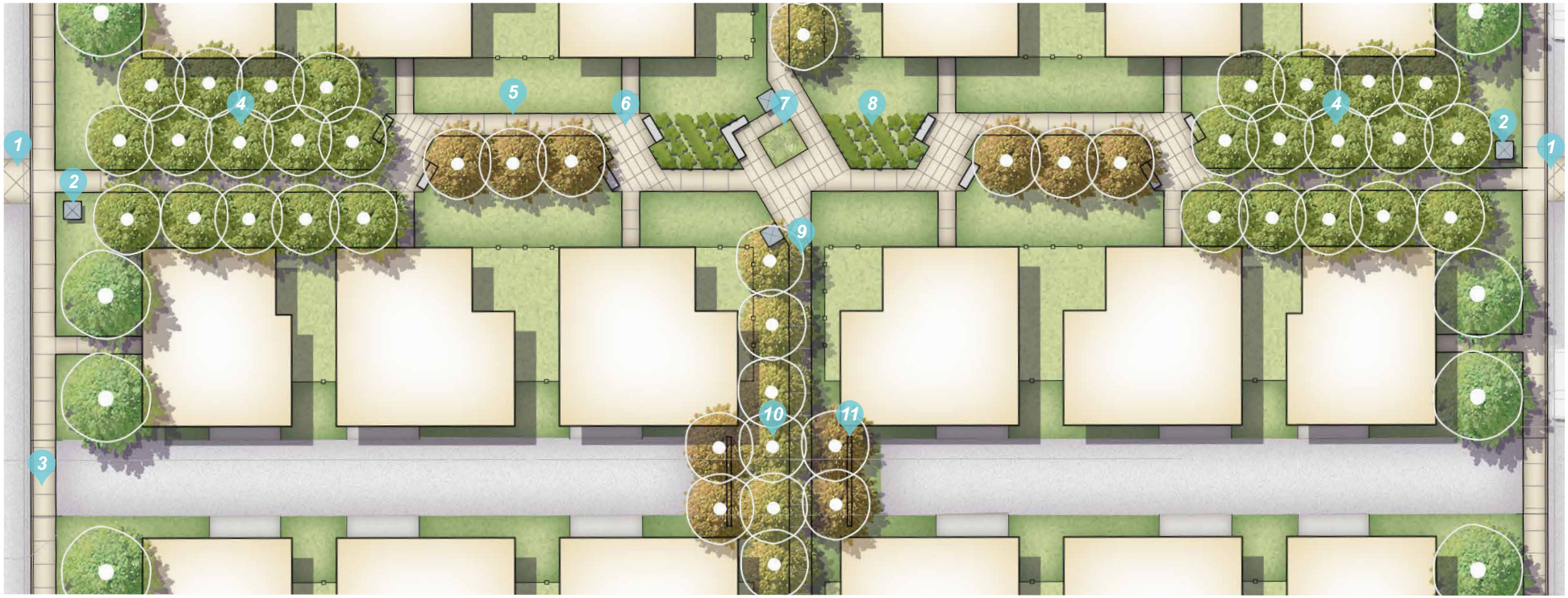
The residential area includes three park areas. A western play park is shown in **Figure 3-16: Conceptual Western Community Park Landscape Plan.** This area consists of enhanced or decorative paving and have features that would facilitate gatherings for neighborhood residents such as seat walls, lounge seating, a fire pit, group seating area, and a dining area (picnic tables). This area would provide access to the linear park.

The proposed linear park is shown in **Figure 3-17: Conceptual Linear Park Landscape Plan.** The linear park extends along the western boundary of the residential neighborhood. This park area is centered around a pathway that would be lined with fruit tree orchards, a community garden, picnic tables, and seating areas. In addition to connecting to the Western Community Park, the linear park would connect to the proposed meandering pathway that would run parallel to Turner Parkway. This meandering pathway would connect the residential and commercial neighborhoods.

A park focused on children's activities in proposed on the eastern side of the residential neighborhood. The layout of this park is shown in **Figure 3-18: Conceptual Eastern Play Park Landscape Plan.** This park area includes a tot lot with overhead shade structure, seat walls, seating areas, picnic tables, fencing, and screening trees. This park would be connected to the residential area through the paseo walkways.

UTILITIES

The proposed project would be designed, developed and constructed with all utility infrastructure (water, electric, gas, sanitary sewer, storm water, cable/internet) required for the operation and maintenance of the proposed commercial and residential project improvements. The proposed project would tie into existing utility lines, mains and infrastructure located in the adjacent public right of way (i.e., Admiral Callaghan Lane and Turner Parkway) or easements and extend these lines, mains and infrastructure into the proposed project site. As a part of the proposed project, the existing PG&E gas line and easement would be realigned to the western edge of the property along the southern and western property boundary. A portion of the VFWD sewer main and easement would also be realigned to be located within the proposed parking lot on the west side of the proposed Costco building. The portion of the sewer line that would no longer be in use would be abandoned in place and left in its current location. The proposed relocated utility easements are shown in **Figure 3-19: Utility Plan Relocations**.



1. Stamped asphalt pedestrian crosswalks
2. Stone markers define paseo entries, typ.
3. 5' wide concrete sidewalk
4. Fruit tree orchards at paseo entries, typ.
5. Paths alternate providing equal access to green space
6. Angled patios at entries to homes with seatwalls
7. Community herb garden with seatwalls
8. Landscape planting in rows for agrarian style
9. East/West pedestrian connection through center of block
10. Evergreen orchard planting at ends of auto accessways
11. Walls at ends of auto accessways protect pedestrians

Source: Gates + Associates, 2019

FIGURE 3-15: Conceptual Residential Paseo Landscape Plan
Fairview at Northgate Project

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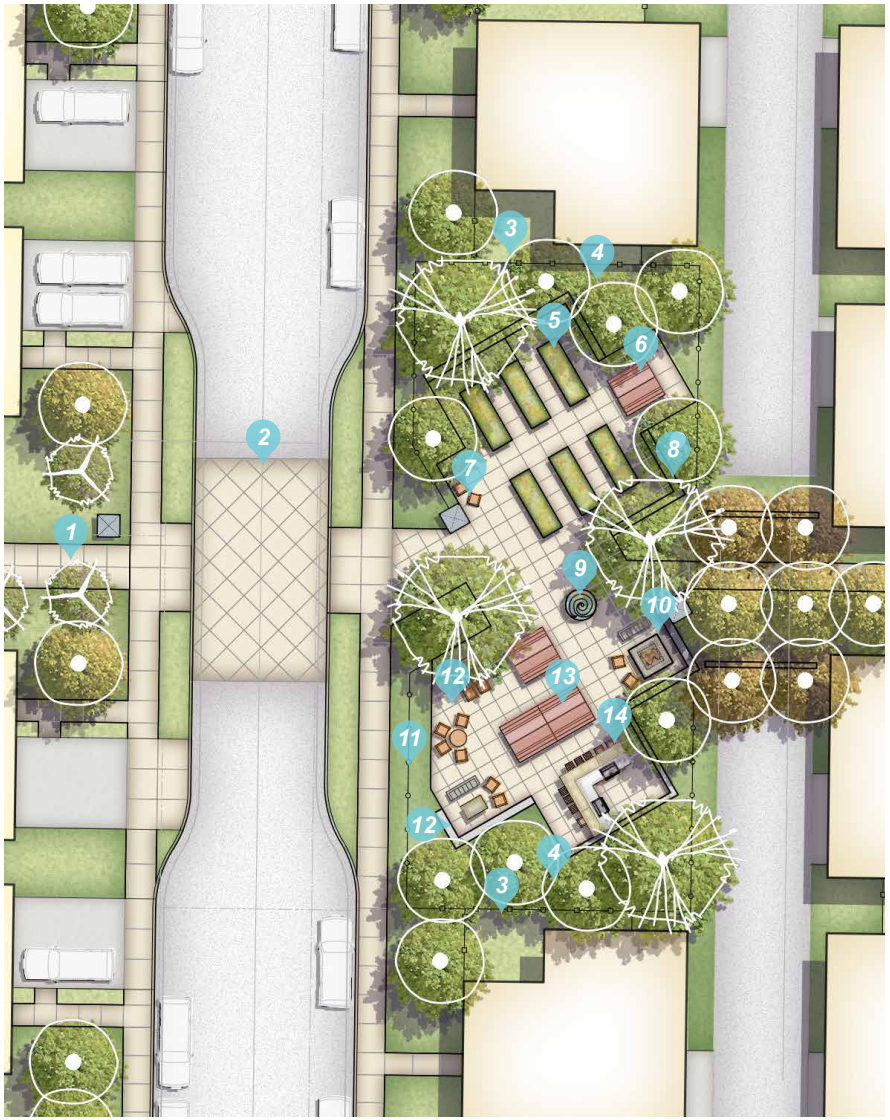
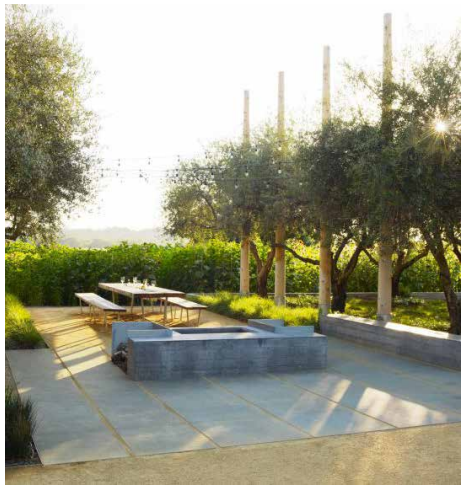


1. Pedestrian connection to linear park
2. Bulbout and stamped asphalt at crossing
3. Screen fence, typ.
4. Landscape buffer adjacent to homes, both sides
5. Community garden with raised planter beds
6. Picnic table
7. Small group lounge seating area
8. Seatwalls, typ.
9. Focal Point: Sculpture, potted plant, or message kiosk
10. Fire pit community space
11. View fence, typ.
12. Large group lounge seating
13. Large group dining
14. Grilling island with bar-height seating



Source: Gates + Associates, 2019

FIGURE 3-16: Conceptual Western Community Park Landscape Plan
Fairview at Northgate Project

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1. Gateway marker, typ.
2. Existing sidewalk
3. Wood split rail fence at wetland edge
4. 8' concrete path
5. Stormwater treatment area
6. Stormwater overlook with seat pads, typ.
7. 8' wide trail: 6' wide asphalt with 1' wide DG* edges
8. Wetland view fence, split rail wood style, typ.
9. Tree and shrub planting soften Costco & parking
10. 8' wide concrete entry walk to linear park from neighborhood, typ.
11. Ornamental & edible planting in agrarian-style rows
12. Bench seating, typ.
13. Fruit & nut trees at neighbor property lines, typ.
14. Gateway with seatwalls and focal point
15. Picnic tables, typ.
16. Lounge seating nodes, typ.
17. Wetland open space with native planting
18. Wetland setback line

* DG is decomposed granite

0 20 40 80

Source: Gates + Associates, 2019

FIGURE 3-17: Conceptual Linear Park Landscape Plan
Fairview at Northgate Project

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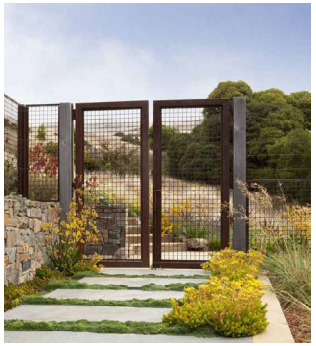
1. Buffer planting at homes
2. Seatwalls, typical
3. 5-12 year old nature-inspired play
4. Large shade trees, typical
5. Lounge seating
6. Picnic tables
7. Large shade tree with seatwalls
8. 2-5 year old nature-inspired play
9. View fence
10. Screen fence



0 5 10 20

Source: Gates + Associates, 2019

FIGURE 3-18: Conceptual Eastern Play Park Landscape Plan
Fairview at Northgate Project

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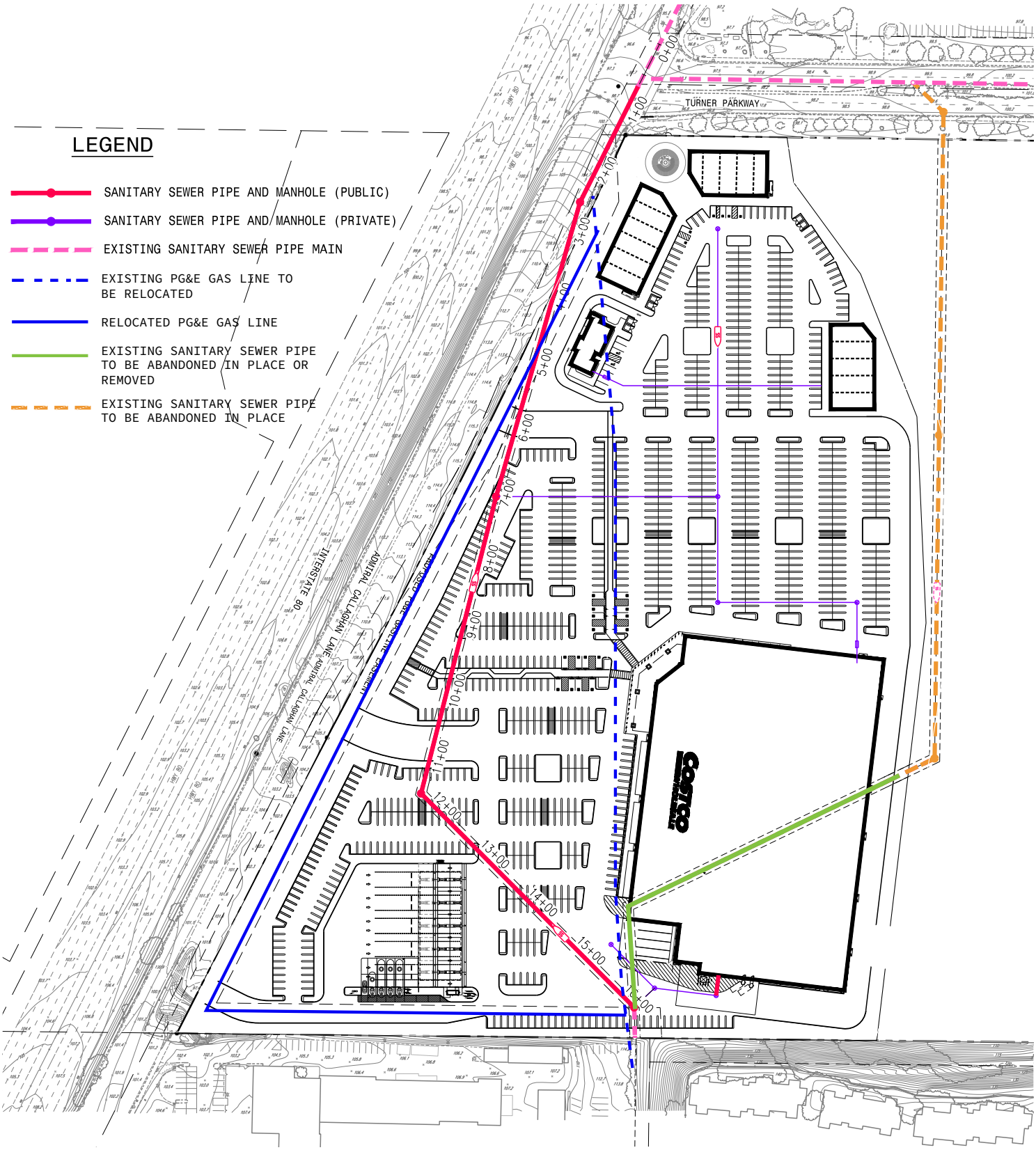


Source: MacKay and Somps, 2019

FIGURE 3-19: Utility Plan
Fairview at Northgate Project

Not to scale

Kimley»Horn

Water Quality Basin and C3 Requirements

The proposed project would be designed to comply with the California Regional Water Quality Control Board Municipal Regional Permit and associated Municipal Regional Permit Stormwater C3 requirements[2]. The proposed project would include appropriate source controls, to manage trash, sediment, and metal capture, and to reduce total maximum daily loads (TMDL), unwanted discharges, and to prevent increases in runoff flows.

To achieve these goals, the commercial area of the proposed project includes bioretention areas incorporated into the parking medians and landscaped areas within the commercial area are a part of the project. The bioretention areas in the commercial area are shown in **Figure 3-20: Commercial Water Quality Treatment Areas**. The final location and design of the C3 source control storm water treatment measures would be determined based on final project design and would be detailed in a final storm water drainage design report. The C3 compliant water quality features within the commercial component of the project would be managed and maintained by the owner(s) of the commercial parcels.

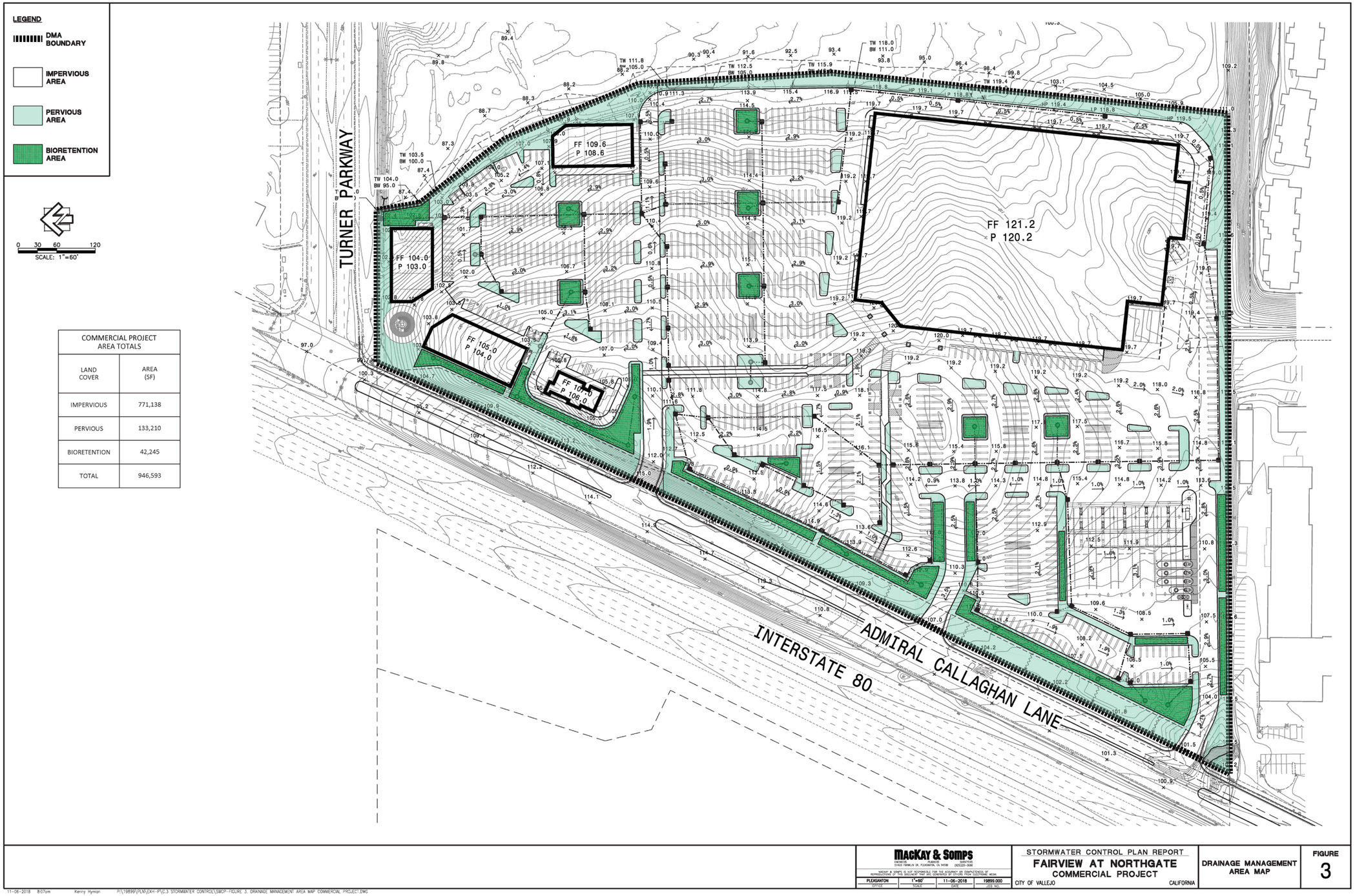
The residential area of the proposed project includes a 0.25-acre water bioretention basin (C3 Basin) on the northern portion of the site between the open space and residential area just south of Turner Parkway. This basin is shown in **Figure 3-21: Residential Water Quality Treatment Areas**. The C3 Basin and other C3 compliant water quality features within the residential component of the project would be managed and maintained by the HOA. The C3 basin would be designed to manage storm flows from the proposed project and treat run-off before being released downstream.

Water, Electric, and Natural Gas

Water services would be provided by the City of Vallejo Water Department (CVWD), which provides water service to residents and businesses, including approximately 121,000 people through more than 38,000 service connections. Future development of the project site would require coordination with the CVWD to ensure that all needed permits, engineering, and maintenance requirements are in place to properly serve future residents and commercial tenants. The commercial component of the proposed project will connect to the existing water main within Admiral Callaghan Lane. The layout of the commercial water system is shown in **Figure 3-22: Commercial Water System**. Likewise, the residential component of the proposed project will connect to the existing water main within Turner Parkway. The layout of the residential water system is shown in **Figure 3-23: Residential Water System**.

The proposed project is within the service area of the Pacific Gas & Electric Company (PG&E) which provides electric and natural gas service. Mare Island Electric and Gas also provides service for some areas within the City, but the proposed project site is outside of its service area. The proposed project would tie into existing natural gas and electric lines adjacent to the project site and, as part of project construction within areas proposed for disturbance, extend the lines into the project site. All extensions would conform to applicable building standards.

[2] C3 refers to Provision C.3 of the Municipal Regional Stormwater Permit (MRP) which requires projects to implement post-construction stormwater management measures to reduce stormwater pollution and limit increases in stormwater flows.



Source: MacKay and Somps, 2019

FIGURE 3-20: Commercial Water Quality Treatment Areas
Fairview at Northgate Project

Not to scale

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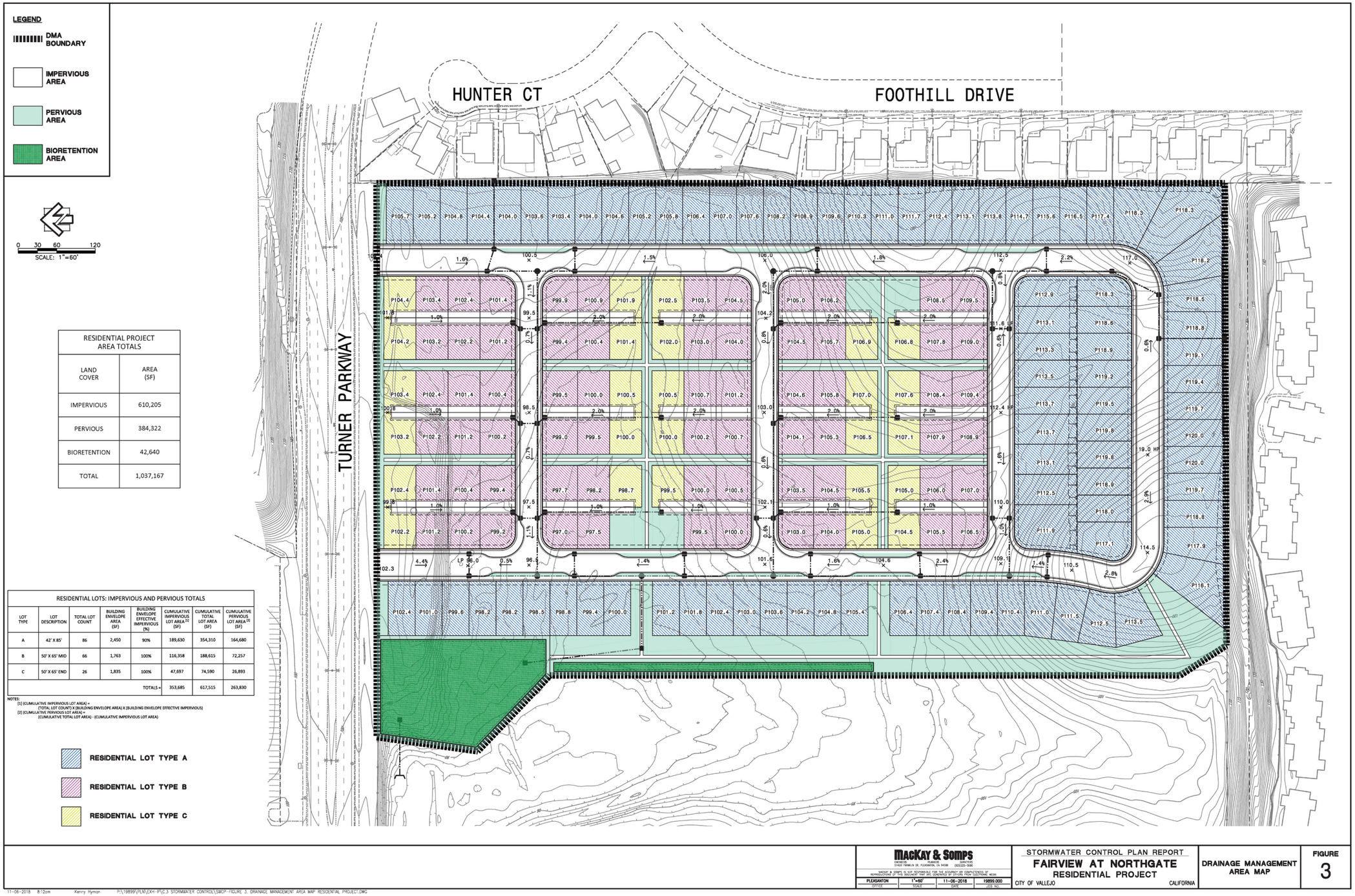

RESIDENTIAL PROJECT AREA TOTALS	
LAND COVER	AREA (SF)
IMPERVIOUS	610,205
PERVIOUS	384,322
BIORETENTION	42,640
TOTAL	1,037,167

RESIDENTIAL LOTS: IMPERVIOUS AND PERVIOUS TOTALS							
LOT TYPE	LOT DESCRIPTION	TOTAL LOT COUNT	BUILDING ENVELOPE AREA (SF)	BUILDING ENVELOPE EFFECTIVE IMPERVIOUS (%)	CUMULATIVE IMPERVIOUS LOT AREA [1] (SF)	CUMULATIVE TOTAL LOT AREA (SF)	CUMULATIVE PERVIOUS LOT AREA [2] (SF)
A	42' X 85'	86	2,450	90%	189,630	354,310	164,680
B	50' X 65' MID	66	1,763	100%	116,358	188,615	72,257
C	50' X 65' END	26	1,835	100%	47,697	74,590	26,893
				TOTALS =	353,685	617,515	263,830

NOTES:
[1] (CUMULATIVE IMPERVIOUS LOT AREA) =
(TOTAL LOT COUNT) X (BUILDING ENVELOPE AREA) X (BUILDING ENVELOPE EFFECTIVE IMPERVIOUS)
[2] (CUMULATIVE PERVIOUS LOT AREA) =
(CUMULATIVE TOTAL LOT AREA) - (CUMULATIVE IMPERVIOUS LOT AREA)

Source: MacKay and Somps, 2019

FIGURE 3-21: Residential Water Quality Treatment Areas
Fairview at Northgate Project

Not to scale

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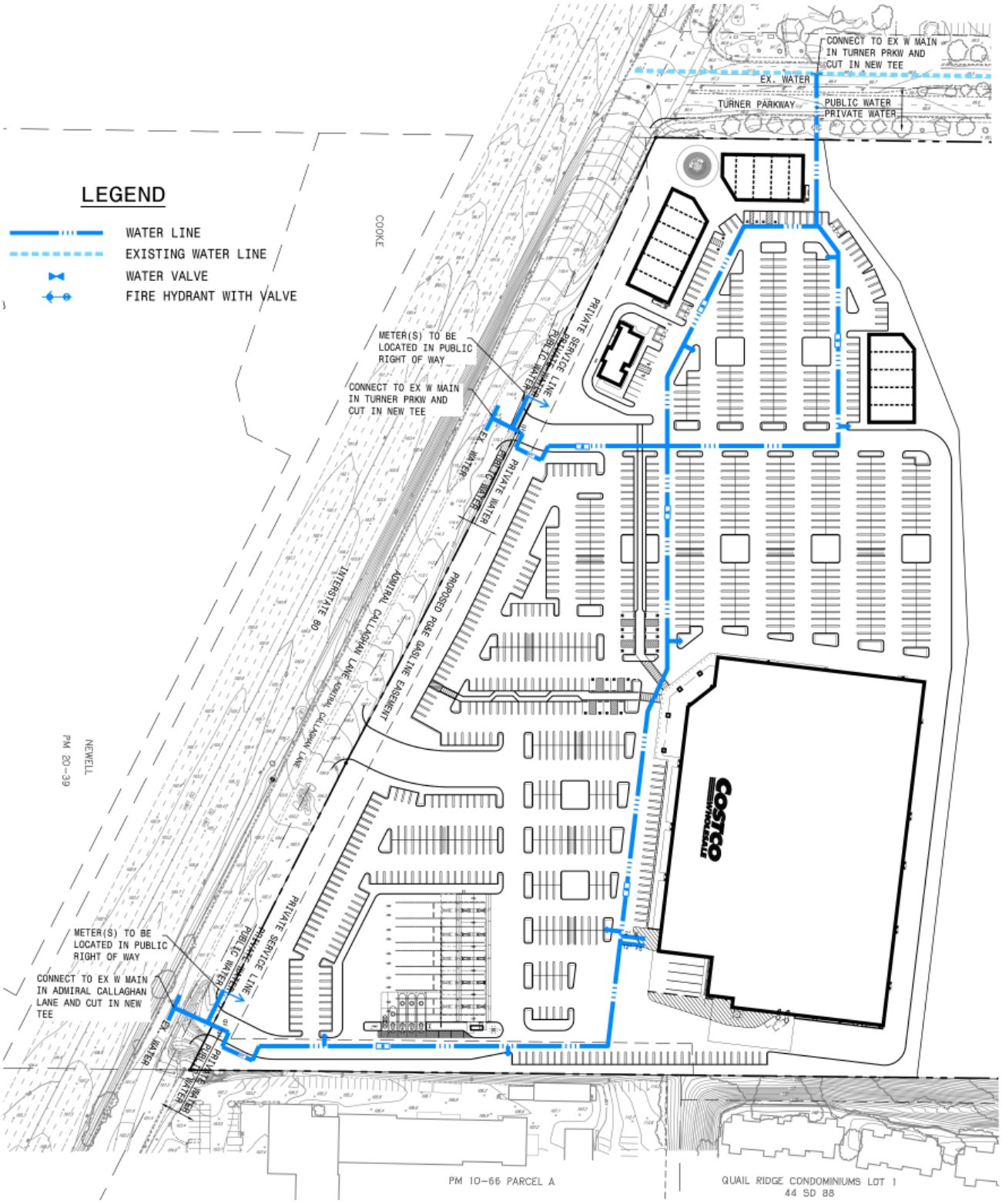
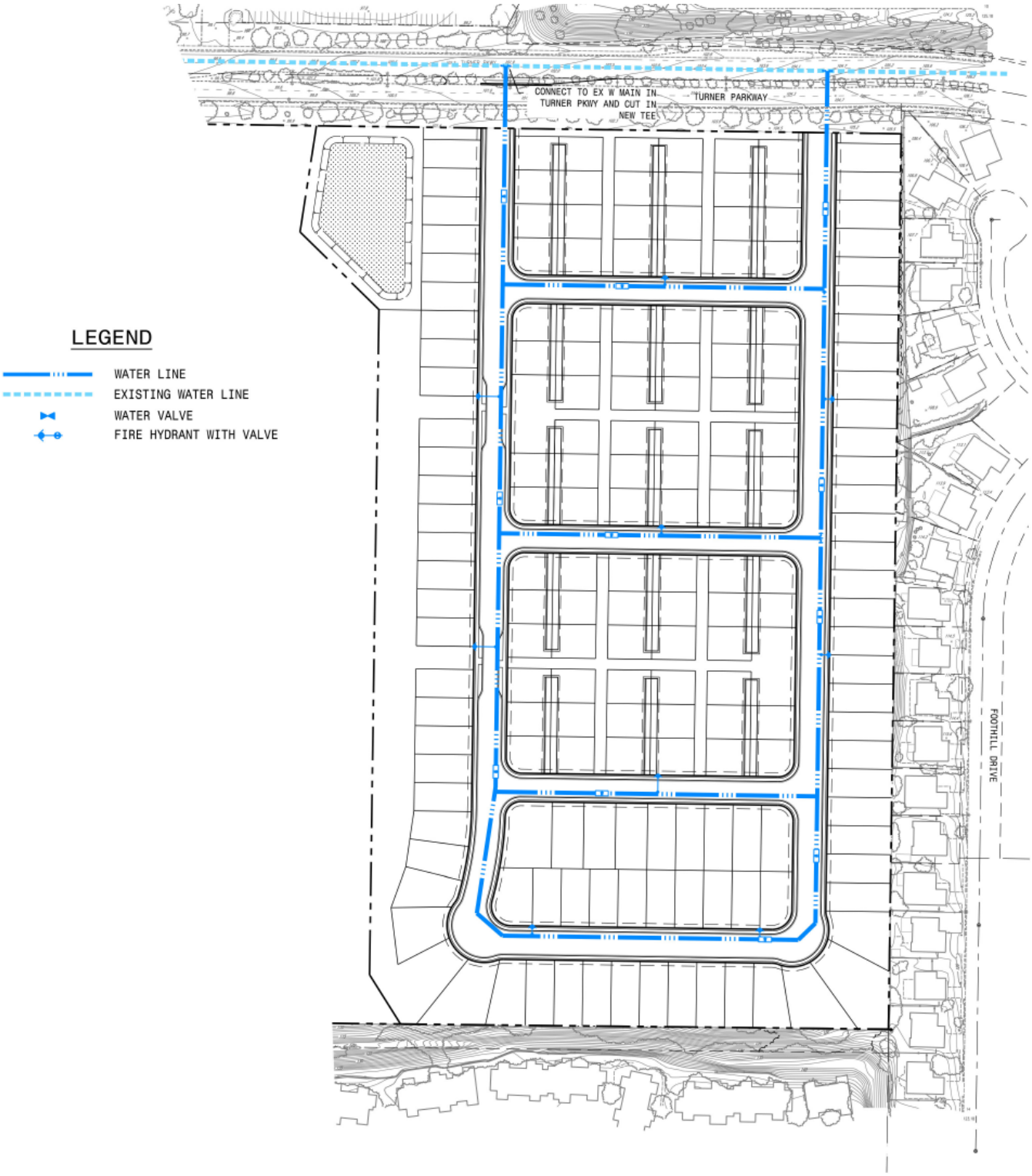


Source: MacKay and Somps, 2019

FIGURE 3-22: Commercial Water System
Fairview at Northgate Project

Not to scale

Kimley»Horn



Source: MacKay and Somps, 2019

FIGURE 3-23: Residential Water System
Fairview at Northgate Project

Not to scale

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The proposed project would work with the local utility providers to relocate existing utility lines, if required. An existing PG&E gas main traverses the commercial component of the proposed project site in a north/south direction. The proposed project would remove this gas main from its current location and relocate it to run along the southern boundary of the proposed project site in a westerly direction to Admiral Callaghan Lane, and then along and within the Admiral Callaghan Lane right of way and reconnecting with existing facilities to the north of the proposed project site as depicted in Figure 3-19. The proposed project would tie into the relocated gas main along Admiral Callaghan Lane and existing facilities along Turner Parkway adjacent to the proposed project and, as part of construction of the proposed project, extend the gas lines into the project site. All extensions would conform to applicable building standards.

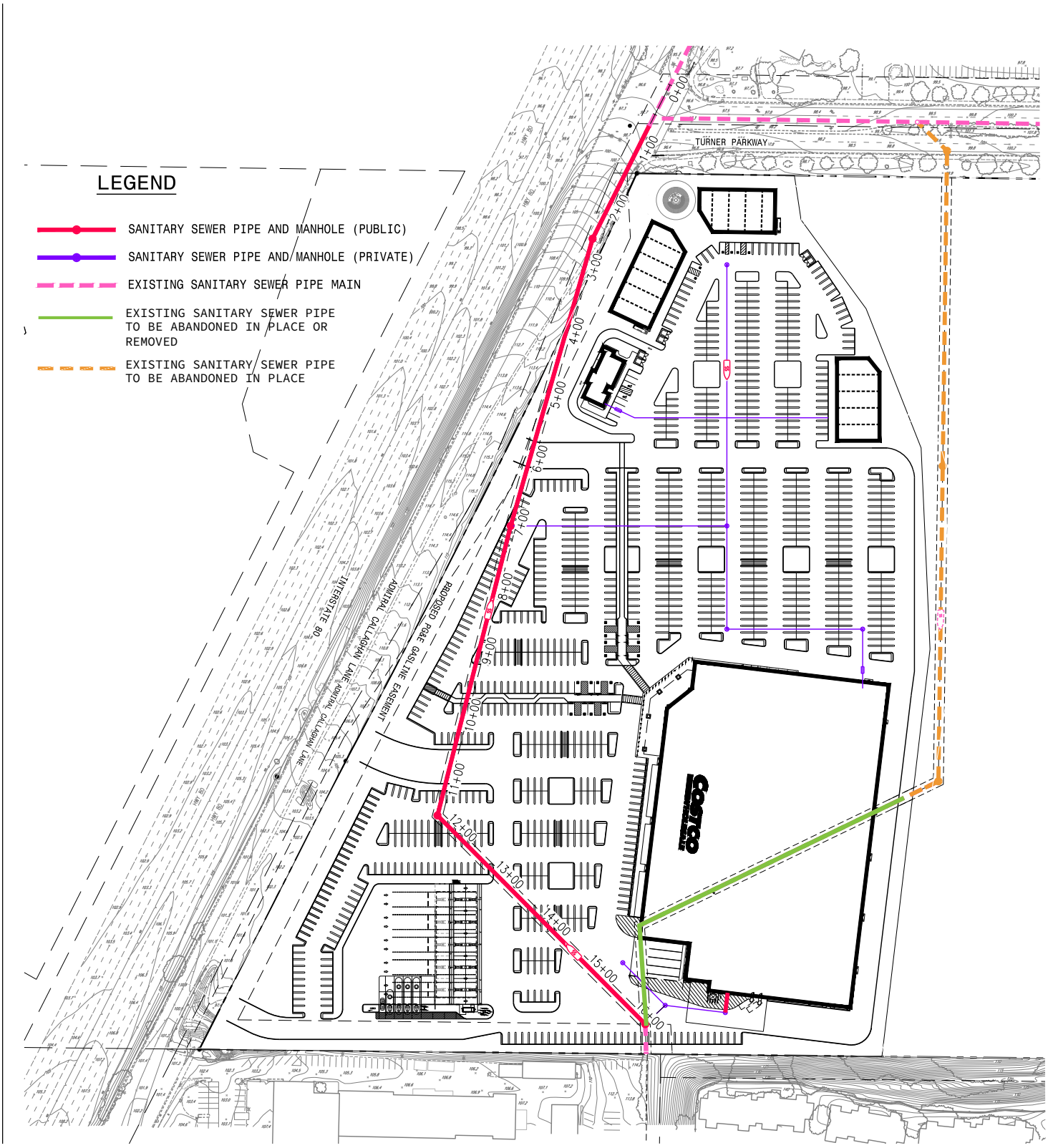
Sanitary Sewer and Storm Water

The proposed project would tie into the existing sanitary sewer and storm water facilities located adjacent to the site. An existing sanitary sewer main is located within Turner Parkway and traverses the project site where it extends offsite to the south. The commercial component of the proposed project would tie into the existing sewer main at the southern property boundary and, as part of construction of the proposed project, extend the sewer main into the commercial area as depicted in **Figure 3-24: Commercial Sewer System**. As described above, a portion of the existing sewer would be relocated to accommodate the future building pad for the Costco store. The portion of the sewer main no longer in use would be abandoned in place. The existing sewer main under the proposed Costco building envelope could be removed depending on final recommendations of a geotechnical engineer. The portion of the sewer main within the proposed open space area would be abandoned in place and would not be removed. The sewer system for the proposed residential development would extend a sewer main directly from the existing main in Turner Parkway into the project site. The residential sewer system is shown in **Figure 3-25: Residential Sewer System**. All extensions would conform to applicable building standards.

Currently, surface water on the site is conveyed offsite through existing culverts located under Turner Parkway on the northern property boundary and existing culverts located in the southwestern corner of the site. The project would design, construct, and maintain the C3 compliant storm water features outlined above as well as a storm drain system to control and release surface water into these existing drainage areas. The commercial storm drain system is shown in **Figure 3-26: Commercial Storm Drain System** and the storm drain system for the residential area is shown in **Figure 3-27: Residential Storm Drain System**. The proposed project would pay all applicable storm water fees to VFWD and storm water infrastructure would be designed to VFWD requirements.

Cable and Internet

Cable and internet services would be provided to the proposed project site through existing service lines, including the City's fiber-optic network, if applicable located within Admiral Callaghan Lane and Turner Parkway and then extended into the proposed project site. The City is served by a variety of media service providers including AllConnect, AT&T, Direct TV, Dish Network, and Comcast. Once the cable lines are installed to the individual businesses and residents, it would be up to individual owners to choose a service provider.

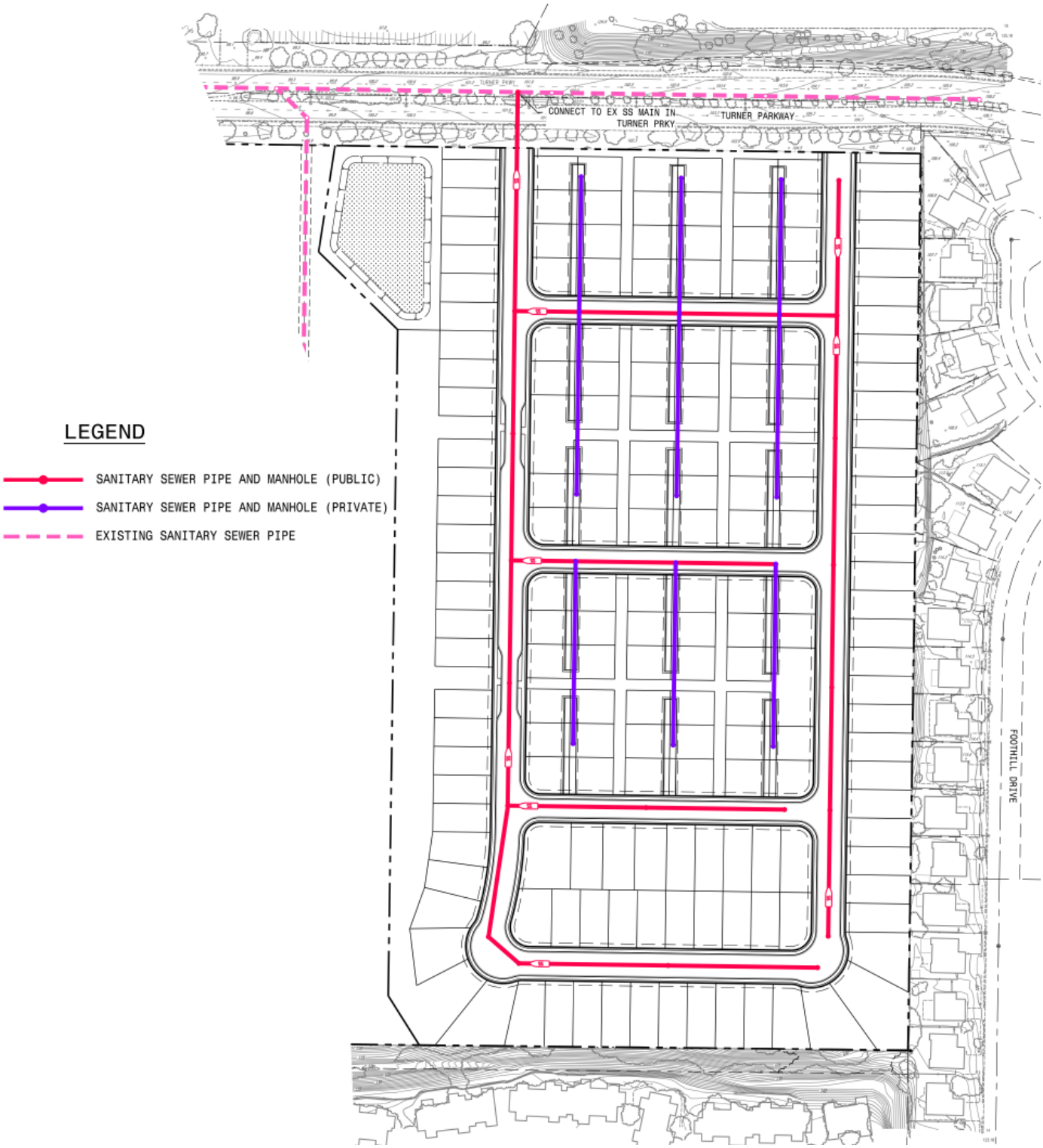


Source: MacKay and Somps, 2019

FIGURE 3-24: Commercial Sewer System
Fairview at Northgate Project

Not to scale

Kimley»Horn



Source: MacKay and Somps, 2019

FIGURE 3-25: Residential Sewer System
Fairview at Northgate Project

Not to scale

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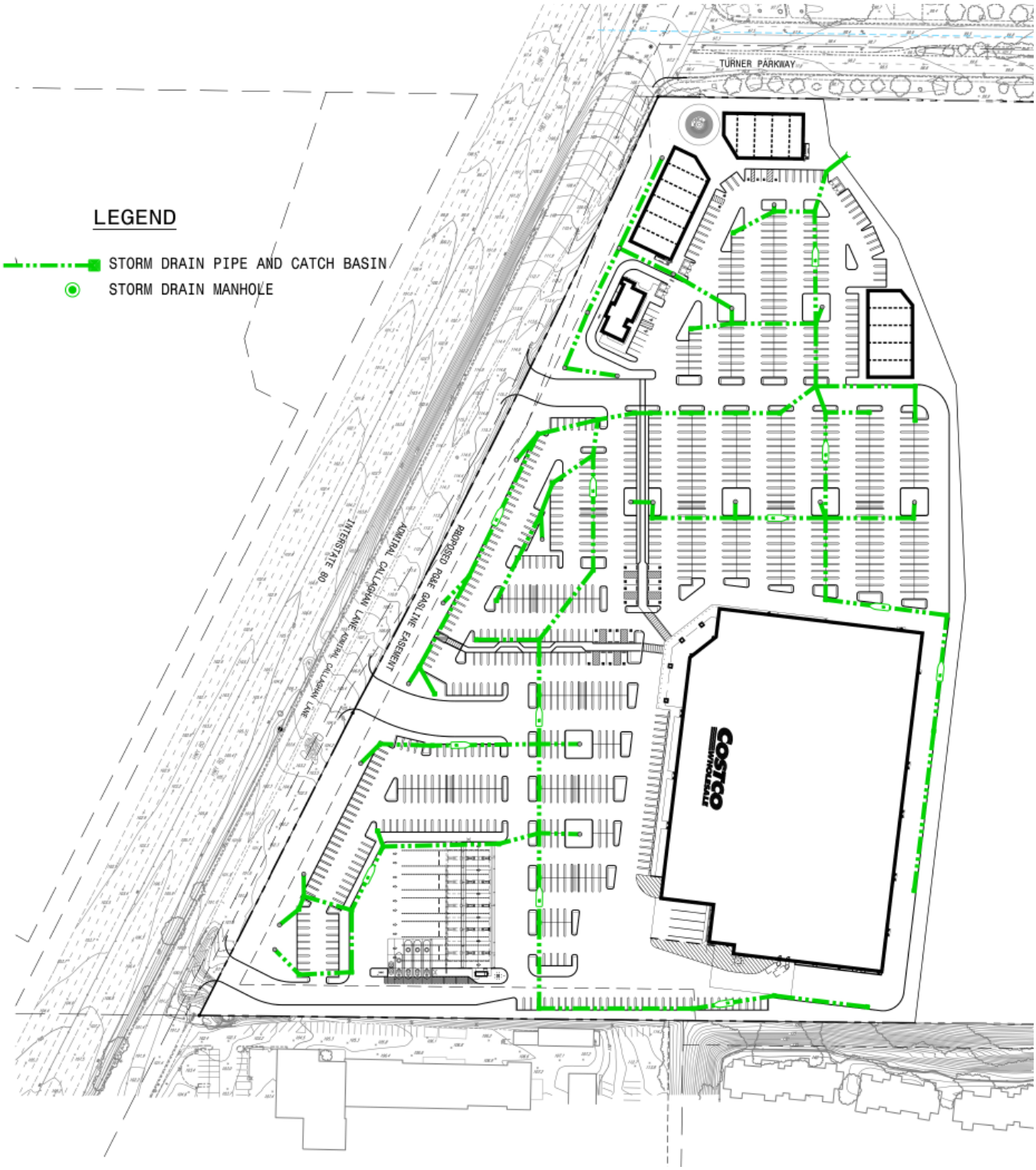

Source: MacKay and Somps, 2019

FIGURE 3-26: Commercial Storm Drain System
Fairview at Northgate Project

Not to scale

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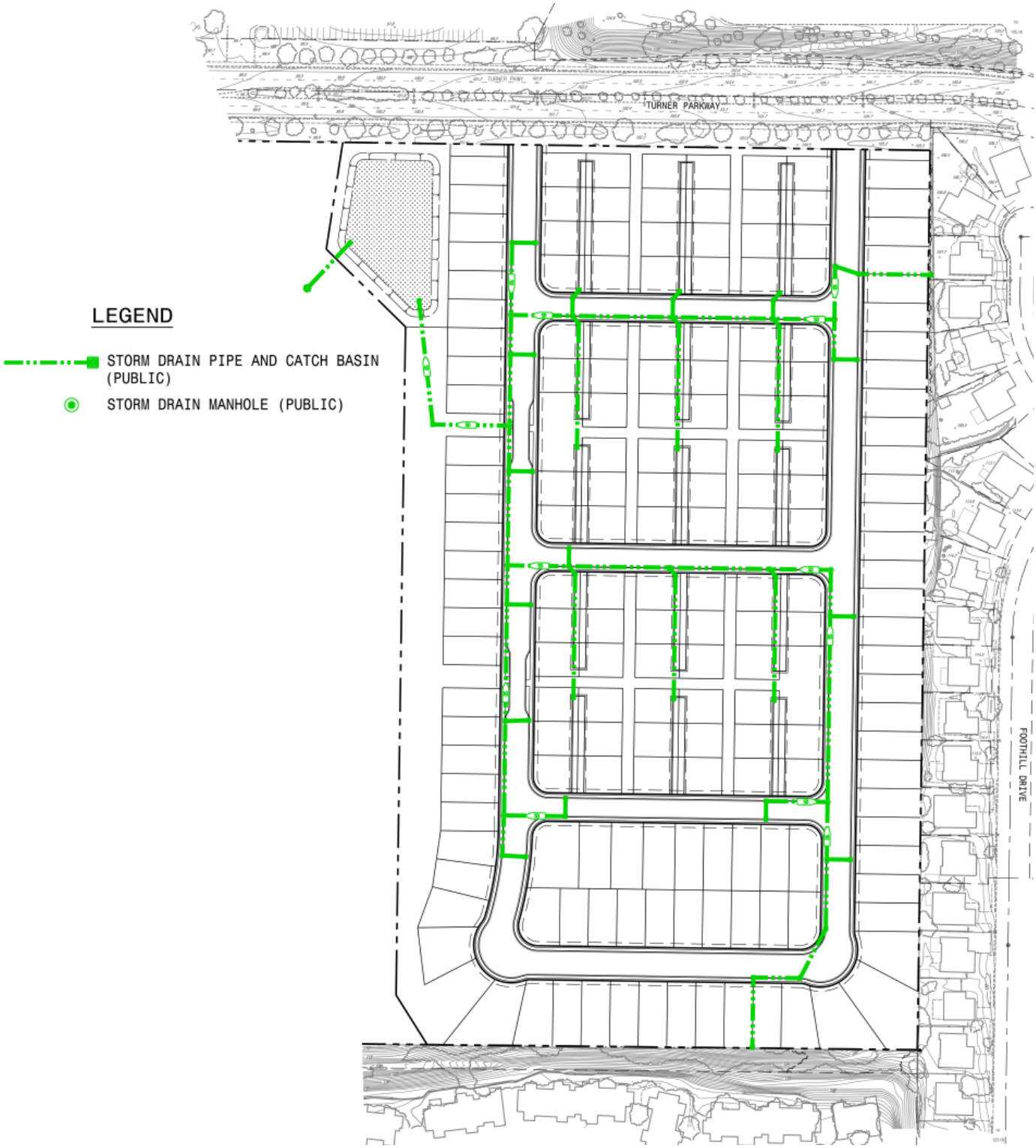

Source: MacKay and Somps, 2019

FIGURE 3-27: Residential Storm Drain System
Fairview at Northgate Project

Not to scale

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PROJECT CONSTRUCTION

General Construction

Construction would commence after the final approval of the proposed project by the City and receipt of permits from regulatory agencies. Timing of the development and build-out of the proposed project would be ultimately driven by market conditions and the proposed project components would be constructed either concurrently or individually depending on the availability of materials and contractor schedules. Construction of both the commercial and residential portions of the project is expected to last approximately three years and commence in Fall 2020 with initial operation of the proposed project commencing in 2021/2022 and with buildout in 2023.

Overall construction activities would include grubbing/clearing of the project site, cut/fill and compaction of soils, installation of utilities (e.g., underground power, gas, sewer, water, telephone, cable, and storm drainage facilities), construction of proposed buildings, installation of landscaping and paving. The building construction phase is expected to require the use of cranes, forklifts, portable generators, tractors, front-end loaders, backhoes, and welder torches. Limited use of a helicopter would be required during the construction of the proposed Costco warehouse to lift and place mechanical equipment such as heating and cooling systems from delivery trucks to the roof of the building.

Grading

Ground disturbing activities, including grading, would occur on approximately 44.5 acres of the proposed project site for the commercial and residential areas and project elements including home site, business pads, parking lots, driveways, other structures, fuel islands, C3 Basin and C3 compliant water quality feature, and parks. Some off-site but adjacent construction may be needed to tie into existing utilities and enhance traffic facilities. These improvements and other temporary disturbance areas but are anticipated to occur only within the existing rights-of-way of Admiral Callaghan Lane and Turner Parkway.

The site preparation and grading phase of the proposed project is expected to include construction equipment such as graders, scrapers, compactors, and water trucks. Approximately 165,000 cubic yards of earthwork would occur and is expected to balance on-site with no soil import or export proposed.

3.5 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines requires that an EIR include "[a] statement of the objectives sought by the proposed project. A clearly written statement of objectives will help the Lead Agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision-makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the proposed project."

1. Implement the objectives of the General Plan to leverage public infrastructure investment to catalyze a mix of new housing, commercial, retail, and recreational development in an opportunity area;

2. Develop a project in an opportunity area with an appropriate mix of uses to serve the needs of the public, including housing needs;
3. Develop a project in an opportunity area that is compatible with the density, intensity, scale and uses of surrounding development;
4. Develop a project in an opportunity area that is economically feasible and supports the extraordinary costs of required project infrastructure and physical features without imparting undue strain on existing public facilities, services or finances;
5. Develop a project that is sensitive to the environmental conditions of the site and surroundings by identifying and conserving a portion of the onsite natural resources to the extent feasible through project design;
6. Develop a project in an opportunity area that includes a pedestrian-friendly residential neighborhood with cohesive design that includes active and passive recreational opportunities and bike/pedestrian circulation amenities for future residents and users of the commercial space;
7. Develop a project that minimizes visual conflicts by including a thoughtful landscaping and planting plan that is compatible with surrounding development;
8. Develop a project in an opportunity area that enhances amenities and recreational opportunities for residents and visitors to the area; and,
9. Support economic development by developing a vacant, under-developed site with a project that provides a broad range of retail goods and services, retains a major source of sales tax revenue, generates significant additional sales tax revenues, and creates jobs for city residents.

3.6 DISCRETIONARY ACTIONS AND APPROVALS

The City of Vallejo is the Lead Agency under CEQA and is responsible for reviewing and certifying the adequacy of the EIR for the proposed project. Prior to development of the proposed project, discretionary permits and approvals must be obtained from local, State and federal agencies, as listed below. It is expected that these agencies, at a minimum, would consider the data and analyses contained in this EIR when making their permit determinations. To implement the proposed project, the Project Applicant would need to obtain discretionary permits/approvals including but not limited to the following:

CITY OF VALLEJO

- Certification by the City of Vallejo that the Final EIR has been completed in compliance with CEQA and has been reviewed and considered by the decision-makers.
- Adoption by the City of Vallejo of findings regarding significant impacts and appropriate mitigation.
- Adoption by the City of Vallejo of a statement of overriding considerations for significant and unavoidable impacts, if applicable.
- Adoption by the City of Vallejo of a mitigation monitoring and reporting program (MMRP).

- Approval by the City of Vallejo of a zoning map amendment.
- Approval by the City of Vallejo of a Planned Development Master Plan.
- Approval by the City of Vallejo of a Parcel Map, Vesting Tentative Map, subsequent Final Maps and subdivision/public improvement agreements.
- Approval by the City of Vallejo of Major Conditional Use Permit (for Costco "superstore," receipt of warehouse deliveries between 2 a.m. and 6 a.m. within 300 feet of a residential use), and drive-through restaurant).
- Approval by the City of Vallejo of Unit Plan for review of new commercial and residential architecture.
- Approval of a Public Infrastructure Construction and Reimbursement Agreement between City and Project Applicant, and Costco Loan/Costco Financing Agreement between City and Costco.
- Issuance of encroachment permits by the City of Vallejo for road work or other improvements that may be constructed in local road rights-of-way.
- Issuance of a grading permit by the City of Vallejo.
- Issuance of building permits

Future required approvals and possible permitting requirements from other public agencies may be required. Upon completion of the environmental review process and prior to construction, the proposed project would be reviewed through standard City plan check procedures to verify that the proposed project conforms to all applicable City design criteria.

VALLEJO FLOOD AND WASTEWATER DISTRICT

- Approval by VFWD of amendment to existing easement relating to relocation of sewer line encumbering the proposed project site.
- Approval by VFWD of plans and encroachment permits relating to relocation of sewer line and other storm water drain improvements.

GREATER VALLEJO RECREATION DISTRICT

- Approval of Quimby Act Fees and Park Development Fee Credits

STATE OF CALIFORNIA

- California Department of Fish and Wildlife (CDFW), Agreements/Permits/Authorizations pursuant to the California Fish and Game Code.
- California Air Resources Board – Yolo-Solano Air Quality Management District – Fugitive Dust Control Plan, Authority to Construct, Permit to Operate, any other permits as necessary.

- San Francisco Regional Water Quality Control Board (San Francisco RWQCB):
  - General Construction Stormwater Permit [Preparation of a Storm Water Pollution Prevention Plan (SWPPP).
  - Section 401 Water Quality Certification.
- Issuance of encroachment permits by the California Department of Transportation (Caltrans) – District 4 for road work or other improvements that may be required to be constructed within State-controlled right-of-way (I-80).

FEDERAL APPROVALS

- United States Army Corps of Engineers (USACE) 404 permit for wetland impacts.
- EPA National Emissions Standards for Hazardous Air Pollutants (gas station only)

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4.0 ENVIRONMENTAL ANALYSIS

As mentioned in Chapter 3, Project Description, of this Draft EIR, the development of the approximately 51.3-acre vacant, undeveloped site with a proposed 21.8-acre commercial development, 23.8-acre residential development, and 5.7 acres of open space comprise the "proposed project" analyzed in this EIR. The environmental analysis of the project in this Draft EIR is made up of 16 subchapters. This chapter describes the environmental topics discussed in the Draft EIR and the assumptions and methodology of the cumulative impact analysis. The remaining 16 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 issue areas:

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

For the reasons identified under Section 5.5 of Chapter 5, CEQA-Mandated Sections, of this Draft EIR, no environmental impacts associated with agricultural and forestry resources, mineral resources, and wildfire are expected to occur as a result of the proposed project. These resource topics will not be addressed further in this Draft EIR.

4.1 CHAPTER ORGANIZATION

This chapter consists of 16 sub-chapters that evaluate the environmental impacts of the proposed project. Each issue area uses generally the same organization and consists of the following subsections:

- The Environmental Setting section provides a Regulatory Framework section that describes which local, State, and/or federal regulations are applicable to the proposed project, as well as an Existing Conditions section that describes current conditions with regard to the environmental issue area reviewed.
- The Thresholds of Significance section describes how an impact is judged to be significant in this Draft EIR. These standards are derived from CEQA Appendix G Guidelines unless stated otherwise.
- The Impact Discussion assesses potential impacts (direct and indirect) and explains why impacts were found to be significant or less than significant.

- The Cumulative Impact Discussion section analyzes impacts that the proposed project may have when considered in addition to other past, present, and reasonably foreseeable projects. (See further discussion below).

ASSUMPTIONS AND METHODOLOGY REGARDING CUMULATIVE IMPACTS

A cumulative impact consists of an impact created as a result of the combination of the project evaluated in the EIR, together with other reasonably foreseeable projects causing related impacts. Section 15130 of the CEQA Guidelines requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable." In the case of a General Plan, cumulative effects occur when future development under the General Plan is combined with development in the surrounding areas or in some instances in the entire region.

Where the incremental effect of a project is not "cumulatively considerable," a Lead Agency need not consider that effect significant but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. Where the cumulative impact caused by the project's incremental effect and the effects of the other projects is not significant, the EIR must briefly indicate why the cumulative impact is not significant.

The cumulative discussions in Chapters 4.1 through 4.16 of this Draft EIR explain the geographic scope of the area affected by each cumulative effect (e.g., immediate project vicinity, county, watershed, or air basin). The geographic area considered for each cumulative impact depends upon the impact that is being analyzed. For example, in assessing macro-scale air quality impacts, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best tool for determining the cumulative impact. In assessing aesthetic impacts, on the other hand, only development within the localized area of change would contribute to a cumulative visual effect since the area of change is only visible within the vicinity of that area.

CEQA requires cumulative impact analysis in EIRs to consider either a list of planned and pending projects that may contribute to cumulative effects or a forecast of future development potential. Currently planned and pending projects within approximately 1-mile of the project site are listed in *Table 4.0-1: Cumulative Projects List*. A one-mile radius was chosen because given the built-out nature of the surrounding area, it provided a reasonable opportunity to capture reasonable foreseeable development that would be likely to use similar resources such as freeway and roadway capacity, similar biological resources, similar surface water drainage patterns, and similar public services and utilities. The list of projects in Table 4.0-1 was used for generally used for all cumulative impact discussions in this Draft EIR with the exception or those analyses that require more of a regional analysis such as air quality. The cumulative traffic analysis used a growth factor to analyze near-term cumulative traffic impacts, as described in Section 4.15, Transportation and Traffic.

Table 4.0-1: Cumulative Projects List

Project		Location	Proposed Use	Project Status	Distance from the Project Site
1.	Proposed Project –	Southeast corner of Admiral Callaghan and Turner Parkway	New development of 179,688 square feet of commercial space and 178 single-family residences.	Proposed	0-mile
2.	Solano360 Specific Plan	900 Fairgrounds Drive	Redevelopment of the 114-acre existing Solano Fairgrounds site for entertainment and fairgrounds uses.	Approved	0.25-mile
3.	Chick-fil-A	1191 Admiral Callaghan Lane	New 4,500 square foot quick-service restaurant with drive-through	Approved/ Operational	0.56-mile
4.	In-N-Out	720 Admiral Callaghan Lane	New 3,867 square foot quick-service restaurant with drive-through and 45 parking spaces.	Approved/ Operational	500 feet

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4.1 AESTHETICS

This section of the Environmental Impact Report (EIR) describes the existing visual environment in and around the project area. The analysis assesses the potential for aesthetics and light and glare impacts using accepted methods of evaluating visual quality, as well as identifying the type and degree of change the proposed project would likely have on the character of a landscape. The project analysis is primarily based on information provided by the project applicant and verified through site visits and aerial photographs. Where additional information has been used to evaluate the potential impacts, that information has been referenced. The following analysis of the potential aesthetic, light and glare impacts is derived primarily from the listed sources.

- MacKay & Somps Tentative Tract Map, August 2017.
- Propel Vallejo 2040 General Plan.
- City of Vallejo Code of Ordinances.
- Economic Impact Analysis and Fiscal Impact Analysis, DTA, 2019.

The following discusses impacts associated with the potential for the proposed project to degrade the existing visual character or quality of the site and its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features and the existing visual landscape and its users. Degradation of the visual character of a site is usually addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment and the proposed project-related modification that would alter the visual setting.

Issues of visual blight are addressed by considering the potential for urban decay that may be precipitated or exacerbated in Vallejo and its environs by considering the indirect changes in visual quality that could occur as a result of the proposed project. Visual blight related to urban decay is defined as a general deterioration of the urban landscape that is characterized by long-term building vacancies, poor building maintenance, and increased vandalism. This definition of urban decay is based on the *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) (124 Cal. App. 4th 1184) decision.

The term visual blight, as referred to in this Draft EIR, is a condition where real property, by reason of its appearance, is detrimental to the property of others or to the aesthetic value of adjacent properties or reduces the aesthetic appearance of the neighborhood. The analysis regarding potential impacts from urban decay is based on the Economic Impact Analysis (EIA) prepared by DTA, Inc. (2019), which is provided in Appendix B.

4.1.1 ENVIRONMENTAL SETTING

REGIONAL SETTING

The City of Vallejo is approximately 53 square miles and is bordered by the City of American Canyon and unincorporated Napa County to the north, the City of Benicia and unincorporated Solano County to the east, the Carquinez Strait to the south, and the Napa River and San Pablo Bay to the west. The project site is located approximately 1.5 miles from the northern Napa County border. The western boundary of Vallejo lies along the east margin of San Pablo Bay, which is the northeastern lobe of San Francisco Bay and is close to the San Pablo Bay National Wildlife Refuge. The Solano County Land Trust's Lynch Canyon Open Space is located approximately one mile north of the City. Other visual open space includes Suisun Bay in the south-central portion of the County as well sparsely populated and mostly undeveloped lands in the eastern part of the County, some of which is used for wind energy production. The topography in the region is highly varied, and ranges from flat low-lying areas, which include marshes and estuarine environments to coastal hills up to approximately 1,000 feet above mean sea level.

LOCAL SETTING

The City of Vallejo is largely urbanized and built out with the exception of the western portions of the City and some of the waterfront areas, in which development is constrained due to environmental and coastal zone considerations. The environment along Mare Island and parts of the east margin of the Napa River includes gently sloping terrain in the central part of the City (especially the area along I-80 north of Curtola Parkway); hillier terrain dominates the east-central and northeast parts of the City and include the East Bay Hills and Briones Hills to the southwest; and Sulphur Springs Mountain in the northern part of the City. Elevations range from near sea level on the shores of the Carquinez Strait to nearly 1,000 feet above mean sea level along the crest of Sulphur Springs Mountain.

Project Site and Surrounding Land Uses

The project site is approximately 51.3 acres of undeveloped, vacant land. The site is square-shaped on the north, east, and southern boundaries; the western boundary is angled to the southwest following the alignment of the undeveloped City right-of-way adjacent to Admiral Callaghan Lane. The western portion of the site ranges from approximately 85 to 130 feet above mean sea level (amsl) and includes an approximately 20-foot hill in the northwesterly portion of the site. The eastern portion of the site is generally flat and is situated at an elevation of approximately 97 feet amsl. Both of these areas drain to the central area of the site and to its lowest point near the northwest corner at approximately 83 feet amsl. The majority of the site (over 44 acres) is covered in non-native annual grassland with some elements of mixed woodland and coyote brush scrub intermixed. A seasonal wetland traverses the site flowing from south to north and ultimately drains to two existing culverts that convey water off the property underneath Turner Parkway. A perennial stream traverses the southwestern corner of the property and surface water flows on and off the property through existing underground culverts.

The project site is bordered by urban land uses and major roadways and freeways. To the north is Turner Parkway and a major commercial shopping center; to the east is a single-family residential development; to the south is a multi-family residential development and auto dealership; and adjacent to the west is Admiral Callaghan Lane and I-80.

Figure 4.1-1: Visual Character – Surrounding Land Uses, shows the urbanized area near the project site. Surrounding land uses are described in Section 3.0, Project Description, including Table 3-1. In summary, land uses include:

- To the North: The approximately 130-acre Gateway Plaza Shopping Center is located north of Turner Parkway.
- To the South: Land uses include automotive, commercial, and residential uses. An auto dealership is on the southeast corner of Admiral Callaghan Lane at Rotary Way and is immediately to the southwest boundary of the project site. Condominiums and apartments are to the east of the auto dealership and are immediately adjacent to the southern boundary of the project site. South of Rotary Way is a Plaza neighborhood commercial center. A two-building office complex and a KinderCare facility are east of Redwood Plaza along Rotary Way.
- To the East: Single-family residences are east of the project site.
- To the West: Immediately to the west of the project is Admiral Callaghan Lane and immediately to the west of Admiral Callaghan is I-80. To the west of I-80 is a mix of uses including a mobile home park, commercial uses, and the Solano County Fairgrounds.

Economic Environment and Urban Decay

Urban Decay is an environmental, economic, and social problem that may be caused by the abandonment of existing retail development that results from highly competitive new retail development. This abandonment can lead to higher vacancy rates and deferred maintenance of existing retail square footage by its owners, who no longer receive the level of rental income necessary to maintain their properties. This in turn can lead to lower property values, higher crime rates, a damaged business environment, and a continuing cycle of events that can cause a variety of economic and social problems for a municipality.

To determine whether the proposed project would create conditions for urban decay, the local market and the economic character of existing commercial development were evaluated in the EIA by DTA. The environmental setting, or existing conditions, used for the EIA are based on data from 2019, the most recent annualized data available. The EIA assumes that the retail and residential components will be completed by October 2022 and October 2023, respectively, but that stabilized sales within the project will first occur in 2024.

The EIA uses a Primary and Secondary Trade area and the existing retail buildings throughout these areas. The Primary Trade Area encompasses a 3-mile radius from the proposed project site and the Secondary Trade Area extends this boundary out to a 7-mile radius, where the vast majority of the proposed project patrons will reside. The Primary and Secondary Trade Areas are shown in **Figure 4.1-2: Primary and Secondary Trade Areas**.

FIGURE 4-1.1: Visual Character - Surrounding Land Uses
Fairview at Northgate Project

Not to scale

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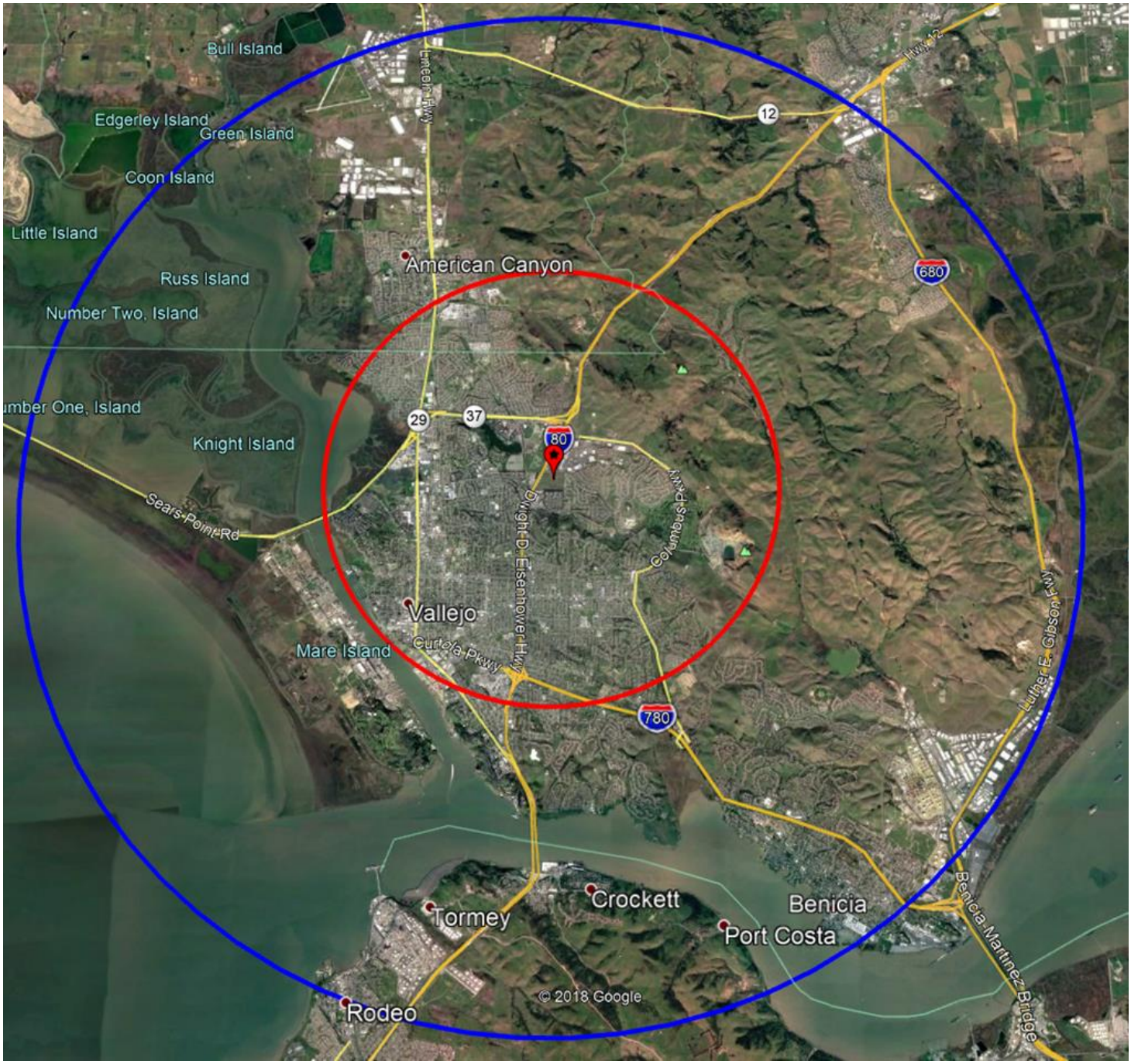

Source: DTA, 2019

FIGURE 4.1-2: Primary and Secondary Trade Areas
Fairview at Northgate Project

Kimley»Horn

Existing retail demand within the trade areas was derived from consumer expenditure survey data from the United States Bureau of Labor Statistics (USBLS). The total 2019 retail demand generated by residents in the Primary Trade Area was approximately $1.7 billion and combined with the Secondary Trade Area was approximately $3.3 billion. *Table 4.1-1: Existing Retail Demand for the Primary and Secondary Trade Areas*, shows these numbers and additional information, below.

Table 4.1-1: Existing Retail Demand for the Primary and Secondary Trade Areas

Category	Primary Trade Area Demand	Combined Primary and Secondary Trade Area Demand
Food	$231,501,607	$428,657,897
General Merchandise	$300,104,714	$559,452,736
Apparel	$70,376,520	$135,676,667
Eating and Drinking Places	$225,766,492	$431,249,339
Building Materials & Farm Implements	$99,425,900	$195,992,737
Automotive	$311,599,734	$610,011,153
Other Retail	$310,448,333	$600,141,065
Home Furnishings and Appliances	$37,961,513	$74,792,322
Service Stations	$144,720,654	$264,120,061
Total	**$1,731,905,467**	**$3,300,093,977**
Source: DTA, 2019		

Table 4.1-2: Existing Retail Supply - Primary and Secondary Trade Areas summarizes the total sales, which were estimated at $1.5 billion in the Primary Trade Area (approximately $222 million less than demand), and $2.6 billion in both the Primary and Secondary Trade Areas (approximately $690 million less than demand).

Table 4.1-2: Existing Retail Supply for the Primary and Secondary Trade Areas

Category	Primary Trade Area Demand	Combined Primary and Secondary Trade Area Demand
Food	$284,404,493	$481,721,997
General Merchandise	$243,731,258	$391,671,520
Apparel	$34,327,950	$56,401,820
Eating and Drinking Places	$177,332,841	$317,153,275
Building Materials & Farm Implements	$79,005,885	$153,579,804
Automotive	$434,296,924	$593,819,248
Other Retail	$114,829,376	$329,281,084
Home Furnishings and Appliances	$25,074,263	$56,148,654
Service Stations	$114,193,517	$229,338,915
Total	**$1,509,196,507**	**$2,609,116,317**
Source: DTA, 2019		

The retail vacancy rate in an area is also an important indicator of current market conditions, as well as the area's susceptibility to urban decay. A retail vacancy rate of 5 percent is considered to be a normal level expected in a healthy real estate market. *Table 4.1-3: 2018 Vacancy Statistics Within the City of Vallejo*, provides an overview of the vacancy rates for commercial mixed-use properties within the City. In order to approximate the vacancy rate for the project, vacancy rate statistics were evaluated for a variety of retail segment categorizations, including commercial mixed-use retail, retail exclusive, and shopping center for the City of Vallejo. Given that the Costco site offers a variety of non-retail commercial uses such as optometry offices, gas service stations, tire centers, and pharmacies, commercial mixed-use retail was identified as the most appropriate comparative category for the purposes of this analysis.

Table 4.1-3: 2018 Vacancy Statistics Within the City of Vallejo

City	Vacancy Rate	Vacant Square Foot	Availability Rate	Available Square Feet.
Commercial Mixed-Use	4.8%	306,000	5.30%	341,000
Source: DTA, 2019				

Employment Indicators

Existing retail stores within the affected area that provide similar food and beverage retail sales as the proposed project include the existing Costco store to be relocated to the proposed project, as well as a Wal-Mart and Target locations within the Primary Trade Area. The Wal-Mart averages approximately $400 in sales per square foot and nets average annual retail sales of approximately $40.0 million while the Target averages approximately $295 per square foot and nets average annual retail sales of $37.4 million. Costco currently employs approximately 163,000 full and part-time employees within the U.S. over 528 locations, or approximately 309 employees per location. In comparison, Wal-Mart employs approximately 1.5 million full and part-time associates within the U.S. at over 4,761 locations (including supercenters, discount stores, and neighborhood markets), or approximately 315 employees per location, whereas Target employs 345,000 full and part-time employees within the U.S. over 1,846 locations, or approximately 187 employees per location.

Wage Standards

As of June 11, 2018, Costco's starting wage for its U.S. employees is $14.50 an hour, and among its total number of U.S. employees, the average hourly wage is $22.50 an hour. Costco's employees also have access to health insurance benefits, for which the company covers 90 percent of the annual costs.

Pipeline Projects

The Primary Trade Area has two small-scale food service additions – a 4,150-square-foot Panera Bread and a 3,867-square-foot In-N-Out Burger, which opened in November 2018 and January 2019, respectively. Both are in the immediate vicinity of the project. There are currently no other proposed or pending superstores in the City of Vallejo.

4.1.2 REGULATORY SETTING

FEDERAL

There are no federal regulations that would be applicable to the proposed project.

STATE

California Scenic Highway Program

State Scenic Highways are designated by Caltrans to promote the protection and enhancement of the natural scenic beauty of California's highways and adjacent corridors. Caltrans is the State agency responsible for the planning, construction, and maintenance of highway, bridge, and rail transportation. California's Scenic Highway Program was created by the Legislature in 1963. The State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. There are no Officially Designated Scenic Highways in the City designated by the California Department of Transportation (Caltrans). SR-37, located approximately 2.5 miles west of the proposed project, is designated as an Eligible State Scenic Highway but is not Officially designated (Caltrans, 2019).

California Building Standards Code

Title 24 in the California Code of Regulations (CCR) is the California Building Standards Code. Part 2 of Title 24 is the California Building Code (CBC), which is based on the International Building Code and combines three types of building standards. The CBC also includes standards authorized by the California legislature, that constitute extensive additions not covered by the International Building Code that have been adopted to address particular California concerns.

One example of a code that is specific to California pertaining to aesthetics is Part 6 of Title 24 of the California Energy Code. It includes standards for lighting that are intended to improve energy efficiency and reduce light pollution and glare by regulating light power and brightness and sensor controls. The CBC includes standards for outdoor lighting that are intended to improve energy efficiency, and to reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.

LOCAL AND REGIONAL

The project site is in the City of Vallejo. There are no regional regulations applicable to the proposed project.

Propel Vallejo 2040 General Plan

The City of Vallejo General Plan (General Plan) includes sections describing aesthetic and visual resources and provides policies and goals, and action items related to scenic resources. Although there are no officially designated scenic views near the project site, the General Plan discusses scenic views and notes that views contribute to the character of the community and can be both sources of local pride and tourist

attractions. These views, such as panoramic views within the City, are provided from hilltops and elevated roadways and include views of areas like San Pablo Bay, Mare Island Strait, the waterfront, Sulphur Springs Mountain, the Vaca Mountains, White Slough, the Napa River Wetlands, Sky Valley, and the City itself.

Related to highways, the visual resource discussion in the General Plan notes that SR-37 west of Highway 29 is eligible for designation as a State Scenic Highway. Much of the General Plan discussion related to the scenic quality of resources focuses on natural and environmental elements such as attractive landscapes and open space, hillsides, and views of the bay from elevated areas and roadways and trails. The following General Plan goals and policies are applicable to the proposed project:

Goal NBE-1:	Beautiful City. Preserve and enhance the natural, historic, and scenic resources that make Vallejo special.
Policy NBE-1.1	Natural Resources. Protect and enhance hillsides, waterways, wetlands, occurrences of special-status species and sensitive natural communities, and aquatic and important wildlife habitat through land use decisions that avoid and mitigate potential environmental impacts on these resources to the extent feasible.
Policy NBE-1.5	Scenic Vistas. Protect and improve scenic vistas, including views from Interstate 80 and State Route 37 in Vallejo.
Action NBE-1.5C	Continue to administer the residential view district regulations intended to preserve panoramic views of the surrounding natural and human-made environment from residential neighborhoods located on hills.
Policy NBE-2.3	Inviting, Compatible Design. Promote attractive development that is compatible with surrounding uses.
Policy NBE-3.13	Neighborhood Character. Preserve the character of existing single-family residential neighborhoods.
Action NBE-3.13A	Continue to carefully review development proposals to preclude substantial increases in density and new land uses in order to minimize the impact to the character of existing single-family neighborhoods.
Action NBE-3.13B	Continue to allow a mix of housing types along the interconnected linear street grid that contributes to the charm and walkability of Vallejo's central residential neighborhoods, where appropriate.
Action EET-3.4D	Collaborate with business owners, property owners, and/or BIDs to seek funding for and provide incentives to facilitate facade/streetscape/access improvements, improve signage, and provide for public art and gathering places along commercial corridors.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is organized by Title, Chapter, and Section. The Municipal Code is Codified through Ordinance No. 1817 N.C.(2d), passed July 23, 2019 (Update 7-19). Title 16 is the Zoning Ordinance and contains development requirements for the City's Zoning Districts that regulate several aspects of development that affect visual character, such as building heights, landscaping, signage, yards, and lot coverage.

The following chapters and sections of the Zoning Ordinance are applicable to aesthetics:

Chapter 16.36 – Residential View District provides regulations to ensure that the existing one-story and two-story development pattern is maintained within residential view districts. These visual resources are significant neighborhood amenities and include views of San Pablo Bay, Mare Island Strait, the waterfront, Sulphur Springs Mountain, the Vaca Mountains, White Slough, the Napa River Wetlands, Sky Valley, and the City itself. The purpose of this chapter is to protect, enhance, and perpetuate these views and establishes a design review process to ensure new development would not significantly obstruct views. The district may be applied to residential neighborhoods with significant panoramic views as designated by neighborhood development plans, by specific area plans, or by the Planning Commission and adopted by the City Council. Any residential zoning district or a portion thereof may be designated as a residential view district.

Chapter 16.64 – Sign regulations are intended to improve the image of the City by creating a more pleasing environment in which to shop, work, and live; enhancing property values; minimizing the potential hazards to motorists and pedestrians; promoting public health, safety, and welfare; and making businesses easier to identify and locate by eliminating unnecessary clutter. The Chapter includes standards for reviewing the size, height, location, and type of sign materials.

Chapter 16.70 – Screening and Landscaping Regulations provides standards for screening, fences, walls, and landscaping within the City for the conservation and protection of property, the assurance of safety and security, the enhancement of privacy, the control of dust, the abatement or attenuation of noise, and the improvement of the visual environment, including the provision of a neat appearance in keeping with neighborhood character. Specific regulations apply to property along Springs Road between Modoc Street and Rollingwood Drive.

Chapter 16.72 – Performance Standards Regulations provide standards for humidity, heat, cold, and glare. Section 16.72.100 requires that all commercial and industrial uses shall be operated to not produce glare that is readily detectable by the average person at the following points of determination for the following zones:

- Within any residential, commercial, or special purpose Zoning District, the point of determination is at or beyond any lot line of the lot containing the uses.
- Within the Intensive Use District, the point of determination is at or beyond the boundary of the zone.

This chapter requires that lights be directed and shielded so as not to glare onto adjoining residential properties and that lights are in a housing to protect against breakage. All defective or damaged lights must be replaced within forty-eight business hours.

The following chapters and section of the Zoning Ordinance are applicable to Urban Decay:

Chapter 16.76. – Requires an analysis of:

- An analysis of the short- and long-term effect the proposed superstore could have on the retail stores specified, which shall include an analysis of the proposed superstore's potential impact on the following within the affected area: retail sales, food and beverage retail sales, store closures, jobs, and any food and beverage retail and/or retail stores that could potentially close, including an analysis of the potential for using the closed site(s) for similar or other use.
- An analysis of both the short- and the long-term potential effects of the proposed superstore on retail and food and beverage retail sales in the affected area, including a conclusion as to whether the proposed superstore would cause a net increase or decrease in retail and food and beverage retail sales in the affected area.
- An analysis of the proposed superstore's potential short- and long-term net effect on the ability of consumers in the affected area to obtain a variety of food and beverage and retail products in light of the analysis concerning potential closure of retail and/or food and beverage retail stores within the affected area.

4.1.3 STANDARDS OF SIGNIFICANCE

Based on the criteria set forth in Appendix G of the State CEQA Guidelines, except as provided in Public Resources Code 21009, a project would have a significant effect on aesthetic resources if it would:

a) Have a substantial adverse effect on a scenic vista.

b) Substantially damage scenic resources including but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.

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

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

Issues presented in the Appendix G checklist do not include Urban Decay impacts. However, State CEQA Guidelines §15131(a) provides guidance on consideration of social and economic effects:

> *Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect.*

Based on this guidance, the following threshold has been applied:

A project may create a significant impact if it would:

Trigger, individually and/or cumulatively, a downward spiral of retail closures and consequent long-term vacancies that ultimately result in urban decay (Bakersfield Citizens for Local Control v. City of Bakersfield [2004] [124 Cal. App. 4th 1184]).

4.1.4 PROJECT IMPACTS AND MITIGATION

IMPACT AES-1	***WOULD THE PROJECT HAVE A SUBSTANTIAL ADVERSE EFFECT ON A SCENIC VISTA?*** ***(LESS THAN SIGNIFICANT IMPACT)***

A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views—typically from elevated vantage points that offer panoramic views of great breadth and depth. The visual character of the site is that of a vacant property, consisting primarily of disturbed non-native vegetation. The site's visual context is also greatly influenced by surrounding development, which consists of commercial uses, residential development of varying densities, and the adjacent Interstate 80 freeway. Views of the site are not unique to undeveloped or developed uses within and near to the City of Vallejo and do not constitute a scenic vista.

The approximately 51.3-acre project site does not have any characteristics that would qualify it as being a scenic vista such as providing distant or panoramic viewing opportunities, or views to or from substantially elevated areas, and does not provide views to or of a significant landform that would be considered scenic.

The General Plan does not designate official scenic view corridors or vistas; however, there are a number of areas within Vallejo that could provide views of scenic resources such as hilltops, waterways, and open areas that a person would consider scenic. The General Plan references scenic vistas and views in General Plan Policy NBE-1.5, which emphasizes protection and improvement of scenic vistas, including views from I-80 in Vallejo. While the proposed project site is visible from I-80, the project site is not a designated scenic vista or have any natural features that would generally be considered scenic in nature (e.g., unique landforms, rare habitats, or public open space).

Generally, scenic views are provided from elevated positions or are views of topographic features. Within the City, these views would be from hilltops and elevated roadways and also could include views of areas such as Sulphur Springs Mountain. Sulphur Springs Mountain is approximately 1,120 feet in elevation and is approximately 2.25 miles to the northeast of the project site. Sulphur Springs Mountain and lower-lying hills to the southeast of the highest point of the mountain are visible from I-80 and Admiral Callaghan Lane which are oriented north to south. The lower-lying hills to the southeast of Sulphur Springs mountain are visible from I-80 adjacent to the southerly portion of project site, but due to the grade separation between I-80 and Admiral Callaghan Lane, as drivers proceed north the views are screened by the intervening topography. Additionally, as seen by northbound travelers from this location, views of Sulphur Springs Mountain are partially obscured by existing vegetation, structures, utility poles, power lines, and traffic signals.

Development of the project site would result in some minor changes in foreground views as seen from I-80, but would not block views of Sulphur Springs Mountain. The northwestern portion of the project site is approximately 30 feet higher than Admiral Callaghan Lane. The project site would be graded to create building pads and parking lots at grade with adjacent roadways which would lower the elevation in western portion of the project site by approximately 25 feet, further reducing the visibility of the proposed buildings. The Master Plan would allow a maximum height of 40 feet in the commercial area of the project site. The largest building, the proposed Costco building, would be limited to 40 feet in height and located in the eastern portion of the commercial area setback approximately 450 feet from Admiral Callaghan Lane, and 490 feet from I-80. As such, northerly views of Sulphur Springs Mountain would not be obstructed, and impacts would be less than significant.

Temporary changes to the visual character of the project site would occur during the construction period. Views during construction would be typical of construction and include sights of construction equipment, earthmoving and grading activities that would alter the existing landforms and building of proposed structures and interior project elements such as parking areas, utilities, and installation of landscaping. Upon completion of project construction, a permanent change to the existing views of the site from I-80, particularly for northbound traffic would occur. Views of the project site from southbound traffic are largely blocked by the existing concrete median barrier. As discussed above, to minimize visual impacts, the proposed project has been designed with a large setback for the proposed Costco and would be separated from Admiral Callaghan Lane by the parking lot. Although the proposed project would result in changes to the existing visual environment of the project site as seen from I-80 and other off-site areas, the changes would not detract from views of any scenic vista and would be consistent with other easterly views provided along the I-80 corridor. Therefore, potential impacts would be less than significant.

As part of the State Highway System, SR-37 is eligible for listing as a scenic highway but is not officially designated. SR-37 is located approximately 2.5 miles west of the project site and is not visible from the project site nor is the project site visible from SR-37. The area between the highway and project site is developed and views are blocked due to intervening structures, vegetation, and topography. Therefore, there would be no impacts on views to or from SR-37.

IMPACT AES-2	***WOULD THE PROJECT SUBSTANTIALLY DAMAGE SCENIC RESOURCES INCLUDING BUT NOT LIMITED TO, TREES, ROCK OUTCROPPINGS, AND HISTORIC BUILDINGS WITHIN A STATE SCENIC HIGHWAY?*** ***(NO IMPACT)***

A scenic highway is any stretch of public roadway that is designated as a scenic corridor by a federal, State, or local agency. The project is not adjacent or proximate to a State scenic highway. There are no officially designated State scenic highways in the City. As previously addressed, SR-37 is as an eligible scenic highway; however, the project site is not visible from SR-37 and SR-37 is not visible from the project site due to elevation changes and intervening development and vegetation. No impacts would occur with respect to designated State Scenic Highways.

IMPACT AES-3	***IN NON-URBANIZED AREAS, WOULD THE PROJECT SUBSTANTIALLY DEGRADE THE EXISTING VISUAL CHARACTER OR QUALITY OF PUBLIC VIEWS OF THE SITE AND ITS SURROUNDINGS? (PUBLIC VIEWS ARE THOSE THAT ARE EXPERIENCED FROM PUBLICLY ACCESSIBLE VANTAGE POINTS). IN AN URBANIZED AREA, WOULD THE PROJECT CONFLICT WITH APPLICABLE ZONING AND OTHER REGULATIONS GOVERNING SCENIC QUALITY?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The project site is located in an area characterized by urban development and is bordered by commercial and residential uses, and roadways and highways. North across Turner Parkway is the Gateway Plaza shopping center, to the east is the Hunter Ranch residential development, to the south are the Quail Ridge Condominiums, and a Honda dealership, and further south is the Redwood Plaza Commercial Center. To the west, the project site is adjacent to Admiral Callaghan Lane and further west separated by an approximate 20-foot median vegetated with ruderal plants, is I-80.

The General Plan provides general guidance related to protection of scenic views. As discussed in Impact AES-1 above, the proposed project would not result in a substantial change to the existing viewshed as seen from I-80 as discussed in General Plan Policy NBE-1.5. Because the project site does not constitute a significant visual resource, nor would the proposed project alter viewing opportunities of a significant visual resource. Therefore, potential impacts are less than significant.

In relation to the Vallejo Municipal Code, the proposed project is not in a residential view district and would not block views of significant resources. The project site would be rezoned to Mixed Use Planned Development for consistency with the General Plan designations established by the General Plan. Development standards have been established to provide high-quality design and continuity throughout the project. Design requirements such as street widths, building setbacks, architectural guidelines and landscape materials are included in the standards. Although views from some of the existing single-family homes to the east and from some of the condominiums to the south of the project site would change, the

proposed project site does not constitute a significant visual resource with significant visual quality because views of the site are not unique to undeveloped or developed uses within or near the City and do not constitute a scenic resource. The proposed project also would conform to requirements for signage, preserve and maintain a majority of the existing seasonal wetland located in the center of the project site, and provide substantial landscaping including ground covers and trees that would screen and provide visual contrast to help break up views of the new uses.

The project has been designed to ensure it is of similar visual character to adjacent developments. For motorists traveling along I-80 or Admiral Callaghan Lane, the project would appear to be a continuation of adjacent land uses and would not present unexpected or otherwise unpleasant aesthetic character within the general project vicinity. Thus, the change in character of the project site, once developed, would be visually compatible with surrounding commercial development to the north and south, and existing residential neighborhoods to the south, and east. Therefore, the project would not substantially degrade the existing visual character or quality of the site and its surroundings and this impact would be less than significant.

IMPACT AES-4	***TRIGGER, INDIVIDUALLY AND/OR CUMULATIVELY, A DOWNWARD SPIRAL OF RETAIL CLOSURES AND CONSEQUENT LONG-TERM VACANCIES THAT ULTIMATELY RESULT IN URBAN DECAY?*** ***(LESS THAN SIGNIFICANT IMPACT)***

Urban decay is a term for the physical and social degeneration of urban uses which in turn results in visual blight within an area. For the purposes of this analysis, urban decay is defined as physical effects including, deterioration of buildings and improvements, visual and aesthetic impacts related to physical deterioration, increased instances of property crimes including graffiti, and increased demand for police and emergency response services, which result from individual or cumulative increases in retail closures and consequent long-term vacancies caused by a surplus of retail market supply.

The potential short- and long-term economic impacts of the proposed project were analyzed under the framework provided by Section 16.76.040 of the Vallejo Municipal Code (VMC). Therefore, this urban decay analysis section focuses on “superstores” which are defined in the VMC as stores that are over 75,000 square feet or more gross floor area and devote ten thousand square feet or more of the gross floor area to the sale of nontaxable merchandise, including but not limited to food and beverage retail sales. In other words, most of this analysis is related to the proposed Costco store as it is the project component that triggers the need for the analysis.

To evaluate the potential for the project to cause urban decay due to closures of existing retail stores, the supply and demand for each specific retail category (e.g., general merchandise, food stores, etc.) in each of the geographic areas that would be impacted by the project, otherwise known as the project’s Trade Areas were evaluated. The analysis conservatively assumed that the proposed project’s retail and residential components will open by 2022 and 2023, respectively, but that stabilized sales within the project will first occur in 2024.

The retail vacancy rate in an area is also an important indicator of current market conditions, as well as the area's susceptibility to urban decay. The vacancy rate for commercial mixed-use retail properties is currently only 4.8 percent, down from 6.6 percent in 2018, with an overall downward trend since 2014. The proposed Costco would be relocated to a new site within the Northgate area of the City approximately 0.75 miles from its current location and immediately surrounded by other residential and commercial development. This analysis also considered the re-use of the existing Costco site. Furthermore, as the real estate market becomes more competitive within the Bay Area and the draw toward the East Bay and Vallejo rises due to relatively affordable housing prices, increasing retail demand is likely to further reduce any likelihood of urban decay related to the construction of the project.

Additionally, as shown in *Table 4.1-4: Existing Surplus/Leakage – Primary Retail Trade Area*, the current annual retail demand of $1.7 billion in the Primary Trade Area exceeds the $1.5 billion in sales by $222.7 million each year. This indicates that overall, there is a current leakage of approximately 12.9 percent of the Primary Trade Area resident expenditures to retail stores outside of the area. The leakage (surplus) appears to be occurring in most retail categories and is most severe within Other Retail ($195.6 million), General Merchandise ($56.4 million), Eating and Drinking Places ($48.4 million), and Apparel ($36.0 million). To a lesser extent, Service Stations ($28.5 million), Building Material and Farm Implements ($20.4 million), and Home Furnishing and Appliances ($12.9 million) are also categories that fail to fully capture potential spending. This data indicates that current retail businesses within the Primary Trade Area are failing to capture all the possible retail expenditures of their population. Thus, households residing within this area must travel elsewhere in order to meet their current retail needs as the vast majority of retail categories in the Primary Trade Area are underserved.

Table 4.1-4: Existing Surplus/Leakage – Primary Retail Trade Area

Category	Primary Trade Area Demand	Primary Trade Area Supply	Excess/ (leakage)
Food and Beverage Retail	$231,501,607	$284,404,493	$52,902,886
General Merchandise	$300,104,714	$243,731,258	($56,373,456)
Apparel	$ 70,376,520	$34,327,950	($36,048,570)
Eating and Drinking Places	$225,766,492	$177,332,841	($48,433,651)
Building Material & Farm Implements	$99,425,900	$ 79,005,885	($20,420,015)
Automotive	$311,599,734	$434,296,924	$122,697,190
Other Retail	$310,448,333	$114,829,376	($195,618,957)
Home Furnishing and Appliances	$3 7,961,513	$25,074,263	($12,887,250)
Service Stations	$144,720,654	$116,193,51 7	($28,527,137)
TOTAL	**$1,731,905,467**	**$1,509,196,507**	**($222,708,960)**

Source: DTA, 2019

Combining the primary and secondary trade areas also generates an overall existing leakage of retail demand, as shown in *Table 4.1-5: Existing Surplus/Leakage – Combined Primary and Secondary Retail Trade Areas*. The current annual retail demand in the Primary and Secondary Trade Areas is estimated to be approximately $3.3 billion in total retail goods per year. This compares to a current annual retail supply estimate of $2.6 billion, which indicates an overall leakage of retail expenditures in the amount of $691.0

million per year within the Primary and Secondary Trade Areas. The leakage appears to be occurring in most of the retail categories and is most severe within Other Retail ($270.9 million), General Merchandise ($167.8 million), Eating and Drinking Places ($114.1 million), and Apparel ($79.3 million). This data indicates that current retail businesses within the combined Primary and Secondary Trade Areas are also failing to capture all the possible retail expenditures of their population. Thus, households residing within this combined area must travel elsewhere in order to meet their current retail needs as nearly every retail category in the Trade Areas is underserved.

Table 4.1-5: Existing Surplus/Leakage – Combined Primary and Secondary Retail Trade Areas

Category	Combined Primary and Secondary Trade Area Demand	Combined Primary and Secondary Trade Area Supply	Excess (leakage)
Food and Beverage Retail	$428,657,897	$481,721,997	$53,064,100
General Merchandise	$559,452,736	$391,671,520	($167,781,216)
Apparel	$135,6 76,667	$56,401,820	($79,274,847)
Eating and Drinking Places	$431,249,339	$317,153,275	($114,096,064)
Building Material & Farm Implements	$195,992,737	$153,579,804	($ 42,412,933)
Automotive	$610,011,153	$593,819,248	($16,191,905)
Other Retail	$600,141,065	$329,281,084	($270,859,981)
Home Furnishing and Appliances	$ 74,792,322	$56,148,654	($18,643,668)
Service Stations	$264,120,061	$229,338,915	($34,781,146)
TOTAL	**$ 3,300,093,977**	**$2,609,116,317**	**($690,977,660)**

Source: DTA, 2019

Specifically, with respect to food and beverage retail establishments (not eating and drinking places), there is a relatively minor surplus of $4.5 million in the Primary Trade Area and a shortfall of $61 million in the Secondary Trade Area. Costco's business operations include selling groceries, which falls under the Food categorization, as well as running a limited-service restaurant/snack bar, which falls under the Eating and Drinking categorization. As such, for the purpose of this analysis, the DTA report combined the Food and Eating and Drinking categories to better reflect the supply this project will contribute to these related categories. When solely examining the Food category, there is oversupply of $52.9 million in the Primary Trade Area, however given the fact that the project is merely the relocation and expansion of an existing Costco, and only half of the additional 26,701 square feet will be used for grocery items, there is no evidence to indicate that the project would exacerbate the already existing surplus. This analysis also assumes it is unlikely that a big box store would be re-occupied as a restaurant, and thus there would be no impact on the variety of food services currently offered in the Primary Trade Area. Additionally, the project would not remove any existing food and beverage and retail services from operation; therefore, the relocation and expansion of the existing Costco would have no effect on the long-term or short-term abilities of consumers to obtain a variety of food and beverage and retail products. The project is also not expected to compete with other typical grocery store chains, such as the nearby Safeway, because although both stores offer food and beverage items, each location has a different use to the average

consumer depending on their needs. Therefore, there would be no impact on the variety of food services in the project area.

The analysis in the DTA report also recognizes that the $122.7 million surplus in the Automotive category, is likely due to the high concentration of motor vehicle dealers within the Primary Trade Area, which inflates and distorts these figures. According to the DTA report, new and used car dealerships comprise 87 percent, or $379.4 million, of the $434.3 million total supply in the Automotive category. The majority of dealership revenue is from vehicle sales, while the vast majority of the goods and services offered by Costco are not similar to those of a car dealership. As previously mentioned, because the project is the relocation and expansion of an existing Costco and approximately 25 percent of the additional 26,701 square feet would be used for non-grocery retail items, there is no evidence to indicate that the project would exacerbate the already existing surplus or cause urban decay or market saturation within the Trade Areas. Overall, the retail sales figures represent a healthy supply and demand equilibrium, which is very unlikely to be upset by the expanded Costco's sales, and any existing surpluses will not be worsened by the project.

As such, the relocation and expansion of the existing Costco, and the reuse of the existing Costco site, would not trigger a downward spiral of retail closures and consequent long-term vacancies due to a surplus of retail market supply such that urban decay and related adverse significant visual impacts would occur. Potential impacts from urban decay are considered less than significant and no mitigation is required.

IMPACT AES-5	***WOULD THE PROJECT CREATE A NEW SOURCE OF SUBSTANTIAL LIGHT OR GLARE WHICH WOULD ADVERSELY AFFECT DAY OR NIGHTTIME VIEWS IN THE AREA?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

Lighting effects are associated with the use of artificial light during the evening and nighttime hours. There are two primary sources of light: light emanating from building interiors passing through windows, and light from exterior sources (i.e., street lighting, building illumination, security lighting, parking lot lighting, and landscape lighting). Light introduction can be a nuisance to wildlife and adjacent residential areas, diminish the view of the clear night sky and, if uncontrolled, can cause disturbances. Uses such as residences are considered light-sensitive because occupants have expectations of privacy during evening hours and may be subject to disturbance by bright light sources. Excess nighttime lighting within the proposed open space area could adversely affect wildlife such as nesting birds by disrupting nesting patterns or make other animals more susceptible to nighttime predation. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated. With respect to lighting, the degree of illumination may vary widely depending on the amount of light generated, height of the light source, presence of barriers or obstructions, type of light source, and weather conditions.

Glare is primarily a daytime occurrence caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad

expanses of light-colored surfaces. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses include open space areas, residences, hotels, transportation corridors, and aircraft landing corridors.

The project site is vacant with no existing sources of light. The project site is in an urban environment with existing light sources associated with residential and commercial uses, as well as from vehicle headlights and roadway lighting. Implementation of the project would introduce new lighting to a currently vacant site with no light sources. Lighting would be used for the commercial center and residences, including parking areas and roadway lighting. Light sources would consist of exterior and interior building lighting including signage and security lighting including commercial and pedestrian-scale pole lights, bollard lights, exterior wall lights, to provide security lighting for the commercial and residential areas including walkways, buildings, and parking areas. The project would also include in-ground up-lights to illuminate and accent landscaping.

With respect to building materials, although the Development Code does not speak to reflective or shiny materials, the proposed project would be built with materials to reduce these effects. The structures constructed as part of the proposed project would not include the use of highly polished or reflective surfaces on project facades. The proposed commercial and residential developments would use building materials that are similar in nature to the existing commercial and residential developments in the surrounding area. Preliminary architectural designs included in the proposed Master Plan do not include buildings or residences with large amounts of glazing or other highly reflective surfaces. The Master Plan specifies commercial exterior wall materials as utilizing multiple materials, color, and textures in a coordinated way. Exterior residential building materials are identified as containing one or more of the following: stucco, stone veneer, cementitious lap siding, cementitious board and batt siding. None of these materials are known to be highly reflective because they are made of hard solid materials and do not have shiny surfaces.

To ensure that that the proposed exterior lighting from the proposed project, the applicant would be required to implement Mitigation Measure AES-1 which requires submittal of a lighting plan as part of the building permit review process. The lighting plan would be reviewed by City staff to ensure that the project does not adversely affect the visual quality of the area or create a substantial new source of light and glare, and to ensure light does not spill offsite including within the proposed open space area which could adversely affect wildlife including nesting birds. With the implementation of AES-1, potential impacts are considered less than significant.

Mitigation Measure:

MM AES-1: **Lighting Plan.** Prior to issuance of a building permit, the project applicant shall submit, to the satisfaction of the Planning & Development Services Director, a lighting plan for the project site demonstrating that outdoor lighting fixtures will not cause substantial glare and light spillover to surrounding properties including the open space area. At the

Director's discretion the lighting plan can be broken up into commercial and residential components. The plan shall include photometric contours, manufacturer's specifications on the fixtures, and mounting heights.

4.1.5 CONCLUSION

Given the location of the proposed project site and the present land use characteristics, the project site does not exhibit characteristics of significant visual resources. The project site does not contain any prominent features including trees, rock outcroppings, steep hillsides, and does not constitute a scenic vista. In addition, the project site does not provide views of any defined scenic vista and would not block views of a defined scenic vista. While the proposed project would alter some views of Sulphur Springs Mountain, the changes would not substantially affect the existing visual character and views provided, and therefore, are not considered significant. In addition, due to the presence of similar neighboring uses, while views of the project site would change as seen by off-site viewers, these changes also would not constitute a significant impact. The proposed project would not conflict with any existing General Plan goals, policies, or actions, and it would not conflict with the City Zoning Code regarding preservation or views or creation of light and glare. Lastly, the proposed project includes a landscaping plan that would blend the project elements and soften the potential visual intrusion at the project site. Therefore, in terms of aesthetic resources (including urban decay), impacts would either not occur or would be less than significant.

4.1.6 CUMULATIVE IMPACTS

When evaluating cumulative aesthetic impacts, a number of factors must be considered. The cumulative study area for aesthetic impacts is the viewshed that includes the project site and surrounding areas. The context in which a project is being viewed will also influence the significance of the aesthetic impact. The contrast a project has with its surrounding environment may actually be reduced by the presence of other cumulative projects. If most of an area is or is becoming more urbanized, the contrast of a project with the natural surrounding may be less since it would not stand out in contrast as much. In order for a cumulative aesthetic impact to occur, the proposed elements of the cumulative projects would need to be seen together or in proximity to each other. If the projects were not near each other, the viewer would not perceive them in the same scene.

Development of the proposed project and future development undertaken in accordance with the City's General Plan would result in continued changes to the aesthetic and visual environment. The General Plan envisions increased development throughout the City. However, there are no known cumulative projects near or within the viewshed of the project site. Property bordering the project site is developed with urban land uses. Should properties close to the project site redevelop, it is expected that other development would be consistent with existing land uses and zoning development standards. The proposed project has been designed to be sensitive to and implement applicable goals, policies and action items of the General Plan. The proposed project and all other projects would be subject to the City's

design review process, which also would ensure that all proposed lighting conforms to requirements and all facades would be designed to minimize the potential for glare. Thus, cumulative impacts to the long-term character and quality of the site and City would be less than significant, and the proposed project would not significantly contribute to cumulative long-term visual impacts.

Urban Decay

No other individual projects within one mile of the project site have been identified that would cumulatively contribute to urban decay in combination with the proposed project. However, for this cumulative impact analysis, the area of consideration was expanded to the Primary Trade Area and thus considered projects within a 3-mile radius of the project site. The estimated demand for the Primary Trade Area is expected to increase to $1.8 billion in retail expenditures per year. Including all future proposed projects, the projected supply is only expected to reach a level of approximately $1.6 billion under the Future Conditions. These figures indicate that even with the additional sales generated by the project and other future projects, there is still significant leakage of retail sales, with a total of $186.1 million in unmet retail demand within the Primary Trade Area.

The overall leakage expected within the Primary Trade Area under the Future Conditions is reflective of the current level of insufficient retail supply. As a result, the future retail demand in the Primary Trade Area is more than sufficient to support the project without significantly diverting sales from existing merchants. The development of the project will only serve to benefit the market within the Primary Trade Area and expand on the limited retail shopping opportunities currently available. As shown in *Table 4.1-6: Retail Surplus/Leakage Under Future Conditions – Primary and Secondary Trade Areas*, significant consumer spending is still not being met in the Primary Trade Area, even after the addition of the project. In the combined Primary and Secondary Trade Areas, the projected excess of consumer demand increases to approximately $684 million per year under the Future Condition.

Any potential for Urban Decay due to the projected surplus in the Food and Automotive categories is limited due to several mitigating factors. First, the tenants that choose to locate in these planned retail developments will be oriented towards retail areas in which there is a shortage of supply in the combined Primary and Secondary Trade Areas. Second, there is no certainty that future proposed projects within the Trade Areas would actually be constructed by the year 2024. Third, the cumulative supply figures are more than likely overstated due to the fact that the analysis applies the same Trade Area of the proposed project to other proposed retail projects, when in reality the other proposed retail projects will have their own Trade Areas which are not exactly coterminous with the project's Trade Areas. Thus, total retail demand for these other projects will not be entirely derived from the project's Trade Area populations, as assumed in the conservative approach to this leakage analysis. Fourth, as stated previously, Costco's business operations fall under both the Food and Eating and Drinking categorizations and it is reasonable to combine these categories for the purpose of this analysis to better reflect the supply the proposed project will provide to these related categories.

As such, the data indicates the project has the potential to operate successfully and not result in cumulatively considerable urban decay. Potential impacts are less than significant, and no mitigation is required.

Table 4.1-6: Retail Surplus/Leakage Under Future Conditions – Primary and Secondary Trade Areas

Category	Trade Area Balance 2019	Trade Area Balance 2024
	PRIMARY TRADE AREA	
PROJECTED DEMAND	$1,731,905,467	$1,755,515,018
PROJECTED SUPPLY	$1,509,196,507	$1,569,367,545
EXCESS/(LEAKAGE)	**($222,708,960)**	**($186,147,473)**
	COMBINED PRIMARY & SECONDARY TRADE AREA	
PROJECTED DEMAND	$3,300,093,977	$3,353,294,913
PROJECTED SUPPLY	$ 2,609,116 ,31 7	$ 2,669,287,355
EXCESS/(LEAKAGE)	**($690,977,660)**	**($684,007,557)**
Source: DTA, 2019		

4.1.7 REFERENCES

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4.2 AIR QUALITY

This section of the Environmental Impact Report (EIR) provides a discussion of existing air quality, evaluates potential air quality impacts associated with the proposed project, and identifies mitigation measures recommended for potentially significant adverse impacts. Air quality modeling data and assumptions that are used for quantifying the proposed project's emissions are based on the following sources. The air quality data and calculations are included in Appendix C to this EIR.

- Bay Area Quality Management District.
- California Air Resources Board.
- Air Quality and GHG Data.

4.2.1 ENVIRONMENTAL SETTING

CLIMATE AND METEOROLOGY

The California Air Resources Board (CARB) divides the State into 15 air basins that share similar meteorological and topographical features. The proposed project is located within the San Francisco Bay Area Air Basin (Basin). This Basin comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

The proposed project is in southern Solano County, which falls within the San Francisco Bay Area Air Basin and is within the jurisdictional boundaries of the Bay Area Air Quality Management District (BAAQMD). The Basin consists of a mountain range, inland valleys, and bays that distort wind flow patterns. The Coast Range splits the Bay Area, creating a western coast gap, the Golden Gate, and the eastern coast gap, the Carquinez Strait, which allows air to flow in and out of the Bay Area, and the Central Valley.

The climate is dominated by the location and strength of a semi-permanent, subtropical high-pressure cell. In the summer, the Pacific cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below the surface because of the northwesterly flow produces a band of cold water off the coast which results in condensation and the presence of fog and stratus clouds along the coast. In the winter, the high-pressure cell weakens and shifts southward, resulting in increased wind flow offshore, the absence of

upwelling, and the occurrence of storms. As noted in the City of Vallejo General Plan EIR, these weak inversions coupled with moderate winds result in a low air-pollution potential.[1]

The Basin is characterized by moderately wet winters (November through March) and dry summers. The rainfall in the mountains reaches 40 inches, while the lower elevations in the valleys often receive less than 16 inches. The temperature at the coast in the summer afternoons can be 35 degrees Fahrenheit cooler than the temperature 15 to 20 miles inland. At night, this contrast usually decreases to less than 10 degrees Fahrenheit. In the winter, the relationship of minimum and maximum temperatures is reversed.

Climate, or the average weather condition, affects air quality in several ways. Wind patterns can remove or add air pollutants emitted by stationary or mobile sources. Inversion, a condition where warm air traps cooler air underneath it, can hold pollutants near the ground by limiting upward mixing (dilution). Topography also affects the local climate, as valleys often trap emissions by limiting lateral dispersal.

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next to the ground. Mixing depths under these conditions can be as shallow as 50 to 100 meters, particularly in rural areas. Urban areas usually have deeper minimum mixing layers because of heat island effects and increased surface roughness. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

Although each type of inversion is most common during a specific season, either inversion mechanism can occur at any time of the year. Sometimes both occur simultaneously. Moreover, the characteristics of an inversion often change throughout the course of a day. The terrain of the Basin also induces significant variations among subregions.

The frequency of hot, sunny days during the summer months in the Basin is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone.

Because temperatures in many of the Basin inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution. In late fall and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the Basin during these seasons.

[1] Bay Area Air Quality Management District, 2010 (Revised 2011), Appendix C: Sample Air Quality Setting, in California Environmental Quality Act Air Quality Guidelines.

Although air pollution potential is strongly influenced by climate and topography, air pollution that occurs in a location also depends upon the amount of air pollutant emissions in the surrounding area or transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use, and/or industrialization. These contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor chemicals.

AIR POLLUTANTS OF CONCERN

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and State laws. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Primary air pollutants include carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxide (NO_X), sulfur dioxide (SO_2), coarse particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$), lead, and fugitive dust. Of these, CO, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary criteria pollutants. *Table 4.2-1: Air Contaminants and Associated Public Health Concerns*, provides a description of each of the criteria air pollutants and their known health effects.

Table 4.2-1: Air Contaminants and Associated Public Health Concerns

Pollutant	Major Anthropogenic Sources	Human Health Effects
Particulate Matter (PM_{10} and $PM_{2.5}$)	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; asthma; chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility.
Ozone (O_3)	Formed by a chemical reaction between reactive organic gases/volatile organic compounds (ROG or VOC)[1] and nitrogen oxides (NO_X) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing, and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
Sulfur Dioxide (SO_2)	A colorless gas formed when fuel containing sulfur is burned and when gasoline is extracted from oil. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, and ships.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel. Damages crops and natural vegetation. Impairs visibility. Precursor to acid rain.
Carbon Monoxide (CO)	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.

Pollutant	Major Anthropogenic Sources	Human Health Effects
Nitrogen Dioxide (NO_2)	A reddish-brown gas formed during fuel combustion for motor vehicles and industrial sources. Sources include motor vehicles, electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone. Contributes to global warming and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
Lead	Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions to the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.	Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits and lowered IQ.

Source: California Air Pollution Control Officers Association, Health Effects, http://www.capcoa.org/health-effects/, Accessed January 16, 2019.

Notes:

1. Volatile Organic Compounds (VOCs or Reactive Organic Gases [ROG]) are hydrocarbons/organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases including ROGs and VOCs. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_X in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the Basin. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 miles per hour (mph), then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begins to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer-causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes more than 200 compounds, including particulate emissions from diesel-fueled engines.

CARB has identified diesel particulate matter (DPM) as a toxic air contaminant. DPM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances produced when an engine burns diesel fuel. DPM is a concern because it causes lung cancer; many compounds found in diesel exhaust are carcinogenic. DPM includes the particle-phase constituents in diesel exhaust. The chemical composition and particle sizes of DPM vary between different engine types (heavy-duty, light-duty), engine operating conditions (idle, accelerate, decelerate), fuel formulations (high/low sulfur fuel), and the year of the engine. Some short-term (acute) effects of diesel exhaust include eye, nose, throat, and lung irritation, and diesel exhaust can cause coughs, headaches, light-headedness, and nausea. DPM poses the greatest health risk among the TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

AMBIENT AIR QUALITY

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The closest air monitoring station to the proposed project is the Vallejo – Tuolumne Street Monitoring Station located approximately two miles south of the project site. The second monitoring station, San Pablo-Rumrill Boulevard, is located approximately 14 miles southwest of the project site. Local air quality data from 2016 to 2018 are provided in *Table 4.2-2: Local Air Quality Levels*. This table lists the monitored maximum concentrations and number of exceedances of federal/state air quality standards for each year.

Table 4.2-2: Local Air Quality Levels

Pollutant	Vallejo-304 Tuolumne Street[1]			San Pablo- Rumrill Blvd[2]		
	2016	2017	2018	2016	2017	2018
Ozone (O_3)						
1-hour Maximum Concentration (ppm)	0.097	0.105	0.070	0.094	0.104	0.061
8-hour Maximum Concentration (ppm)	0.072	0.088	0.055	0.061	0.080	0.052
Number of Days Standard Exceeded						
CAAQS 1-hour (>0.09 ppm)	1	1	0	0	3	0
NAAQS 8-hour (>0.070 ppm)	1	2	0	0	2	0
Carbon Monoxide (CO)						
1-hour Maximum Concentration (ppm)	1.896	3.048	2.757	1.749	2.481	1.882

Pollutant	Vallejo-304 Tuolumne Street[1]			San Pablo- Rumrill Blvd[2]		
	2016	2017	2018	2016	2017	2018
Number of Days Standard Exceeded						
NAAQS 1-hour (>35 ppm)	0	0	0	0	0	0
CAAQS 1-hour (>20 ppm)	0	0	0	0	0	0
Nitrogen Dioxide (NO_2)						
1-hour Maximum Concentration (ppm)	0.0433	0.0492	0.0574	0.0392	0.0476	0.060
Number of Days Standard Exceeded						
NAAQS 1-hour (>100 ppm)	0	0	0	0	0	0
CAAQS 1-hour (>0.18 ppm)	0	0	0	0	0	0
Particulate Matter Less Than 10 Microns (PM_{10})						
National 24-hour Maximum Concentration	-*--	-*-	-*-	33.0	95.3	191.1
State 24-hour Maximum Concentration	-*-	-*-	-*-	34.0	95.0	201.0
State Annual Average Concentration (CAAQS=20 µg/m^3)	-*-	-*-	-*-	15.2	20.4	19.9
Number of Days Standard Exceeded						
NAAQS 24-hour (>150 µg/m^3)	-*-	-*-	-*-	0	0	1
CAAQS 24-hour (>50 µg/m^3)	-*-	-*-	-*-	0	4	2
Particulate Matter Less Than 2.5 Microns ($PM_{2.5}$)						
National 24-hour Maximum Concentration	23.0	101.9	197.2	19.5	71.2	195.4
State 24-hour Maximum Concentration	23.0	101.9	197.2	19.5	71.2	195.4
Number of Days Standard Exceeded						
NAAQS 24-hour (>35 µg/m^3)	0	9	13	0	9	14

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; ppm = parts per million; µg/m^3 = micrograms per cubic meter

1. Measurements taken at the Vallejo Monitoring Station located at 304 Tuolumne Street, Vallejo CA 94590 (CARB# 48879).
2. Measurements taken at the San Pablo- Rumrill Boulevard Monitoring Station located at 1865 Rumrill Boulevard, San Pablo, California 94806 (CARB #07447).

*There was insufficient (or no) data available to determine the value.

Source: All pollutant measurements are from the California Air Resources Board Aerometric Data Analysis and Management system (iADAM) database (https://www.arb.ca.gov/adam) except for CO, which were retrieved from the California Air Resources Board Air Quality and Meteorological Information System (AQMIS) (https://www.arb.ca.gov/aqmis2/aqdselect.php).

SENSITIVE RECEPTORS

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Refer to *Table 4.2-3: Sensitive Receptors* for project-specific sensitive receptors. The nearest sensitive receptors to the project site are single-family and multi-family residences located adjacent to the eastern and southern boundaries of the project site, respectively. Other sensitive receptors are located less than 0.1 mile from the project's boundary.

Table 4.2-3: Sensitive Receptors

Receptor Type/Description	Distance and Direction from the Project Site[1]
Single-family residences	96 feet east
Multi-family residences	150 feet south
Day Care	450 feet south
Cooper Elementary School	0.6 miles west
Hanns Park	1 mile south

[1] Distance calculated from property line of proposed project site and property line of the sensitive receptors

4.2.2 REGULATORY SETTING

FEDERAL

Federal Clean Air Act

Air quality is federally protected by the Clean Air Act and its amendments. Under the Federal Clean Air Act (FCAA), the U.S. Environmental Protection Agency (U.S. EPA) developed the primary and secondary National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants including ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. Proposed projects in or near nonattainment areas could be subject to more stringent air-permitting requirements. The FCAA requires each state to prepare a State Implementation Plan (SIP) to demonstrate how it will attain the NAAQS within the federally imposed deadlines.

The U.S. EPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the FCAA. If a state fails to correct these planning deficiencies within two years of federal notification, the U.S. EPA is required to develop a federal implementation plan for the identified nonattainment area or areas. The U.S. EPA has delegated enforcement of air pollution control regulations to the individual states. BAAQMD attainment status with respect to federal standards is summarized in *Table 4.2-4: State and Federal Ambient Air Quality Standards*.

Table 4.2-4: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	State Standards[1]		Federal Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)	N[9]	0.070 ppm	N[4]
	1 Hour	0.09 ppm (180 µg/m^3)	N	NA	N/A[5]
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	A	9 ppm (10 mg/m^3)	A
	1 Hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	A[6]

Pollutant	Averaging Time	State Standards[1]		Federal Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	A	0.10 ppm[11]	U
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	-	0.053 ppm (100 µg/m^3)	A
Sulfur Dioxide[12] (SO_2)	24 Hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	A
	1 Hour	0.25 ppm (655 µg/m^3)	A	0.075 ppm (196 µg/m^3)	A
	Annual Arithmetic Mean	NA	-	0.03 ppm (80 µg/m^3)	A
Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	N	150 µg/m^3	-
	Annual Arithmetic Mean	20 µg/m^3	N[7]	NA	U
Fine Particulate Matter ($PM_{2.5}$) [15]	24-Hour	NA	-	35 µg/m^3	U/A
	Annual Arithmetic Mean	12 µg/m^3	N[7]	12 µg/m^3	N
Sulfates (SO_{4-2})	24 Hour	25 µg/m^3	A	NA	-
Lead (Pb)[13, 14]	30-Day Average	1.5 µg/m^3	-	NA	A
	Calendar Quarter	NA	-	1.5 µg/m^3	A
	Rolling 3-Month Average	NA	-	0.15 µg/m^3	-
Hydrogen Sulfide (H_2S)	1 Hour	0.03 ppm (0.15 µg/m^3)	U	NA	-
Vinyl Chloride (C_2H_3Cl)	24 Hour	0.01 ppm (26 µg/m^3)	-	NA	-
Visibility Reducing Particles[8]	8 Hour (10:00 to 18:00 PST)	-	U	-	-

A = attainment; N = nonattainment; U = unclassified; N/A = not applicable or no applicable standard; ppm = parts per million; µg/m^3 = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; – = not indicated or no information available.

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m$_3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3.
   Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every

Pollutant	Averaging Time	State Standards[1]		Federal Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status

site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. National air quality standards are set by the EPA at levels determined to be protective of public health with an adequate margin of safety.
4. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.
5. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
7 In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.
8 Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
9. The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
10. On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.
11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010). The US Environmental Protection Agency (EPA) expects to make a designation for the Bay Area by the end of 2017.
12. On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS.
13. CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.
14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
15. In December 2012, EPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter ($\mu g/m^3$). In December 2014, EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Source: Bay Area Air Quality Management District, *Air Quality Standards and Attainment Status*, http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, accessed January 21, 2019.

STATE

California Air Resources Board

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS (Table 4.2-3), are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

The California Clean Air Act (CCAA), which was approved in 1988, requires that each local air district prepare and maintain an Air Quality Management Plan (AQMP) to achieve compliance with CAAQS. These AQMPs also serve as the basis for the preparation of the State Implementation Plans (SIP) for meeting federal clean air standards for the State of California. Like the U.S. EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant if air quality data shows that a state standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events such as wildfires, volcanoes, etc. are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment. The Basin attainment status with respect to State standards is summarized in Table 4.2-4.

REGIONAL

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

As identified in Table 4.2-4, in general, the Bay Area experiences low concentrations of most pollutants when compared to federal standards, except for O_3 and particulate matter (PM), for which standards are exceeded periodically. With respect to federal standards, the Bay Area's attainment status for 8-hour ozone is classified as "marginal nonattainment" and "nonattainment" for $PM_{2.5}$. As a designated "marginal" nonattainment area for the federal 8-hour ozone standard, the preparation of a SIP is currently not required. However, in response to the U.S. EPA's designation of the Basin for the previous nonattainment 8-hour federal ozone standard, BAAQMD, ABAG, and MTC were required to develop an ozone attainment plan to meet this standard. The 1999 Ozone Attainment Plan was prepared and adopted by these agencies in June 1999 and this federal plan was updated in 2001. The most recent State ozone plan is the Bay Area 2017 Clean Air Plan. The Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants, and greenhouse gases (GHGs). In 1998, after many years without violations of any CO standards, the attainment status for CO was upgraded to "attainment."

The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards.[2]

[2] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, page 2-1, May 2017.

Under CEQA, BAAQMD is a commenting responsible agency on air quality within its jurisdiction or impacting its jurisdiction. BAAQMD reviews projects to ensure that they would: (1) support the primary goals of the latest Air Quality Plan; (2) include applicable control measures from the Air Quality Plan; and (3) not disrupt or hinder implementation of any Air Quality Plan control measures.

In May 2010, BAAQMD adopted its updated CEQA Air Quality Guidelines as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. BAAQMD CEQA Air Quality Guidelines include methodologies and thresholds for addressing project and program level air quality and GHG emissions. The CEQA Air Quality Guidelines were called into question by an order issued March 5, 2012, in *California Building Industry Association (CBIA) v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The Alameda County Superior Court issued a judgment finding that BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court issued a writ of mandate ordering BAAQMD to set aside the thresholds and cease dissemination of them until BAAQMD had complied with CEQA. Notably, the court's ruling was based solely on BAAQMD's failure to comply with CEQA. The court did not reach any issues relating to the validity of the scientific reasoning underlying the recommended significance thresholds.

In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. CBIA sought review by the California Supreme Court on three issues, including the Appellate Court's decision to uphold BAAQMD's adoption of the thresholds. The Supreme Court granted review on just one issue: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the California Supreme Court confirmed that CEQA, with several specific exceptions, is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. BAAQMD published a new version of its Guidelines dated May 2017, which includes revisions made to address the Supreme Court's opinion. BAAQMD is currently working on revising any outdated information in the Guidelines as part of its update to the State CEQA Guidelines and thresholds of significance.

CARE Program

BAAQMD initiated the Community Air Risk Evaluation (CARE) program in 2004, which evaluates and reduces health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust. The CARE program is ongoing and encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that include an assessment of the sources of TAC emissions, modeling, and measurement programs to estimate concentrations of TACs, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. BAAQMD has identified six affected communities, including Vallejo, as in need of immediate action. In

2013, Vallejo was identified as an impacted community by the CARE program. These are areas with high concentrations of air pollution and populations most vulnerable to air pollution's health impacts.

For commercial and industrial sources, BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, in order to provide a quantitative estimate of health risks. As part of ongoing efforts to identify and assess potential health risks to the public, BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area.

Air Quality Management Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans (SIP). The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). BAAQMD is responsible for developing a Clean Air Plan, which guides the region's air quality planning efforts to attain the CAAQS. BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* on April 19, 2017.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue progress toward attaining all State and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG reduction targets. The 2017 Clean Air Plan contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_X), particulate matter, TACs, and GHG emissions. The Bay Area 2017 Clean Air Plan updates the Bay Area 2010 Clean Air Plan in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce ozone; provides a control strategy to reduce ozone, PM, TACs, and greenhouse gases in a single, integrated plan; reviews progress in improving air quality in recent years; and establishes emission control measures to be adopted or implemented in both the short term and through 2050.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

The following BAAQMD rules would limit emissions of air pollutants from construction and operation of the project:

Regulation 6, Rule 3. Wood-Burning Devices. The purpose of this rule is to limit emissions of particulate matter and visible emissions from wood-burning devices used for primary heat, supplemental heat or ambiance.

Regulation 8, Rule 3. Architectural Coatings. This rule governs the manufacture, distribution, and sale of architectural coatings and limits the reactive organic gases content in paints and paint solvents. Although this rule does not directly apply to the project, it does dictate the ROG content of paint available for use during the construction.

Regulation 8, Rule 15. Emulsified and Liquid Asphalts. This rule dictates the reactive organic gases content of asphalt available for use during construction through regulating the sale and use of asphalt and limits the ROG content in asphalt. Although this rule does not directly apply to the project, it does dictate the ROG content of asphalt for use during the construction.

Regulation 9, Rule 8. Organic Compounds. This rule limits the emissions of nitrogen oxides and carbon monoxide from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower.

BAAQMD prepared an Ozone Attainment Demonstration Plan to satisfy the federal 1-hour ozone planning requirement because of the Air Basin's nonattainment for federal and State ozone standards. The U.S. EPA revoked the 1-hour ozone standard and adopted an 8-hour ozone standard.

LOCAL

Propel Vallejo General Plan 2040

The Propel Vallejo General Plan 2040 (City of Vallejo, 2017) Healthy Environment section provides guidance in land use and development policies for implementation by BAAQMD. The following General Plan policies are applicable to the proposed project:

Goal CP-1 Healthy Communities:	Promote the health of all Vallejoans.
Policy CP-1.12. Clean Air.	Protect the community from harmful levels of air pollution.
Action CP-1.12A	Convert the City fleet of street sweepers and other large-scale equipment from fossil fuel to alternative fuel types, and work with service providers to convert refuse and recycling trucks to alternative fuels, in conformance with Bay Area Air Quality Management District (BAAQMD) requirements for fleets.
Action CP-1.12B	Update City regulations to set BAAQMD-recommended limits for particulate emissions from construction, demolition, debris hauling, and utility maintenance.
Action CP-1.12C	Provide information regarding advances in air-quality protection measures to schools, homeowners, and operators of "sensitive receptors" such as senior and child care facilities.

Action CP-1.12D	Periodically review and update City regulations to comply with changes in State law and BAAQMD Guidelines pertaining to coal and wood-burning devices.
Action CP-1.12E	Periodically review the Building Code for consistency with the latest California Green Building Standards Code, and assess the need for updates to require new construction and remodels to employ best practices and materials to reduce emissions, both during and after construction.
Action CP-1.12F	Update City regulations to prohibit grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour, or require the use of water trucks to wet soil.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code contains all ordinances for the City. The Municipal Code is organized by Title, Chapter, and Section. Title 16 of the Municipal Code is the City's Zoning Ordinance, which, among other purposes, is intended to assure the orderly and beneficial development of the City, attain a desirable balance of residential and employment opportunities, and promote efficient urban design and arrangement. Specifically related to air quality, Chapter 16.72.070 – Air pollution performance standards states that all uses shall comply with current BAAQMD regulations.

4.2.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

Based upon the criteria derived from Appendix G of the State CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

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

BAAQMD Thresholds

BAAQMD's CEQA Air Quality Guidelines provide significance thresholds for both construction and operation of projects. If BAAQMD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project proposes development in excess of the established thresholds, as identified in *Table 4.2-5: Bay Area Air*

Quality Management District Emissions Thresholds, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

Table 4.2-5: Bay Area Air Quality Management District Emissions Thresholds

Criteria Air Pollutants and Precursors (Regional)	Construction-Related	Operational-Related	
	Average Daily Emissions (pounds/day)	Average Daily Emission (pounds/day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average 20.0 ppm (1-hour average)	

Source: Bay Area Air Quality Management District, *2017 CEQA Air Quality Guidelines,* 2017.

It should be noted that a quantitative CO impact analysis is required by BAAQMD (comparing project emissions to the CAAQS), if none of the following are met:

- Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Cumulative Emissions Thresholds

BAAQMD's 2017 Clean Air Plan was prepared to accommodate growth, meet State and federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to BAAQMD CEQA Air Quality Guidelines, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. If a project exceeds these emission thresholds, BAAQMD CEQA Air Quality Guidelines states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

Methodology

This air quality impact analysis considers construction and operational impacts associated with the proposed project. Construction equipment, trucks, worker vehicles, and ground-disturbing activities

associated with proposed project construction would generate emissions of criteria air pollutants and precursors. Construction-related and operational emissions are evaluated consistent with methodologies outlined in BAAQMD CEQA Air Quality Guidelines for assessing and mitigating air quality impacts. The proposed project's construction-related exhaust emissions are compared to the daily criteria pollutant emissions significance thresholds in order to determine the significance of a project's impact on regional air quality.

BAAQMD CEQA Air Quality Guidelines also provide significance thresholds for emissions associated with proposed project operations. Operational emissions associated with the proposed project are estimated using the California Emissions Estimator Model (CalEEMod). Project-generated increases in emissions would be predominantly associated with motor vehicle use. The increase of traffic over existing conditions as a result of the project was obtained from the project's Transportation Impact Analysis prepared by Fehr and Peers (2019). The analysis also assumes that the existing Costco building would be reoccupied with a general commercial retail use consistent with the existing zoning. This impact analysis assumes full occupancy of the project site (Fehr and Peers, 2019). A brief explanation of this approach is presented below.

Each CEQA air quality impact was assessed based on comparison of pollutant emissions, concentrations, or quantifiable risk with the applicable threshold established by BAAQMD. To determine project impacts resulting from criteria pollutant emissions, the construction and operation emissions were quantified and compared with BAAQMD's established thresholds of significance. The size of the construction and operating area would be greater than the screening level sizes established by BAAQMD to evaluate criteria air pollutant impacts, so the project impacts were assessed through comparison against thresholds of significance for each criteria pollutant. As noted above, construction and operation emissions were quantified using CalEEMod Version 2016.3.2.

The mitigated output from CalEEMod show reductions from existing regulatory requirements and project design features that are termed "mitigation" within the model; however, those modeling components associated with locational measures and compliance with existing regulations are not considered mitigation under CEQA, but rather are treated as project design features. The project would incorporate design features and would obtain benefits from its location that would reduce project vehicle miles traveled compared to default values. The measures incorporated into the CalEEMod modeling and mitigation component include:

- **LUT-3 Increase Diversity of Land Uses**: The measure requires at least three different land uses within 0.25 mile. There are single-family residential, multi-family residential, retail, and office land uses within this distance from the project.
- **LUT-4 Improve Destination Accessibility**: The measure is based on distance to downtown or major job centers. The project is within three miles from an existing job center (CARB designated business district) in downtown Vallejo.
- **SDT-1 Improve Pedestrian Access**: This measure provides pedestrian access linking the project to other areas to encourage walking. The measure requires both on-site and off-site pedestrian

infrastructure. The proposed project incorporates sidewalks, paseos, and a trail designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space.

- **LUT-5 Increase Transit Accessibility**: This measure requires the presence of a transit stop within walking distance of the project. CalEEMod calculates the reduction on the distance to the stop. MM TR-4 (refer to Chapter 4.15, Transportation) requires a new SolTrans bus stop with pull-out.

Additionally, the project would implement transportation mitigation measures that would construct pedestrian and bicycle infrastructure, improve bus service, and implement Transportation Demand Management (TDM) measures (refer to MM GHG-1 through GHG-12). The reductions attributable to these measures in CalEEMod are derived from methodologies compiled in the CAPCOA report Quantifying GHG Measures. Each measure was assessed to determine its consistency with CAPCOA criteria for the use of the measure.

Local CO concentrations were compared against BAAQMD's established screening criteria. According to BAAQMD CEQA Guidelines, if the preliminary screening procedure for a pollutant impact is followed and all screening criteria are met, the proposed project is assumed to result in a less-than-significant impact on air quality for the pollutant being screened. The screening criteria for local CO concentration are based on traffic volumes at nearby intersections, which were quantified as part of the traffic analysis conducted for the proposed project.

To evaluate potential odor impacts, a qualitative evaluation was conducted taking into account the nature of the project construction and operation. Typically, odor impact evaluations are more applicable to land uses with associated manufacturing, refining, painting/coating, food processing, or waste treatment activities, which, due to the nature of the operations, are large point-sources of odor emissions. There are no large odor point sources associated with the proposed project, so odor complaints by nearby receptors are unlikely. It is evident through qualitative analysis that during construction and operation, substantial numbers of people would not be adversely impacted by objectionable odors and thus odor impacts associated with this project would be less than significant. However, a qualitative discussion assessing potential odor impacts is included in the impacts discussion.

4.2.4 PROJECT IMPACTS AND MITIGATION

IMPACT AQ-1	***WOULD THE PROJECT, CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN?*** ***(SIGNIFICANT AND UNAVOIDABLE IMPACT)***

The project site is an approximately 51.3-acre undeveloped, vacant site. The General Plan designation on the western portion of the site is Retail/Entertainment and the eastern portion of the site is designated Mix of Housing Types. According to the City's Zoning Map, the site is zoned Pedestrian Shopping and

Service District. The site is not designated as a housing opportunity site in the City of Vallejo's General Plan Housing Element. While the project is considered consistent with the existing General Plan and zoning designations, it does propose a zoning map amendment consistent with the adopted General Plan.

A project would be consistent with the 2017 Clean Air Plan if the project would not exceed the growth assumptions in the plan. The primary method of determining consistency with the 2017 Clean Air Plan growth assumptions is consistency with the General Plan land use designations and zoning designations for the site. If the General Plan growth forecast was adopted prior to the adoption of the 2017 Clean Air Plan, then it can be assumed that the 2017 Clean Air Plan incorporates the growth forecast from the General Plan. However, the City's General Plan was adopted in August 2017, after the 2017 Clean Air Plan was adopted by BAAQMD on April 19, 2017[3]. As such, the following analysis evaluates the project's consistency with the Clean Air Plan.

The project is conforming with City regulations (i.e., consistent with the current land use designations for the project site). It should be noted that the Clean Air Plan does not make a specific assumption for development on the site, but bases assumptions on growth in population, travel, and business, based on socioeconomic forecasts. As noted in Section 4.12 (Population and Housing), the project would not exceed the growth assumptions in the General Plan and project-related population growth would be well within the range of population growth forecasted by ABAG. The proposed project would generate new employment opportunities and would be consistent with the City's jobs and housing goals. Therefore, the growth assumptions in the Clean Air Plan would not be exceeded.

Additionally, projects are considered consistent with the 2017 Clean Air Plan if they incorporate all applicable and feasible control measures from the 2017 Clean Air Plan and would not disrupt or hinder implementation of any 2017 Clean Air Plan control measures. The project is consistent with the 2017 Clean Air Plan policies that are applicable to the project site. As discussed in *Table 4.2-6: Project Consistency with Applicable Clean Air Plan Control Measures*, the project would comply with city, state, and regional requirements, and to the extent applicable to the project and not otherwise required as a mitigation measure, will be imposed as a project condition of approval.

Table 4.2-6: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
Stationary Source Control Measures	
SS21: New Source Review of Toxic Air Contaminants	Consistent. This EIR has included a construction health risk assessment (HRA) (see Impact discussion AQ-3), which found the project's toxic air contaminant emissions would result in less than significant cancer and non- cancer (acute and chronic) impacts to the nearby sensitive receptors.
SS25: Coatings, Solvents, Lubricants, Sealants and Adhesives	Consistent. The project would comply with Regulation 8, Rule 3: Architectural Coatings, which would dictate the ROG content of paint available for use during construction (also required per MM AQ-1).
SS26: Surface Prep and Cleaning Solvent	

[3] It should be noted that the General Plan Designation for the project site under the City's previously adopted General Plan had a more intense land use designation of *Employment* on the eastern portion of the property compared to the current designation of *Mix of Housing Types*. The project is consistent with the current General Plan.

Table 4.2-6: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
SS29: Asphaltic Concrete	Consistent. Paving activities associated with the project would be required to utilize asphalt that does not exceed BAAQMD emission standards in Regulation 8, Rule 15.
SS30: Residential Fan Type Furnaces	Consistent. BAAQMD is the responsible party for implementation of this regulation and that the project would use the latest central furnaces that comply with the applicable regulations. The project would not conflict with BAAQMD's implementation of that measure.
SS31: General Particulate Matter Emissions Limitation	Consistent. Proposed restaurants would be required to utilize particulate emissions reduction equipment associated with their commercial cooking equipment.
SS32: Emergency Back-up Generators	Consistent. Use of back-up generators by the project is currently not anticipated. However, if emergency generators were to be installed they would be required to meet BAAQMD's emissions standards for back-up generators.
SS33: Commercial Cooking Equipment	Consistent. If any of the proposed retail uses include restaurants that would install a charbroiler, a catalytic oxidizer system must also be installed pursuant to BAAQMD Rule 6-2.
SS34: Wood Smoke	Consistent. The project would comply with BAAQMD Regulation 6, Rule 3 and General Plan Policy COS 8-4 to minimize emissions for wood-burning appliances/ fireplaces.
SS36: Particulate Matter from Trackout	Consistent. Mud and dirt that may be tracked out onto the nearby public roads during construction activities would be removed promptly by the contractor based on BAAQMD's requirements.
SS37: Particulate Matter from Asphalt Operations	Consistent. Paving and roofing activities associated with the project would be required to utilize best management practices to minimize the particulate matter created from the transport and application of road and roofing asphalt.
SS38: Fugitive Dust	Consistent. Material stockpiling and track out during grading activities as well as smoke and fumes from paving and roofing asphalt operations would be required to utilize best management practices to minimize the creation of fugitive dust.
SS40: Odors	Consistent. The project would comply with BAAQMD Regulation 7 to strengthen odor standards and enhance enforceability.
Transportation Control Measures	
TR2: Trip Reduction Programs	Consistent. The project is an infill development project that would include retail, residential, and open space areas near existing residential areas and retail services, thereby potentially reducing the need to travel long distances for some residents. MM GHG-3 (refer to Section 4.6, Greenhouse Gas) requires a residential and non-residential Transportation Demand Management (TDM) program to reduce vehicle miles traveled and mobile source emissions. The TDM program would include ridesharing and other trip reducing programs as well as bicycle and end-trip facilities. The proposed project incorporates sidewalks, paseos, and a trail designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space. Additionally, MM TR-4 (refer to Section 4.14, Transportation) requires a new SolTrans bus stop with pull out.
TR8: Ridesharing and Last-Mile Connections	
TR9: Bicycle and Pedestrian Access Facilities	
TR10: Land Use Strategies	Consistent. This measure is a BAAQMD funding tool to maintain and disseminate information on current climate action plans and other local best practices and collaborate with regional partners to identify innovative funding mechanisms to help local governments address air quality and climate change in their general plans. As noted above, the project would include a mix of uses and amenities to

Table 4.2-6: Project Consistency with Applicable Clean Air Plan Control Measures

Control Measure	Project Consistency
	serve future residents and reduce the need to travel off-site. The project would not conflict with implementation of this measure.
TR13: Parking Policies	Consistent. The project would include the required amount of parking per the City of Vallejo Municipal Code. Parking areas would be located to provide efficient and convenient access to uses and to contribute to an overall efficient circulation pattern.
TR19: Medium and Heavy Duty Trucks	Not Applicable. Although the project does not involve warehousing or industrial uses that would generate substantial truck trips, the project would not conflict with the implementation of this measure.
TR22: Construction, Freight and Farming Equipment	Consistent. The project would comply through implementation of MM AQ-2, which requires all construction equipment greater than 50 horsepower to meet the Tier 4 emissions standards.
Energy and Climate Control Measures	
EN1: Decarbonize Electricity Generation	Consistent. The project would be constructed in accordance with the latest California Building Code and green building regulations/ CalGreen. The City of Vallejo has a California Breen Building Standards Checklist that the project would be required to comply with.
EN2: Decrease Electricity Demand	
Buildings Control Measures	
BL1: Green Buildings	Consistent. The project would be constructed in accordance with the latest California Building Code and green building regulations/CalGreen. The project would comply with the City of Vallejo's CalGreen Building Checklist.
L2: Decarbonize Buildings	
BL4: Urban Heat Island Mitigation	Consistent. The project would reduce urban heat island effects by providing green common spaces. A minimum of 5.7 acres of open space would be preserved. The proposed parking lots and other potential heat islands would incorporate trees, vegetation, and other landscape screening/shading devices.
Natural and Working Lands Control Measures	
NW2: Urban Tree Planting	Consistent. The project would implement a landscape plan that has been designed to meet the City's tree requirements in parking lots in order to reduce the urban heat island phenomenon that occurs in surface parking lots.
Waste Management Control Measures	
WA1: Landfills	Consistent. The waste service provider for the project would be required to meet the AB 341 and SB 939, 1374, and 1383 requirements that require waste service providers to divert and recycle waste.
WA3: Green Waste Diversion	
WA4: Recycling and Waste Reduction	
Water Control Measures	
WR2: Support Water Conservation	Consistent: The project would implement water conservation measures and low flow fixtures as required by Title 24 and CalGreen. The proposed project has been designed to be consistent with the State of California's Model Water Efficient Landscape Ordinance (MWELO), adopted January 1, 2010 and updated on July 15, 2015.

Source: BAAQMD, *Clean Air Plan*, 2017 and Kimley-Horn & Associates, 2019.

However, as described below in Impact AQ-2, operational air quality emissions generated by the proposed project would exceed BAAQMD's emissions thresholds for NO_X. These thresholds are established to identify projects that have the potential to generate a substantial amount of criteria air pollutants. Because the proposed project would exceed these thresholds, the proposed project would potentially conflict with BAAQMD's Clean Air Plan and impacts would be significant and unavoidable.

IMPACT AQ-2	***WOULD THE PROJECT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD?*** ***(SIGNIFICANT AND UNAVOIDABLE IMPACT)***

CONSTRUCTION EMISSIONS

Short-term air quality impacts are predicted to occur during demolition, grading, and construction operations associated with implementation of the proposed project. Construction associated with the proposed project would generate criteria air pollutant emissions. Construction-generated emissions are relatively short term and of temporary duration, lasting only as long as construction activities occur, but are considered a significant air quality impact if the volume of pollutants generated exceeds BAAQMD's thresholds of significance. Temporary air emissions would result from particulate (fugitive dust) emissions from grading and building construction, and exhaust emissions from the construction equipment and the motor vehicles of the construction crew.

Construction results in the temporary generation of emissions resulting from demolition, site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Emissions from the construction phase were estimated based on information from the project applicant for construction equipment requirements and schedule. It is assumed construction of the project would occur in Fall of 2020 and last approximately three years. Project construction would involve site preparation, mass grading of portions of the project site, excavation for utilities and foundation, utilities installation, paving, building construction (including lifting and placing HVAC units on the roof of the proposed Costco building via helicopter during no more than 2 days), and architectural coatings. CalEEMod was used to calculate expected pollutant emissions generated from the construction of the proposed project. *Table 4.2-7: Unmitigated and Mitigated Construction Emissions*, displays the maximum daily emissions in pounds per day that are expected to be generated from the construction of the proposed project in comparison to the daily thresholds established by BAAQMD.

Table 4.2-7: Unmitigated and Mitigated Construction Emissions

Emissions Source	Pollutant[1, 2]					
			Exhaust		Fugitive Dust	
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Unmitigated Annual Emissions (tons per year)						
2020 Construction	0.25	2.73	0.12	0.11	0.19	0.08
2021 Construction	0.33	2.87	0.14	0.13	0.13	0.04
2022 Construction	0.62	5.65	0.15	0.15	0.72	0.20
2023 Construction	3.92	4.31	0.13	0.12	0.66	0.18
Unmitigated Average Daily Emissions (pounds per day)[3]						
2020 Construction	5.55	61.44	2.75	2.53	4.35	1.80
2021 Construction	2.53	22.09	1.05	0.97	1.03	0.28
2022 Construction	4.79	43.49	1.19	1.12	5.51	1.50
2023 Construction	34.25	37.62	1.10	1.04	5.77	1.57
BAAQMD Significance Threshold (Average Daily Emissions in pounds per day)	54	54	82	54	N/A	N/A
Exceed BAAQMD Threshold?	**No**	**Yes**	**No**	**No**	**N/A**	**N/A**
Mitigated Annual Emissions (tons per year)[4]						
2020 Construction	0.06	0.42	0.02	0.02	0.19	0.08
2021 Construction	0.21	1.49	0.06	0.06	0.13	0.04
2022 Construction	0.48	3.97	0.06	0.06	0.72	0.20
2023 Construction	3.81	3.03	0.06	0.06	0.66	0.18
Mitigated Average Daily Emissions (pounds per day)[3, 4]						
2020 Construction	1.43	9.45	0.40	0.38	4.35	1.80
2021 Construction	1.64	11.45	0.50	0.47	1.03	0.28
2022 Construction	3.69	30.57	0.47	0.47	5.51	1.50
2023 Construction	33.31	26.48	0.51	0.51	5.77	1.57
BAAQMD Significance Threshold (Average Daily Emissions in pounds per day)	54	54	82	54	N/A	N/A
Exceed BAAQMD Threshold?	**No**	**No**	**No**	**No**	**N/A**	**N/A**

Notes:

1. Emissions were calculated using CalEEMod. Emissions include compliance with BAAQMD's Basic Construction Mitigation Measures Recommended for All Projects. These measures include the following: water exposed surfaces two times daily; cover haul trucks; clean track outs with wet powered vacuum street sweepers; limit speeds on unpaved roads to 15 miles per hour; complete paving as soon as possible after grading; limit idle times to 5 minutes; properly maintain mobile and other construction equipment; and post a publicly visible sign with contact information to register dust complaints and take corrective action within 48 hours. These emissions results represent the "mitigated" emissions shown in Appendix C, *Air Quality and GHG Data*.
2. Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, updated May 2017. Source: Refer to the CalEEMod outputs provided in Appendix C, *Air Quality and GHG Data*.

Table 4.2-7: Unmitigated and Mitigated Construction Emissions

Emissions Source	Pollutant[1, 2]					
			Exhaust		Fugitive Dust	
	Reactive Organic Gases (ROG)	Nitrogen Oxide (NO_X)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)

3. Average daily emissions were calculated using the following formula:
   Annual Emissions (tons per year) x 2,000 (the tons-to-pounds conversion factor)/number of working construction days (by year).
4. Includes implementation of MM AQ-2 requiring BAAQMD Additional Construction Mitigation Measures.

Fugitive Dust

Fugitive dust emissions are associated with land clearing, grading, ground excavation, cut-and-fill operations, demolition, truck travel on unpaved roadways, and lifting and placing HVAC units on the roof of the proposed Costco building via helicopter. Dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. Fugitive dust emissions may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project vicinity. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. BAAQMD recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. See MM AQ-1 below and the Summary section for discussion of impacts.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials and workers to and from the site. Emitted pollutants would include ROG, NO_X, PM_{10}, and $PM_{2.5}$. Exhaust emission factors for typical diesel-powered heavy equipment are based on the CalEEMod program defaults. Variables factored into estimating the total construction emissions include: level of activity, length of construction period, number of pieces/types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported onsite or offsite. As shown in Table 4.2-7, unmitigated construction equipment and worker vehicle exhaust emissions would not exceed BAAQMD thresholds for all criteria pollutants except for NO_x. However, implementation of MM AQ-2 requiring BAAQMD Additional Construction Mitigation Measures would reduce construction NO_x emissions below BAAQMD thresholds. BAAQMD also recommends the implementation of all Basic Construction Mitigation Measures, whether or not construction-related emissions exceed applicable significance thresholds. See MM AQ-1 and MM AQ-2 below and the Summary section for discussion of impacts.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. In accordance with the methodology prescribed by BAAQMD, the ROG emissions associated with paving have been quantified with CalEEMod. In addition, based upon the size of the buildings, architectural coatings are also quantified in CalEEMod.

The highest concentration of ROG emissions would be generated during the application of architectural coatings beginning in 2023 and lasting approximately seven months. This phase includes the interior and exterior painting as well as striping of all paved parking areas and roadways. Paints would be required to comply with BAAQMD Regulation 8, Rule 3: Architectural Coating. Regulation 8, Rule 3 provides specifications on painting practices and regulates the ROG content of paint.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986. Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (August 2000), serpentinite and ultramafic rocks are not known to occur within the project area. As a result, no impacts associated with natural occurring asbestos would occur.

Summary

The proposed project would not cause exceedances for ROG, PM_{10} or $PM_{2.5}$ (see Table 4.2-7). Although BAAQMD does not have numerical thresholds for fugitive PM_{10} and $PM_{2.5}$ emissions, the proposed project would be required to comply with BAAQMD Basic Construction Measures (refer to MM AQ-1). In addition, NO_x emissions would be reduced below BAAQMD thresholds with implementation of BAAQMD Additional Construction Mitigation Measures outlined in MM AQ-2 (see Table 4.2-7). The project would also be subject to applicable BAAQMD Regulations, such as Regulation 8 Rule 3: Architectural Coatings and 15: Emulsified and Liquid Asphalts, and Regulation 9, Rule 8: Organic Compounds to further reduce specific construction-related emissions. The calculated emission results from CalEEMod demonstrate that the construction of this project would not exceed average daily thresholds created by BAAQMD with implementation of MM AQ-1 and MM AQ-2.

In order to protect public health from criteria pollutant emissions, BAAQMD has set its CEQA significance threshold based on the trigger levels for the federal New Source Review (NSR) Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. The NSR Program[4] was created by the FCAA to ensure that stationary sources of air pollution are constructed or modified in a manner that is consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health. As shown in Table 4.2-7, construction emissions would not exceed BAAQMD thresholds with implementation of MM AQ-1 and MM AQ-2, and therefore would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and no criteria pollutant health impacts would occur. Therefore, sensitive receptors would not be exposed to criteria pollutant levels in excess of the health-based ambient air quality standards. Project construction impacts would be less than significant.

Operational Emissions

Operational emissions for residential and commercial developments are typically generated from mobile sources (burning of fossil fuels in cars); energy sources (cooling, heating, and cooking); and area sources (landscape equipment and household products). *Table 4.2-8: Unmitigated and Mitigated Project Operational Emissions*, identifies the operational emissions for the proposed project.

Table 4.2-8: Unmitigated and Mitigated Project Operational Emissions

Emission Source	Reactive Organic Gases (ROG)	Exhaust			Fugitive	
		Nitrogen Oxides (NO_X)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Unmitigated Annual Emissions (maximum tons per year)						
Area Source Emissions	2.41	0.03	0.01	0.01	0.00	0.00
Energy Emissions	0.03	0.27	0.02	0.02	0.00	0.00
Mobile Emissions[1]	2.54	13.04	0.07	0.07	7.20	1.93
Off-road	0.11	1.05	0.06	0.06	0.00	0.00
Total Project Unmitigated Emissions	5.09	14.39	0.17	0.16	7.20	1.93
Unmitigated Average Daily Emissions (pounds)						
Area Source Emissions	13.23	0.18	0.05	0.05	0.00	0.00
Energy Emissions	0.17	1.45	0.12	0.12	0.00	0.00
Mobile Emissions[1]	13.90	71.44	0.38	0.38	39.45	10.58
Off-road	0.62	5.76	0.36	0.33	0.00	0.00
Total Project Unmitigated Emissions	27.91	78.83	0.90	0.88	39.45	10.58
Mitigated Annual Emissions (maximum tons per year)						
Area Source Emissions	2.39	0.01	0.01	0.01	0.00	0.00
Energy Emissions	0.03	0.27	0.02	0.02	0.00	0.00

[4] Code of Federal Regulation (CFR) [i.e., PSD (40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165 (b)), Non-attainment NSR (40 CFR 52.24, 40 CFR 51.165, 40 CFR part 51, Appendix S)

Table 4.2-8: Unmitigated and Mitigated Project Operational Emissions

Emission Source	Reactive Organic Gases (ROG)	Exhaust			Fugitive	
		Nitrogen Oxides (NO_X)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)	Coarse Particulate Matter (PM_{10})	Fine Particulate Matter ($PM_{2.5}$)
Mobile Emissions[1]	2.07	10.22	0.03	0.03	2.71	0.73
Off-road	0.11	1.05	0.06	0.06	0.00	0.00
Total Project Mitigated Emissions[2]	4.61	11.55	0.12	0.12	2.71	0.73
BAAQMD Threshold[4]	*10*	*10*	*15*	*10*	*N/A*	*N/A*
Is Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**N/A**	**N/A**
Mitigated Average Daily Emissions (pounds)						
Area Source Emissions	13.11	0.07	0.03	0.03	0.00	0.00
Energy Emissions	0.17	1.45	0.12	0.12	0.00	0.00
Mobile Emissions[1]	11.35	56.02	0.16	0.16	14.85	4.00
Off-road	0.62	5.76	0.36	0.33	0.00	0.00
Total Project Mitigated Emissions[2]	25.24	63.30	0.67	0.64	14.85	4.00
BAAQMD Threshold[4]	*54*	*54*	*82*	*54*	*N/A*	*N/A*
Is Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**N/A**	**N/A**

Notes:

1. Proposed project mobile emissions are based on the net total project trip generation of 11,060 daily vehicle trips on weekdays, 11,539 daily vehicle trips on Saturdays, and 10,875 daily vehicle trips on Sundays per the project Traffic Impact Analysis.
2. Project Design Features were incorporated into the CalEEMod mitigation module. These design features include increased diversity of land uses, improve destination accessibility due to proximity to downtown Vallejo, increase transit accessibility, improve pedestrian network and provide traffic calming measures. MM TR-4 (refer to Chapter 4.15, Transportation) requires a new SolTrans bus pull-out. MM GHG-1 through GHG-12 are also included.
3. Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, 2017.
   Source: Refer to the CalEEMod outputs provided in Appendix C, *Air Quality and GHG Data*.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport PM_{10} and $PM_{2.5}$). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions have been estimated using CalEEMod. Trip generation rates associated with the project were based on the project Transportation Impact Analysis (TIA). Based on the TIA, the proposed project would result in an average of approximately 18,560 daily vehicle trips on weekdays, 21,254 daily vehicle trips on Saturdays, and 17,469 daily vehicle trips on Sundays. As described in the TIA, the existing Costco currently generates 12,860 daily vehicle trips and would be replaced by a retail use that would generate approximately 5,360 daily vehicle trips, for a net reduction of 7,500 daily vehicle trips (i.e., total net trip generation would be 11,060 daily vehicles on weekdays, 11,539 daily vehicles on Saturdays, and 10,875 daily vehicles on Sundays). Table 4.2-8 shows the net unmitigated

project emissions generated by vehicle traffic associated with the proposed project would exceed established BAAQMD regional thresholds for NO_X emissions. Following compliance with the Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan required per MM GHG-3, additional trip-reduction measures outlined in MM GHG-4 through MM GHG-6 and MM GHG-8, and construction of a new SolTrans bus pull-out as part of MM TR-4, the project's mobile NO_X emissions would be reduced, but still exceed BAAQMD thresholds (see Table 4.2-8).

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed project. The primary use of electricity and natural gas by the proposed project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. As shown in Table 4.2-8, energy source emissions from the proposed project would not exceed BAAQMD thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$.

Area Source Emissions

Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping. The proposed project would also include off-road emissions associated with onsite equipment (e.g., forklifts) used at the Costco location. Area source emissions from the proposed project would not exceed BAAQMD thresholds (see Table 4.2-8).

Off-Road Emissions

Off-road area emissions would be generated from off-road equipment used in the proposed retail buildings (e.g., forklifts). The off-road equipment would be required to be alternatively fueled (e.g., forklifts would be electric or natural gas-powered) as required by MM GHG-7 in Chapter 4.6, Greenhouse Gas Emissions.

Total Operational Emissions

As shown in Table 4.2-8, total project operations would not cause exceedances of 54 pounds per day for ROG and $PM_{2.5}$, or 82 pounds per day for PM_{10} due to project design features and the implementation of MM TR-4 and MM GHG-7. However, mobile NO_x emissions would exceed BAAQMD thresholds despite implementation of MM GHG-3 through MM GHG-6, MM GHG-8, and MM TR-4 (see Table 4.2-8). As such, there are no other feasible mitigation measures to reduce mobile NO_x emissions below BAAQMD thresholds and impacts would be significant.

Criteria Pollutant Health Impacts

On December 24, 2018, the California Supreme Court issued an opinion identifying the need to provide sufficient information connecting a project's air emissions to health impacts or explain why such information could not be ascertained (Sierra Club v. County of Fresno [Friant Ranch, L.P.] [2018] 6 Cal.5th502, Case No. S219783). In light of this decision, the following section is intended to discuss its applicability to the proposed project.

The Friant Ranch project was a 942-acre Specific Plan that involved a large, regionally significant commercial master-planned community of approximately 2,500 dwelling units and extensive commercial supporting development. The anticipated air quality impacts resulting from the Friant Ranch development included significant and unavoidable emissions of multiple criteria pollutants (including significant emissions of both primary O_3 precursors [NO_X and ROGs]) at levels that well exceeded the daily thresholds of significance. As noted above and shown in Table 4.2-8, the proposed project's operational emissions would slightly exceed BAAQMD's NO_X significance threshold despite the implementation of mitigation measures, resulting in a significant and unavoidable impact. Further, the proposed project is not regionally significant because it includes less than 500 dwelling units and a commercial area that is well under 500,000 square feet of floor space.

BAAQMD has set its CEQA significance threshold based on the trigger levels for the federal NSR Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. The NSR Program[5] was created to ensure projects are consistent with attainment of health-based federal ambient air quality standards. The federal ambient air quality standards establish the levels of air quality necessary, with an adequate margin of safety, to protect the public health. Therefore, projects that do not exceed BAAQMD's thresholds would not violate any air quality standards or contribute substantially to an existing or projected air quality violation and no cumulative criteria pollutant health impacts.

NO_X and ROG are precursor emissions that form ozone in the atmosphere in the presence of sunlight where the pollutants undergo complex chemical reactions. It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources. Breathing ground-level ozone can result health effects that include: reduced lung function, inflammation of airways, throat irritation, pain, burning, or discomfort in the chest when taking a deep breath, chest tightness, wheezing, or shortness of breath. In addition to these effects, evidence from observational studies strongly indicates that higher daily ozone concentrations are associated with increased asthma attacks, increased hospital admissions, increased daily mortality, and other markers of morbidity. The consistency and coherence of the evidence for effects upon asthmatics suggests that ozone can make asthma symptoms worse and can increase sensitivity to asthma triggers.

Table 4.2-8 shows that a large proportion of the project's NO_X and ROG emissions are from mobile sources. The ROG emissions are below BAAQMD thresholds, and the mitigated NOx emissions only slightly exceed BAAQMD thresholds. Under California law, the local and regional districts are primarily responsible for controlling air pollution from all sources except motor vehicles. CARB (a branch of the California EPA) is primarily responsible for controlling pollution from motor vehicles. The air districts must adopt rules to achieve and maintain the State and Federal AAQS within their jurisdictions. Mobile emissions from vehicles will continue to decrease over time given evolving clean air technology requirements and the increase in use of electric vehicles.

<u>Ozone Trends</u>. According to BAAQMD's 2017 Clean Air Plan, the major air quality improvements achieved over the past several decades have greatly benefited public health in the Bay Area, even as the region's

[5] Code of Federal Regulation (CFR) [i.e., PSD (40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165 (b)), Non-attainment NSR (40 CFR 52.24, 40 CFR 51.165, 40 CFR part 51, Appendix S)

population, the amount of motor vehicle travel, and economic output have all grown substantially. Population exposure to unhealthy ozone levels declined dramatically. In 1986–1988, the average Bay Area resident was exposed to unhealthy ozone concentrations 213 hours per year. Exposure to unhealthy ozone levels (ozone exceeding the state one-hour standard of 95 parts per billion) has been reduced to less than one hour per year during the 2012–2014 period, an overall reduction of 99.8 percent.[6] Ozone levels are decreasing because of the mandated controls on motor vehicles and the replacement of older polluting vehicles with lower-emitting vehicles. NO_X emissions (an ozone precursor) from electric utilities have also decreased due to the use of cleaner fuels and renewable energy. The 2017 Clean Air Plan control strategy includes 85 control measures to reduce multiple pollutants and serve both to protect public health and the climate. With continued implementation of the control measures, the 2017 Clean Air Plan projects continued reductions in emissions and ambient concentrations of ozone and PM and decreases in population exposure to the most harmful air pollutants, such as fine PM and TACs, in impacted communities.

Part of the control process of BAAQMD's duty to greatly improve the air quality in the Basin is the uniform CEQA review procedures required by BAAQMD's CEQA Air Quality Guidelines. The single threshold of significance used to assess direct project and cumulative impacts has improved air quality as evidenced by the track record of the air quality in the Basin dramatically improving over the course of the past decades. As stated by BAAQMD, the thresholds of significance are based on factual and scientific data and are therefore appropriate thresholds of significance to use for the project.

Toxic Air Contaminants (TAC) Trends. In 1984, as a result of public concern for exposure to airborne carcinogens, CARB adopted regulations to reduce the amount of air toxic contaminant emissions resulting from mobile and area sources, such as cars, trucks, stationary products, and consumer products. According to the Ambient and Emission Trends of Toxic Air Contaminants in California journal article[7] which was prepared for CARB, results show that between 1990-2012, ambient concentration and emission trends for the seven TACs responsible for most of the known cancer risk associated with airborne exposure in California have declined significantly (between 1990 and 2012). The seven TACs studied include those that are derived from mobile sources: diesel particulate matter (DPM), benzene, and 1,3-butadiene; those that are derived from stationary sources: perchloroethylene and hexavalent chromium; and those derived from photochemical reactions of emitted VOCs: formaldehyde and acetaldehyde. TACs data was gathered at monitoring sites from both the Bay Area and South Coast Air Basins. The decline in ambient concentration and emission trends of these TACs are a result of various regulations CARB has implemented to address cancer risk.

Mobile Source TACs. CARB introduced two programs that aimed at reducing mobile emissions for light and medium-duty vehicles through vehicle emissions controls and cleaner fuel. In California, light-duty vehicles sold after 1996 are equipped with California's second-generation On-Board Diagnostic system. The On-Board Diagnostic II system monitors virtually every component that can affect the emission performance of the vehicle to ensure that the vehicle remains as clean as possible over its entire life and

[6] Bay Area Air Quality Management District, *Clean Air Plan 2017*, page 2/24, 2017.

[7] Ralph Propper, Patrick Wong, Son Bui, Jeff Austin, William Vance, Alvaro Alvarado, Bart Croes, and Dongmin Luo, *Ambient and Emission Trends of Toxic Air Contaminants in California. American Chemical Society: Environmental Science & Technology.* 2015.

assists repair technicians in diagnosing and fixing problems with the computerized engine controls. If a problem is detected, the On-Board Diagnostic II system illuminates a warning lamp on the vehicle instrument panel to alert the driver. This warning lamp typically contains the phrase Check Engine or Service Engine Soon which will preclude a vehicle from passing a smog check required as part of the annual vehicle registration process until the problem is addressed. The system will also store important information about the detected malfunction so that a repair technician can accurately find and fix the problem. CARB has recently developed similar On-Board Diagnostic requirements for heavy-duty vehicles over 14,000 pounds. CARB's phase II Reformulated Gasoline regulation, adopted in 1996, also led to a reduction of mobile source emissions. Through such regulations, benzene levels declined 88 percent from 1990-2012. 1,3-Butadiene concentrations also declined 85 percent from 1990-2012 as a result of the use of reformulated gasoline and motor vehicle regulations[8].

In 2000, CARB's Diesel Risk Reduction Plan recommended the replacement and retrofit of diesel-fueled engines and the use of ultra-low-sulfur (<15 ppm) diesel fuel. As a result of these measures, DPM concentrations have declined 68 percent since 2000, even though the state's population increased 31 percent and the amount of diesel vehicles miles traveled increased 81 percent. With the implementation of these diesel-related control regulations, CARB expects a DPM decline of 71 percent for 2000-2020.

Cancer Risk Trends. Based on information available from CARB, overall cancer risk throughout the Basin has had a declining trend since 1990. In 1998, following an exhaustive 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant.

Criteria Pollutant Health Risk. As noted in the Brief of Amicus Curiae by the South Coast Air Quality Management District (SCAQMD) in the Friant Ranch case (April 6, 2015) (Brief), the SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The Brief discusses that it may be infeasible to quantify health risks caused by individual projects, due to various factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief also cites the author of the CARB methodology, which reported that a $PM_{2.5}$ methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify O_3-related health impacts caused by NO_X or ROG (VOC) emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful. In comparison, the proposed project is not regionally significant and would be considered a relatively small project.

[8] Ibid.

The Brief makes it clear that SCAQMD does not believe that there must be a quantification of a project's health risks in all CEQA documents prepared for individual projects. Any attempt to quantify the proposed project's health risks would be considered unreliable and misleading.

Although it may be misleading and unreliable to attempt to specifically and numerically quantify the project's health risks, this analysis provides extensive information concerning the project's potential health risks. While the project is expected to exceed BAAQMD's numeric regional mass daily thresholds for operational NO_X, simply exceeding these thresholds does not in itself constitute a significant health impact to the population adjacent to the project and within the Basin. The reason for this is that the mass daily thresholds are in pounds per day (or tons per year) emitted into the air whereas health effects are determined based on the concentration of emissions in the air at a particular receptor (e.g., parts per million by volume of air, or micrograms per cubic meter of air). State and federal AAQS were developed to protect the most susceptible population groups from adverse health effects and were established in terms of parts per million or micrograms per cubic meter for the applicable emissions.

Furthermore, air quality trends for both emissions of NO_X, VOCs, and O_3 (which is a byproduct of NO_X and VOCs) have been trending downward within the air basin even as development has increased over the last several years. Therefore, although the project would slightly exceed BAAQMD's numeric thresholds for emissions of NO_X, this does not in itself constitute a basin-wide increase in health effects related to these pollutants.

As noted in the Brief, it would be extremely difficult, if not impossible to quantify health impacts of criteria pollutants for various reasons, including modeling limitations, as well as where in the atmosphere air pollutants interact and form for a development as small as the proposed project. Furthermore, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (April 13, 2015), San Joaquin Valley Air Pollution Control District has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts. The San Joaquin Valley Air Pollution Control District notes, "…the Air District is simply not equipped to analyze and to what extent the criteria pollutant emissions of an individual CEQA project directly impact human health in a particular area…even for projects with relatively high levels of emissions of criteria pollutant precursor emissions."

Information on health impacts related to exposure to O_3 and particulate matter emissions published by the U.S. EPA and CARB have been summarized above and discussed in the Regulatory Framework section. Health studies are used by these agencies to set the Federal and State AAQS. None of the health-related information can be directly correlated to the pounds/day or tons/year of emissions estimated from a single project.

Ozone is not formed at the location of emission and the quantity of precursor emissions is not proportional to local ozone concentrations. The emission of NO_X and ROG do not directly cause health effects; it is the resulting concentration of criteria pollutants, which is influenced by sunlight, chemical

reactions, and transport (i.e., regional impacts), that are not feasible to model at the project level.[9] In addition, current BAAQMD and CARB regulations will reduce the emissions below what is shown in Table 4.2-8. Given the relatively small size of the proposed project, the health impacts associated with the proposed project's NOx emissions, which are only slightly above BAAQMD operational thresholds, would be minuscule.

As discussed above, neither BAAQMD nor any other air district currently have methodologies or thresholds that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from this small proposed project's mass emissions. Information on health impacts related to exposure to ozone and particulate matter emissions published by the U.S. EPA and CARB have been summarized above and discussed in the Regulatory Framework section. For this reason, the discussion above explains in detail why a numerical analysis would not be reliable or meaningful and why health-based impacts are anticipated to be less than significant.

Cumulative Construction Emissions

The Basin is designated nonattainment for O_3, PM_{10}, and $PM_{2.5}$ for State standards and nonattainment for O_3 and $PM_{2.5}$ for federal standards. As discussed above, the project's construction-related emissions by themselves would not have the potential to exceed BAAQMD significance thresholds for criteria pollutants with the implementation of MM AQ-2, which would require off-road equipment to meet Tier 4 emissions standards and other BAAQMD Additional Construction Mitigation Measures.

Since these thresholds indicate whether an individual project's emissions have the potential to affect cumulative regional air quality, it can be expected that the project-related construction emissions would not be cumulatively considerable. BAAQMD recommends Basic Construction Mitigation Measures for all projects whether or not construction-related emissions exceed the thresholds of significance. Compliance with BAAQMD construction-related mitigation requirements are considered to reduce cumulative impacts at a Basin-wide level. As a result, construction emissions associated with the proposed project would not result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Cumulative Operational Emissions

BAAQMD has not established separate significance thresholds for cumulative operational emissions. The nature of air emissions is largely a cumulative impact. As a result, no single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. BAAQMD developed the operational thresholds of significance based on the level above which a project's individual emissions

[9] As noted in the San Joaquin Valley Air Pollution Control District (SJVAPCD) Amicus Curiae Brief for *Sierra Club v. County of Fresno, t*he computer models used to simulate and predict and attainment date for ozone or particulate matter NAAQS are based on regional inputs, such as regional inventories of precursor pollutants (NO_X, SO_X, and VOCs) and atmospheric chemistry and meteorology. The models simulate future ozone or PM levels based on predicted changes in precursor emissions region wide. The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the NAAQS attainment date. Rather, the air district modeling and planning strategy is regional in nature and based on the extent to which all of emission-generating sources (current and future) must be controlled in order to reach attainment.

would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds BAAQMD operational thresholds would also be a cumulatively considerable contribution to a significant cumulative impact.

As shown in Table 4.2-8, the proposed project's operational emissions would exceed BAAQMD thresholds for NO_x despite the implementation of project design features and all feasible mitigation measures described above that would minimize operational emissions. As a result, operational emissions associated with the proposed project would result in a cumulatively considerable contribution to significant cumulative air quality impacts.

Mitigation Measures:

Refer to MM TR-4 (Chapter 4.15) and MM GHG-1 through GHG-12 (Chapter 4.6). The following additional mitigation measures are also required.

MM AQ-1: **BAAQMD Basic Construction Measures.** Prior to any grading activities, the applicant shall prepare and implement a Construction Management Plan that includes BAAQMD Basic Construction Mitigation Measures to minimize construction-related emissions. This shall plan shall first be reviewed and approved by the Director of Public Works/City Engineer. BAAQMD Basic Construction Mitigation Measures are:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. 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. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. 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.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. 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.

MM AQ-2: **BAAQMD Additional Construction Mitigation Measures.** Prior to the issuance of any grading permits, the applicant shall prepare and implement a Construction Management Plan that includes BAAQMD Additional Construction Mitigation Measures to minimize construction-related emissions. This shall plan shall first be reviewed and approved by the Planning & Development Services Director. The applicable BAAQMD Additional Construction Mitigation Measures are:

- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
- Idling time of diesel-powered construction equipment shall be limited to two minutes.
- The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction (i.e., owned, leased, and subcontractor vehicles) will meet United States Environmental Protection Agency Tier 4 final off-road emissions standards or would achieve a project-wide fleet-average 20 percent NO_X reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).
- Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_X and PM.
- Require the lifting and placing of HVAC units on the roof of the proposed Costco building via helicopter to only occur when no other excavation, grading, and ground-disturbing construction activities are being conducted on the project site and only once the commercial component of the project has been fully paved.

IMPACT AQ-3	***WOULD THE PROJECT EXPOSE SENSITIVE RECEPTORS TO SUBSTANTIAL POLLUTANT CONCENTRATIONS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

Sensitive land uses are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses.

Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. Sensitive receptors in the area include single-family residences approximately 96 feet to the east and multi-family residences approximately 150 feet south of the project site.

TOXIC AIR CONTAMINANTS

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known toxic air contaminants (TACs). Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The closest sensitive receptor to the project site is the residences to the east and south of the project site. BAAQMD provides guidance for evaluating impacts from TACs in its CEQA Air Quality Guidelines document. As noted therein, an incremental cancer risk of greater than 10 cases per million at the Maximally Exposed Individual (MEI) will result in a significant impact. BAAQMD considers exposure to annual $PM_{2.5}$ concentrations that exceed 0.3 $\mu g/m^3$ from a single source to be significant. BAAQMD significance threshold for non-cancer hazards is 1.0.

BAAQMD CARE program focuses on TACs. The project does not contribute to a significant amount of TACs including diesel particulates or particulate matter. The project design locates the residential area away from the I-80 freeway. The residential area is located approximately 1,000 feet away from the freeway and is separated by the proposed commercial and open space areas. The proposed project does not conflict with any of the CARE program goals of evaluating health risk assessments and minimizing impacts on low-income communities. As discussed in the analysis below, a Health Risk Assessment was prepared for the project site and determined that exposure to TAC would be well below the threshold concentrations and that the project would not result in adverse impacts to sensitive receptors as a result of the proposed project. The proposed project is not located in an area that is designated as a low-income community. The project would keep commercial vehicles on main thoroughfares and would not require diesel trucks, including fuel trucks, to travel through residential areas to access the site. As such, the proposed project does not conflict with the goals and policies of BAAQMD CARE program.

CONSTRUCTION TACS

Construction would result in the generation of diesel particulate matter (DPM) emissions from the use of off-road diesel equipment required for grading and excavation, paving, and other construction activities. For construction activity, DPM is the primary toxic air contaminant of concern. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they would not stay on the site for long durations. Diesel exhaust from construction equipment operating at the site poses a health risk to nearby sensitive receptors. The closest sensitive receptor to the project site are residences approximately 96 feet and 150 feet to the east and south, respectively.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The use of diesel-powered construction equipment would be episodic and would occur throughout the 51-acre site. Additionally, construction activities would be subject to and would comply with California regulations limiting idling to no more than 5 minutes, which

would further reduce nearby sensitive receptors' exposure to temporary and variable DPM emissions. Furthermore, even during the most intense year of construction, emissions of DPM would be generated from different locations on the project site rather than in a single location because different types of construction activities (e.g., site preparation and building construction) would not occur at the same place at the same time.

The U.S. EPA recommended screening model AERSCREEN has been used to evaluate potential health effects to sensitive receptors from construction DPM emissions. AERSCREEN is the recommended screening model based on the AERMOD dispersion model. The model produces estimates of worst-case concentrations without the need for hourly meteorological data. According to the U.S. EPA Support Center for Regulatory Atmospheric Modeling (SCRAM) website, AERSCREEN is intended to produce concentration estimates that are equal to or greater than the estimates produced by AERMOD with a fully developed set of meteorological and terrain data. Maximum (worst case) $PM_{2.5}$ exhaust construction emissions over the entire construction period were used in AERSCREEN to approximate construction DPM emissions. Risk levels were calculated according to the California Office of Environmental Health Hazard Assessment (OEHHA) guidance document, Air Toxics Hot Spots Program Risk Assessment Guidelines (February 2015).

Results of this assessment indicate that the maximum concentration of $PM_{2.5}$ during construction would be 0.002 $\mu g/m^3$, which is below BAAQMD threshold of 0.3 $\mu g/m^3$. The highest calculated carcinogenic risk from project construction is 1.77 per million based on a PM_{10} annual average concentration of 0.00263 $\mu g/m^3$, which is below BAAQMD threshold of 10 in one million. Non-cancer hazards for DPM would be below BAAQMD threshold of 1.0, with a chronic hazard index computed at 0.0004 and an acute hazard index of 0.0008. As described above, worst-case construction risk levels based on screening-level modeling (AERSCREEN) and conservative assumptions would be below BAAQMD's thresholds. Therefore, construction risk levels would be less than significant.

Another potential source of TACs associated with construction-related activities is the airborne entrainment of asbestos due to the disturbance of naturally-occurring asbestos-containing soils. As noted in Impact Statement AQ-2, the proposed project is not located in an area designated by the State of California as likely to contain naturally-occurring asbestos[10]. As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos.

Impacts associated with construction activities would be less than significant.

ON-SITE IMPACTS

Mobile Sources

Pursuant to *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, Case No. S213478, agencies are not required to analyze the CEQA impact of existing environmental conditions on a project's future users or residents, unless the proposed project risks

[10] California Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos,* August 2000.

exacerbating those environmental hazards or conditions that already exist. Therefore, the following mobile source health risk analysis has been prepared as an information item for land use decision making but is not a CEQA required analysis.

The project would place sensitive receptors within 1,000 feet of I-80 (mobile TAC sources). Potential risks from traffic emissions generated along these roadways were evaluated using an analysis methodology that considers local traffic conditions, site-specific meteorology, and future exposures.

The air dispersion modeling for the mobile source risk assessment was performed using the U.S. EPA AERMOD dispersion model. AERMOD is a steady-state, multiple-source, Gaussian dispersion model designed for use with emission sources situated in terrain where ground elevations can exceed the stack heights of the emission sources (not a factor in this case). AERMOD requires hourly meteorological data consisting of wind vector, wind speed, temperature, stability class, and mixing height. Surface and upper air meteorological data was obtained from CARB. Surface and upper air meteorological data from the Napa County Airport Monitoring Station was selected as being the most representative for meteorology based on proximity to the project site.

The emission sources in the model are line volume sources (comprised of numerous adjacent volume sources) along I-80 as close as 700 feet to the east. An emission rate for PM_{10} (a proxy for DPM) was calculated using traffic volumes from the Traffic Study and an Emission Factor model (EMFAC2017) model run for the Solano County sub-area of the Basin; refer to Appendix C. Heavy-duty vehicle DPM emissions were assigned a release height of 10 feet (3.06 meters) to represent the average stack height for trucks and a plume height of 20 feet (6.12 meters).

AERMOD was run to obtain the peak 1-hour and annual average concentration in micrograms per cubic meter [$\mu g/m^3$] of PM_{10} at the project site. Note that the concentration estimate developed using this methodology is considered conservative and is not a specific prediction of the actual concentrations that would occur at the project site any one point in time. Actual 1-hour and annual average concentrations are dependent on many variables, particularly the number and type of vehicles traveling during time periods of adverse meteorology.

A health risk computation was performed to determine the risk of developing an excess cancer risk calculated on a 30-year exposure scenario with CARB's Hotspot Analysis and Reporting Program Risk Assessment Standalone Tool (HARP 2) software. The cancer risk calculations were based on applying age sensitivity weighting factors for each emissions period modeled. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer-causing TACs. The chronic and carcinogenic health risk calculations are based on the standardized equations contained in the OEHHA Guidance Manual. Only the risk associated with the worst-case location of the proposed project was assessed.

Based on the AERMOD outputs, the highest expected hourly average diesel PM_{10} emission concentrations at the project site would be 0.02 $\mu g/m^3$. The highest expected annual average PM_{10} emission concentrations at the project site would be 0.004 $\mu g/m^3$. The analysis for the project assumed the site would not be occupied until 2023. The highest calculated carcinogenic risk as a result of the project is

3.07 per million for 30-year exposure, which is below the 10 in one million threshold; refer to *Table 4.2-9, Operational Health Risk*. Additionally, acute and chronic hazards would be 0.00 and 0.0007, respectively, which are below the hazard index threshold of 1.0. Therefore, impacts related to cancer risk and hazards from mobile sources would be less than significant at the project site.

OFF-SITE IMPACTS

Proposed Gas Station and Delivery Trucks

The proposed project includes a gasoline dispensing facility, which would be a source of gasoline vapors that would include TACs such as benzene, methyl tertiary-butyl ether, toluene, and xylene. Benzene is the primary TAC associated with gas stations. Additionally, DPM emissions would be emitted from diesel-fueled trucks traveling along the designated delivery truck routes for the Costco warehouse and major retail buildings and emitted from trucks idling at loading docks and truck bays. The gasoline dispensing facility would be located approximately 320 feet northwest of existing residences and 870 feet west of the closest proposed residences.

Gasoline dispensing facility emissions were computed based on the maximum allowable throughput of gasoline (i.e., 36 million gallons per year). Emissions of total organic gases (TOG) and benzene, which is a TAC, were computed using CARB emission factors for gasoline dispensing facilities and assuming that benzene makes up 0.3 percent of gasoline vapor.[11] Total benzene emissions were calculated at 0.018 pounds per hour; refer to Appendix C for the details of the calculations. Pollutant concentrations were then calculated with AERMOD and risk levels were calculated with CARB's HARP 2 program. The results indicate that the risk levels from delivery trucks and fueling operations would not exceed BAAQMD thresholds of 10 in one million cancer risk, 0.3 µg/m^3 annual $PM_{2.5}$ concentration, and hazard index of 1.0 (Table 4.2-9).

Table 4.2-9: Operational Health Risk

Emissions Sources	Concentration (µg/m^3)[1]	Cancer Risk (per million)	Chronic Hazard	Acute Hazard
Delivery Trucks	0.002	1.35	0.0003	0.007
Gas Dispensing Facility	0.078	6.12	0	0
BAAQMD Threshold	*0.3*	*10*	*1.0*	*1.0*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Notes:
1. Concentration for Delivery trucks is $PM_{2.5}$ and concentration for the Gas Dispensing Facility is Benzene.

Cumulative Operational Impacts

In addition to mobile sources, stationary sources within a 1,000-foot-radius of the project site were identified using BAAQMD's Stationary Source Screening Analysis Tools and consultation with BAAQMD.

[11] *CAPCOA. Air Toxics "Hot Spots" Program, Gasoline Service Station Industrywide Risk Assessment Guidelines, November 1997.*

As indicated in *Table 4.2-10: Cumulative Operational Health Risk*, TACs generated from the stationary and mobile sources within a 1,000-foot-radius would not exceed BAAQMD thresholds.

Table 4.2-10: Cumulative Operational Health Risk

Emissions Sources	$PM_{2.5}$ (µg/m³)	Cancer Risk (per million)	Chronic Hazard	Acute Hazard
Mobile Sources				
I-80	0.004	3.07	0.0007	0
Stationary Sources				
Proposed Costco (Delivery Trucks and Gas Dispensing Facility)	0.002	7.47	0.0003	0.007
Lee's Market (Gas Dispensing Facility)	0	0.64	0.00067	0
Solano County Fairgrounds (Gas Dispensing Facility)	0	0.2483	0.00122	0
Avery Greene Motors (Coating Operation)	0.005287	0.0026	0.00063	0
Admiral Shell (Gas Dispensing Facility)	0	0.4941	0.00244	0
Bonfare Market #36 ((Gas Dispensing Facility)	0	0.2613	0.00129	0
BAAQMD Individual Project Threshold	*0.3*	*10*	*1.0*	*1.0*
Threshold Exceeded?	**No**	**No**	**No**	**No**
Cumulative Health Risk Values	0.01	12.19	0.01	0.01
BAAQMD Cumulative Threshold	*0.8*	*100*	*10*	*10*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Localized Carbon Monoxide Hotspots

The primary mobile-source criteria pollutant of local concern is carbon monoxide. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. CO concentration modeling is therefore typically conducted for intersections that are projected to operate at unacceptable levels of service during peak commute hours.

The Basin is designated as attainment for carbon monoxide (CO). Emissions and ambient concentrations of CO have decreased dramatically in the Basin with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. As a result, BAAQMD screening criteria notes that CO impacts may be determined to be less than significant if a project is consistent with the applicable congestion management plan (CMP) and would not increase traffic volumes at local intersections to more than 44,000 vehicles per hour, or 24,000 vehicles per hour for locations in heavily urban areas, where "urban canyons" formed by buildings tend

to reduce air circulation. Traffic would increase along surrounding roadways during long-term operational activities.

According to the Traffic Impact Analysis for the project, the entire project would generate a maximum of 394 net new weekday morning peak hour trips, 922-weekday net new mid-day peak hour trips, 1,063 net new evening peak hour trips, and 1,239 net new Saturday peak hour trips. The project traffic study intersection with the highest traffic volumes (Redwood Parkway at I-80 eastbound ramp) would have 5,271 vehicles during the evening peak hour and 5,320 vehicles during the Saturday peak hour. Therefore, the project would not involve intersections with more than 24,000 or 44,000 vehicles per hour. As a result, the project would not exceed BAAQMD's screening criteria, and impacts associated with CO concentrations would be less than significant.

IMPACT AQ-4	***WOULD THE PROJECT RESULT IN OTHER EMISSIONS (SUCH AS THOSE LEADING TO ODORS) ADVERSELY AFFECTING A SUBSTANTIAL NUMBER OF PEOPLE?*** ***(LESS THAN SIGNIFICANT IMPACT)***

CONSTRUCTION ODORS

According to BAAQMD, land uses associated with odor complaints typically include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries, and chemical plants. The proposed project does not include any uses identified by BAAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment (i.e., diesel exhaust), as well as from architectural coatings and asphalt off-gassing. Odors generated from the referenced sources are common in the man-made environment and are not known to be substantially offensive to adjacent receptors. Any construction-related odors would be short-term in nature and cease upon project completion. As a result, impacts to existing adjacent land uses from construction-related odors would be short-term in duration and therefore would be less than significant.

OPERATIONAL ODORS

BAAQMD has established odor screening thresholds for land uses that have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. BAAQMD's thresholds for odors are qualitative based on BAAQMD's Regulation 7, Odorous Substances. This rule

places general limitations on odorous substances and specific emission limitations on certain odorous compounds.[12]

The proposed project may include restaurants in the proposed retail portion of the site. Odors from restaurants usually emanate from charbroilers, griddles, and deep fat fryers. Further, restaurants and other commercial businesses will maintain garbage/recycling areas which are also a source of objectionable odors. Odors are typically regulated under BAAQMD Regulation 1, Rule 1-301, Public Nuisance, which states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health, or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property. Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

With respect to odor impacts from adjacent and nearby properties that could affect project residents, land uses typically producing objectionable odors include agricultural uses, wastewater treatment facilities, waste-disposal facilities, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. None of these uses are proposed as part of the project or located near the project site. Impacts would be less than significant.

4.2.5 CONCLUSION

As described above, the proposed project would be consistent with the 2017 Clean Air Plan and would not exceed BAAQMD's construction emissions thresholds with implementation of mitigation. The proposed project would be required to comply with BAAQMD Basic Construction Measures (refer to MM AQ-1) and BAAQMD Additional Construction Mitigation Measures (refer to MM AQ-2) and would be subject to applicable BAAQMD Regulations, such as Regulation 8 Rule 3: Architectural Coatings, Rule 15: Emulsified and Liquid Asphalts, and Regulation 9, Rule 8: Organic Compounds to further reduce specific construction-related emissions. Regulation 6, Rule 3: Wood-Burning Devices would limit emissions from wood-burning devices used for primary heat, supplemental heat or ambiance further reducing operational-related emissions. While project construction emissions would not exceed BAAQMD thresholds, operational NO_X emissions would remain above the corresponding BAAQMD threshold despite implementation of MM GHG-3 through MM GHG-6, MM GHG-8, and MM TR-4. The project's infill development and mix of uses are design features that would reduce mobile source emissions (including NO_X) and would ensure that operational emissions do not exceed BAAQMD thresholds (except of NO_x). However, as the proposed project's operational NO_x emissions would exceed BAAQMD thresholds despite the implementation of project design features and mitigation measures, impacts would be considered significant and unavoidable.

[12] The California Supreme Court in a December 2015 opinion (*California Building Industry Association v. Bay Area Air Quality Management District,* 62 Cal. 4th 369 [No. S 213478]) confirmed that CEQA, with several specific exceptions, is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. As such, the analysis of odor impact to potential future residents is provided for informational purposes only.

The highest calculated carcinogenic health risk as a result of the project is 3.07 per million for 30-year exposure, which is below the 10 in one million threshold. Additionally, acute and chronic hazards would be 0.00 and 0.0007, respectively, which are below the hazard index threshold of 1.0. Therefore, impacts related to cancer risk and hazards from mobile sources would be less than significant at the project site.

4.2.6 CUMULATIVE IMPACTS

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from vehicular traffic that can travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for a project's air quality analysis must be regional by nature.

BAAQMD CEQA Air Quality Guidelines do not include separate significance thresholds for cumulative operational emissions. However, with respect to regional air pollution, the development of the project would result in population growth that is consistent with the City's General Plan projections, and the GP is consistent with CAP. Therefore, the project would be consistent with the 2017 Clean Air Plan that uses ABAG population forecasts. Additionally, the project includes numerous design features and mitigation measures to reduce VMT. The project proposes commercial and residential land uses (with open space) adjacent to existing residential and commercial uses and within three miles to downtown Vallejo. The proposed project also incorporates sidewalks, paseos, and a trail designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space. MM GHG-3 (Chapter 4.6, Greenhouse Gas) would also implement a Transportation Demand Management (TDM) program for residential and non-residential uses to decrease the dependence on single-occupant vehicles and facilitate the use of transit.

As described in Impact Statement AQ-1, above, the project would also be consistent with the appropriate 2017 Clean Air Plan control measures, which are provided to reduce air quality emissions for the entire Bay Area region. However, the discussion in Impact Statement AQ-2 shows that NO_X emissions would exceed BAAQMD operational thresholds despite mitigation, which would also trigger a cumulative impact. BAAQMD CEQA Air Quality Guidelines note that the nature of air emissions is largely a cumulative impact. Although no single project is sufficient in size by itself to result in nonattainment of ambient air quality standards, the project's individual emissions would potentially contribute to existing cumulatively significant adverse air quality impacts. Consistency with the 2017 Clean Air Plan control measures would help mitigate these effects. However, as operational NO_X emissions would be exceeded, cumulative impacts would be considered significant and unavoidable.

4.2.7 REFERENCES

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4.3 BIOLOGICAL RESOURCES

This section of the Environmental Impact Report (EIR) presents information on biological resources conditions in the project site. The current condition and quality of biological resources was used as the baseline against which to compare potential impacts of the proposed project. Where additional information has been used to evaluate the potential impacts, that information has been referenced. The following analysis of the potential impacts to biological resources is derived primarily from studies that include a biological assessment and delineation of waters on the project site. The reports were initially prepared by WRA Consultants (WRA) in September 2017 and updated January 2019. The reports are summarized in the following discussion, listed below, and included as Appendix D to this EIR.

- Biological Resources Assessment, WRA, September 2017 and January 2019.
- Delineation of Waters of the U.S. Report, WRA, September 2017 and January 2019.

4.3.1 ENVIRONMENTAL SETTING

REGIONAL SETTING

The City of Vallejo is located along the east margin of San Pablo Bay, a northeastern lobe of San Francisco Bay. The topography in Vallejo is varied, ranging from flat-lying areas such as marsh and estuarine. The environment along Mare Island and parts of the east margin of the Napa River includes gently sloping terrain in the central part of the City (especially the area flanking I-80 north of Curtola Parkway), hillier terrain that dominates the east-central and northeast parts of the City and include the East Bay Hills and Briones Hills to the southwest, the Vaca Mountains and Napa Valley to the north, and the Diablo Ranges to the southeast. Elevations range from near sea level on the shores of the Carquinez Strait to nearly 1,000 feet above mean sea level along the crest of Sulphur Springs Mountain in the northeast part of the City.

The 51.3-acre project site is currently undeveloped, vacant land. The proposed project site is located southeast of the intersection of Turner Parkway and Admiral Callaghan Lane. The project site is bordered by areas developed with predominantly commercial uses to the north and residential uses to the east and south. Although the site is now fenced along the northern edge on Turner Parkway, unauthorized access can still occur on the western edge of the property, and the site is illegally used by people for temporary campsites which have caused localized brush fires. In addition, ground disturbance, caused by excavation and other earth-moving activities occurred in the northern portion of the project site. As a result of this construction activity, several small depressions were created in the property.

The majority of the site (over 44 acres) is covered in non-native annual grassland with some elements of mixed woodland and coyote brush scrub intermixed. Plant species observed on the project site are predominantly non-native annual grasses and herbaceous species typical of disturbed sites. A seasonal wetland swale complex is present at the base of the small hills that are approximately 35 feet higher than

the majority of the project site. The project site also contains a small portion of Blue Rock Springs Creek, a perennial stream, which runs east to west in the southwestern corner of the site.

BASELINE DATA COLLECTION

Literature Search and Review of Existing Data

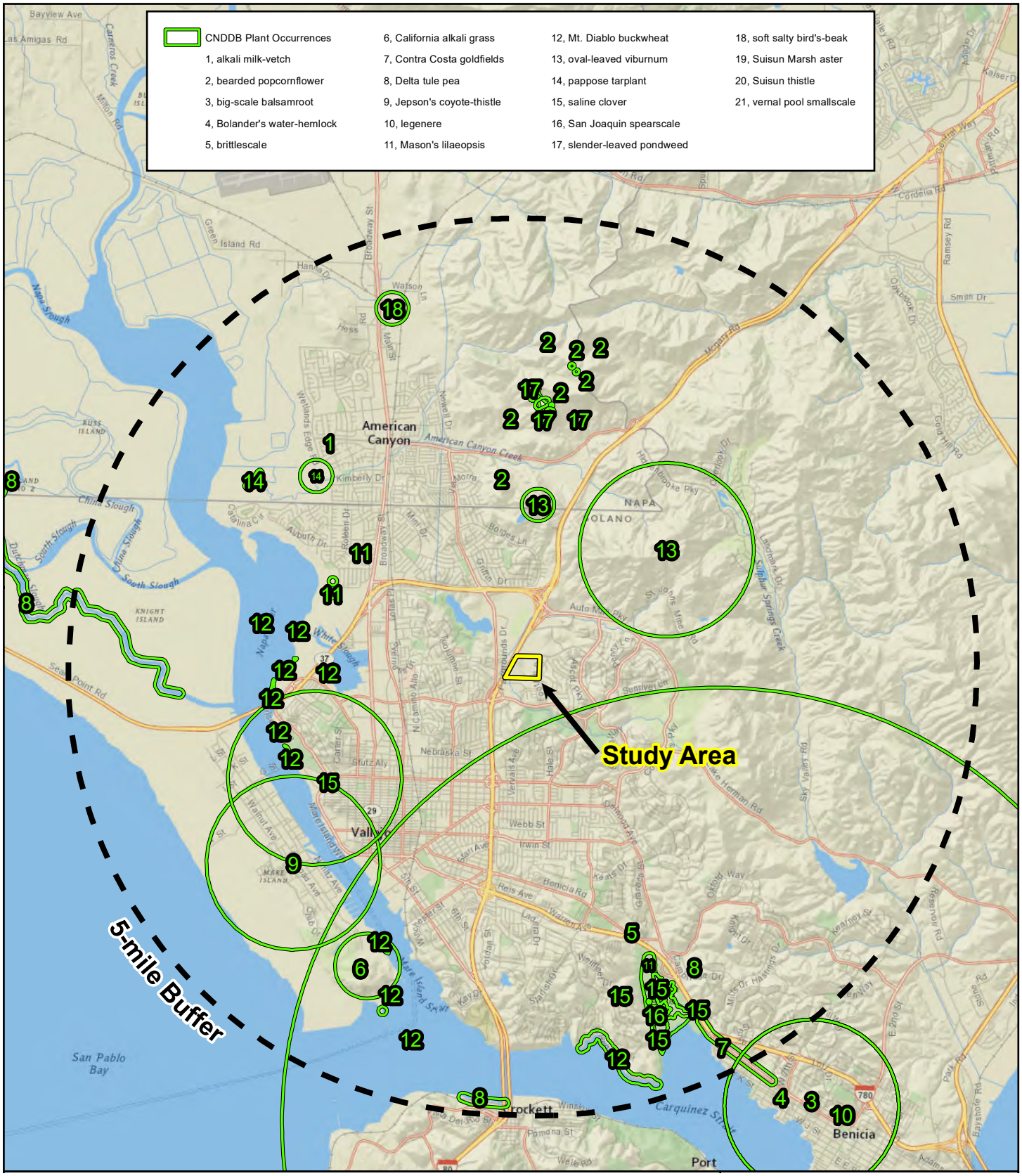
The assessment of biological resources for the proposed project began with a review of all available documents and species and habitat data provided by the Project Applicant, United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and other agencies. Biological resource data sources included, but were not limited to, the following:

- California Natural Diversity Database records
- USFWS Information for Planning and Conservation Species
- CDFW California Wildlife Habitat Relationships database species accounts and range maps
- California Amphibian and Reptile Species of Special Concern
- California Bird Species of Special Concern
- California Native Plant Society Inventory records
- Draft update of the Terrestrial Mammal Species of Special Concern in California
- eBird Online Bird Occurrence Database
- Western Bat Working Group species accounts
- Breeding Bird Atlas of Solano County
- Xerces Society for Invertebrate Conservation Species Accounts

Biological Communities

Literature Search

Based on review of the California Natural Diversity Database (CNDDB), 67 special-status plant species have been documented within a 5-mile radius of the project site. These locations are shown in **Figure 4.3-1: Special Status Plant Species Within Five Miles.** Of those species, it was determined that 37 have no potential to occur at the project site; 29 species are unlikely to occur; and one species has moderate potential to occur. The 37 species that have no potential to occur require habitat elements that are absent from the site such as tidal marshes, chaparral, vernal pools, chenopod scrub, and serpentine substrate. For the 29 species determined to be unlikely to occur at the site, some elements of suitable habitat may be present (e.g., grassland, seasonal wetland, coastal scrub). However, because of the high disturbance levels surrounding the site and the generally degraded condition of habitat on the project site, these species are unlikely to occur on the site. A list of all species considered but rejected and the reasoning for their rejection is provided in Appendix D.



Source: WRA, 2019

FIGURE 4.3-1: Special Status Plant Species Within Five Miles
Fairview at Northgate Project

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Non-sensitive biological communities observed in the project site included non-native annual grassland and coyote brush scrub. Additionally, three sensitive biological communities were observed in the project site: perennial stream, seasonal wetland swale, and anthropogenic depressions.

Site Surveys

Reconnaissance-level surveys of land cover, conducted on March 18 and May 3, 2017 by WRA identified five biological communities on the project site: non-native annual grassland, coyote brush scrub, perennial stream, seasonal wetland swale, and anthropogenic depression. This community is shown on **Figure 4.3-2: Biological Communities.** A special-status plant survey was also conducted simultaneously with the biological resources assessment and is discussed below.

Non-Sensitive Biological Communities

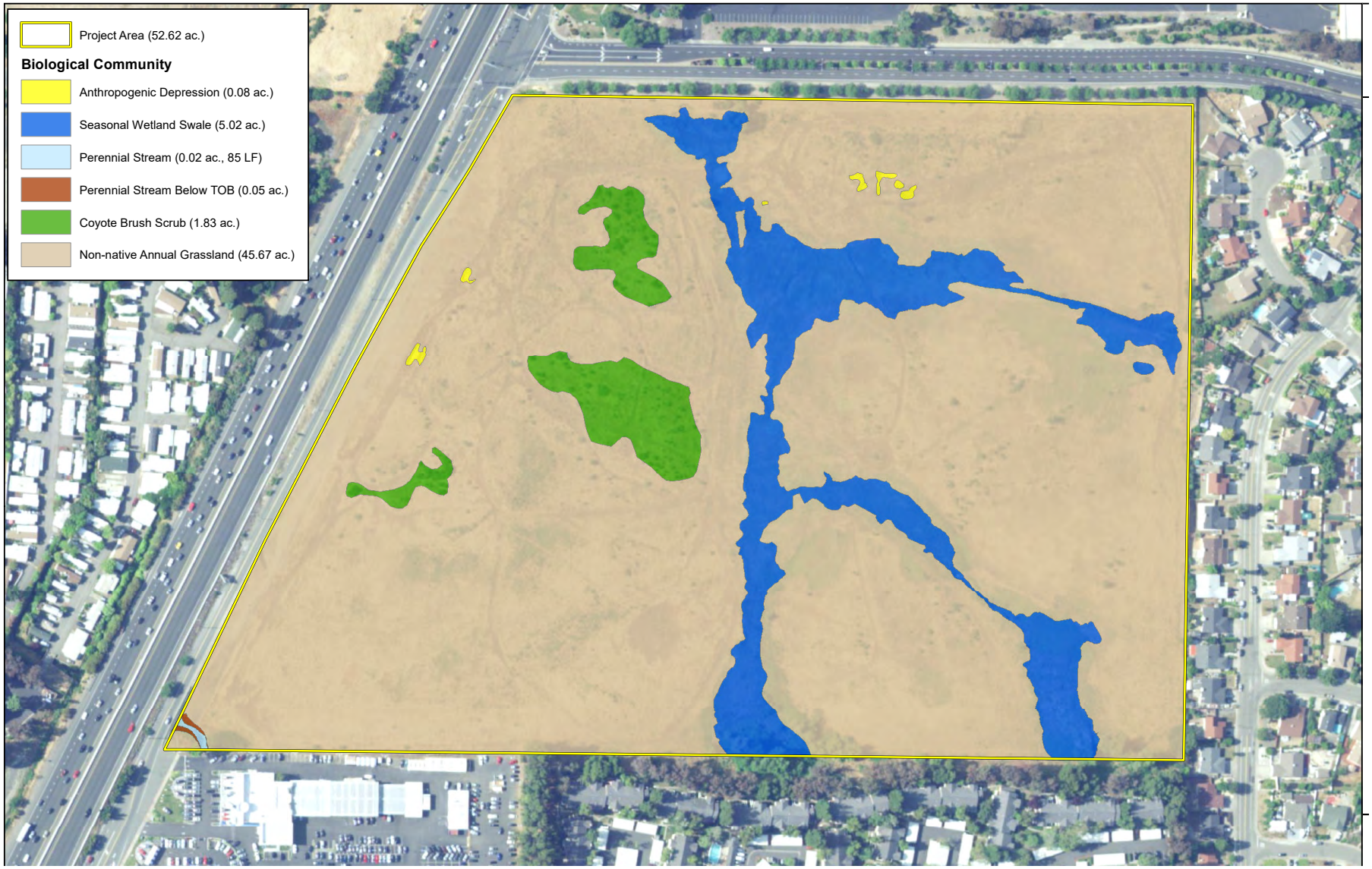
Non-Native Annual Grassland (45.67 acres)

Non-native annual grassland occupies the majority of the project site in drier areas on all aspects and slopes. The dominant species observed on this community were Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), seaside barley (*Hordeum marinum*), foxtail barley (*Hordeum murinum*), and slender oat grass (*Avena barbata*). Indian teasel (*Dipsacus sativus*), sweet fennel (*Foeniculum vulgare*), curly dock (*Rumex crispus*), spring vetch (*Vicia sativa*), and bristly ox tongue (*Helminthotheca echioides*) were observed mixed on the stands of annual grasses. Very few native species were observed on the non-native annual grasslands, and they occurred at extremely low cover. Native species observed included narrow leaf mule ears (*Wyethia angustifolia*) and white brodiaea (*Triteleia hyacinthina*).

Coyote Brush Scrub (1.83 acres)

Coyote brush scrub (*Baccharis pilularis*) is known from the outer Coast Ranges and Sierra Nevada Foothills from Del Norte County south to San Diego County. This vegetation alliance is typically located on river mouths, riparian areas, terraces, stabilized dunes, coastal bluffs, open hillsides, and ridgelines on all aspects underlain by variable substrate of sand to clay. These scrubs are located primarily on mid- to high-slopes on north-facing aspects, predominantly underlain by rocky loam substrate.

On the project site, the dominant species in the shrub layer is coyote brush with isolated individuals of toyon (*Heteromeles arbutifolia*) and cherry plum (*Prunus cerasifera*). Herbaceous cover is dominated by non-native herbs including soft chess, Italian rye grass, ripgut brome, foxtail barely, and slender oat grass. In lesser abundance, sweet fennel, purple vetch (*Vicia benghalensis*), short podded mustard (*Hirschfeldia incana*), Mediterranean lineseed (*Bellardia trixago*), purple salsify (*Tragopogon porrifolius*) were present.



Source: WRA, 2019

FIGURE 4.3-2: Biological Communities
Fairview at Northgate Project

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Sensitive Biological Communities

Perennial Stream (0.02 acre [0.05-acre below top-of-bank])

The perennial stream on the project site is comprised of a small (approximately 85 linear feet) portion of Blue Rock Springs Creek, which is located in the southwestern corner of the project site. Perennial streams are considered sensitive under the State CEQA Guidelines and are regulated by the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), and CDFW. The primary source of water for the perennial stream is storm water and other runoff from the surrounding developed lands. The stream enters the project site from the south through a culvert that runs under the automobile dealership. It exits the project site to the west through a culvert under Admiral Callaghan Lane. Sparse vegetation is present along the fringes of Blue Rock Springs Creek below the Ordinary High-Water Mark (OHWM), but the feature is generally unvegetated. Indicators of OHWM are present, including a clear bed and bank. The perennial stream on the project site is assumed to drain into receiving waters that are Jurisdictional Waters of the U.S. and therefore, is expected to be considered jurisdictional under Section 404 of the Clean Water Act (CWA). Areas below the top of bank are expected to be considered jurisdictional by CDFW.

Seasonal Wetland Swale (5.02 acres)

A seasonal wetland swale is present in the low, flat areas at the base of the hills on the project site. The wetland consists of a number of connected swales that flow into the eastern portion of the site from the surrounding urbanized areas and then flow off the project site through a culvert to the north. The wetlands are characterized by hydrophytic vegetation[1] but they have been extensively disturbed by a still visible previously made network of off-road vehicle pathways and tire ruts resulting from unauthorized off-road vehicle activity. The wettest portions of the swales are generally at their upper ends, near the southern and eastern project site boundary, where they enter from the surrounding residential developments and are dominated by obligate[2] and facultative[3] perennial wetland species including cattails, bulrushes (*Bolboschoenus sp*.), and iris-leaved rush (*Juncus xiphioides*). Drier portions of the wetland swale are dominated by annual facultative and facultative wetland species including salt grass (*Distichlis spicata*), Italian ryegrass, curly dock, rabbit's foot grass, bristly ox-tongue, and creeping wildrye (*Elymus triticoides*). Occasional red willows (*Salix laevigata*) are present, particularly along the southern boundary of the project site; as well as oak trees including coast live oak (*Quercus agrifolia var. Agrifolia*) and the non-native Holly Oak (*Quercus ilex*), but the wetlands are generally treeless.

Seasonal wetland swales on the project site were mapped primarily based on vegetation signatures observed on foot during the field visit in May 2017. On-site seasonal wetland swales met the three

[1] Hydrophytic Vegetation - Any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats (USACE, 1987).

[2] Obligate - Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability <1 percent) in non-wetlands.

[3] Facultative- Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in nonwetlands.

wetland criteria and are assumed to drain into receiving waters that are jurisdictional Waters of the U.S. and therefore, are expected to be considered jurisdictional under Section 404 of the CWA.

Anthropogenic Depression (0.08 acre)

Within the non-native annual grassland, several anthropogenic depressions and tire ruts caused by unauthorized off-road vehicle and excavation activity were observed in the north-central and west portions of the project site. The depressions are seasonally inundated and are typically characterized by annual species such as seaside barley, Italian ryegrass, rabbit's foot grass (*Polypogon monspeliensis*), and waxy mannagrass (*Glyceria declinata*); some depressions support perennial species such as iris-leaved rush and cattails. Although the excavations and tire ruts are manmade in otherwise upland areas, anthropogenic depressions in the project site met the three wetland criteria and are assumed to drain into receiving waters that are jurisdictional Waters of the U.S. They are therefore expected to be considered jurisdictional under Section 404 of the CWA.

Special-Status Plant Species

Species with Potential to Occur on the Project Site

One special-status species was determined to have a moderate potential to occur in the project site based on distribution and on-site habitat: coast iris (*Iris longipetala*). The potential for this species to occur in the project site and the results of the protocol-level plant survey for this species are discussed below.

Coast Iris

Coast iris (*Iris longipetala*) has a moderate potential to occur on the project site but was not observed during site visits conducted by WRA. Coast iris is a perennial rhizomatous herb in the iris family (*Iridaceae*). It typically occurs in mesic coastal prairie, lower montane coniferous forest, and meadows and seeps habitats at elevations ranging from 0 to 1,970 feet. Typically observed associated species include coast redwood (*Sequoia sempervirens*), California bay (*Umbellularia californica*), rattlesnake grass (*Briza maxima*), slender wild oat, soft chess, and purple needlegrass (*Stipa pulchra*).

The nearest documented occurrence of this species is approximately 6.5 miles northeast of the project site on a grassy slope in a somewhat disturbed area. Coast iris has a moderate potential to occur in the non-native annual grassland and coyote brush scrub communities on the project site due to the relatively close proximity of the nearest occurrence and suitable grassland and open scrub habitats.

During the May 2017 site visit, meandering transects were walked throughout all grassland and coyote brush scrub habitat on the project site; coast iris was not observed. The only iris species observed on the project site was a non-native ornamental iris species located near the mixed woodland habitat. The site visit occurred during the published blooming period of coast iris and this species was observed at a reference site prior to the site visit. As such, coast iris is assumed to be absent from the project site.

Special Status Wildlife Species

Literature Search

Based upon a review of the resources and databases, it was determined that 64 special-status wildlife species have been documented in the vicinity of the project site. Eight special-status wildlife species were determined to have a moderate to high potential to occur at the project site, and one special-status wildlife species has been observed at the site during the WRA site visits. **Figure 4.3-3: Special Status Wildlife Species Within Five Miles**, shows these locations graphically.

Of the 64 special-status wildlife species, it was determined that 36 species have no potential to occur at the site, 19 species are unlikely to occur, and 8 species have moderate potential to occur. One special-status bird species, Allen's hummingbird (*Selasphorus sasin*), was observed at the project site during WRA site visits, and also may nest on the site. These species and their potential to occur in the project site are discussed in greater detail below. The 36 species that have no potential to occur require habitat elements that are absent from the site such as tidal marshes, chaparral, streams connected to Bay waters that would allow for fish passage, dense riparian vegetation, large expanses of open grasslands, woodlands, forests, sandy beaches, salt ponds, vernal pools, or alkali flats. For the 21 species determined to be unlikely to occur at the site, some elements of suitable habitat may be present (e.g., freshwater marsh). However, the high disturbance levels surrounding the site, the generally degraded condition of habitat, and lack of connectivity preclude their presence and/or inhabitation of the site. Eight special-status bird species were determined to have a moderate or high potential to occur and nest on or immediately adjacent to the project site:

- white-tailed kite (*Elanus leucurus*),
- northern harrier (*Circus cyaneus*),
- Nuttall's woodpecker (*Picoides nuttallii*),
- oak titmouse (*Baeolophus inornatus*),
- loggerhead shrike (*Lanius ludovicianus*),
- Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*),
- Samuel's song sparrow (*Melospiza melodia samuelis*), and
- San Francisco common yellowthroat (*Geothlypis trichas sinuosa*).

Wildlife Surveys

Site visits conducted on March 18 and May 3, 2017 by WRA identified habitat conditions in order to evaluate the potential for special-status plant or wildlife species to occur there. Protocol-level surveys for the federal threatened California red-legged frog (CRLF; *Rana draytonii*) were completed as of July 12, 2017; no life-stage of CRLF or CRLF habitat was determined to be present.

Source: WRA, 2019

FIGURE 4.3-3: Special Status Wildlife Species Within Five Miles
Fairview at Northgate Project

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Species with Potential to Occur in the Project Site or Documented as Present

Eight special-status bird species were determined to have a moderate or high potential to occur and nest on or immediately adjacent to the project site: white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), Nuttall's woodpecker (*Picoides nuttallii*), oak titmouse (*Baeolophus inornatus*), loggerhead shrike (*Lanius ludovicianus*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), Samuel's song sparrow *(Melospiza melodia samuelis),* and San Francisco common yellowthroat *(Geothlypis trichas sinuosa).*

White-Tailed Kite

White-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected Species with a moderate potential to occur at the project site. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities. Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall. This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. The project site contains open grassland habitats suitable for foraging for this species. Large bushes and trees on the project site may also support nesting, although the project site is surrounded by development and thus the potential for nesting may be reduced. This species has not yet been observed at the site.

Northern Harrier

Northern harrier (*Circus cyaneus*) is a CDFW Species of Special Concern with a moderate potential to occur on the project site. The northern harrier occurs as a resident and winter visitor in open habitats throughout most of California, including freshwater and brackish marshes, grasslands and fields, agricultural areas, and deserts. Harriers typically nest in treeless areas in patches of dense, relatively tall, vegetation, the composition of which is highly variable; nests are placed on the ground and often located near water or in wetlands. Harriers are birds of prey and subsist on a variety of small mammals and other vertebrates. The project site contains open grasslands mixed with seasonal wetlands, which provide foraging habitat for this species. Additionally, this species may nest in dense upland vegetation on the site, although regular mowing may reduce this potential. This species has not been observed at the project site.

Nuttall's Woodpecker

Nuttall's woodpecker (*Picoides nuttallii*) is a USFWS Bird of Conservation Concern with a moderate potential to occur at the project site. Nuttall's Woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas. Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. Nuttall's woodpecker also occurs in older residential settings and orchards where trees provide suitable foraging and nesting habitat. This species forages on a variety of arboreal invertebrates. This species is relatively common, even in developed areas, and the southern section of the project site contains

oaks and other trees that may contain cavities suitable for nesting. This species has not yet been observed at the site.

Oak Titmouse

Oak titmouse (*Baeolophus inornatus*) is a USFWS Bird of Conservation Concern with a moderate potential to occur. This relatively common species is year-round resident throughout much of California including most of the coastal slope, the Central Valley and the western Sierra Nevada foothills. In addition, the species may also occur in residential settings where landscaping provides foraging and nesting habitat. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas. The oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own. Seeds and arboreal invertebrates make up the birds' diet. This species is relatively common, even at developed areas, and the southern section of the project site contains oaks and other trees that may contain cavities suitable for nesting. This species has not been observed at the project site.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is a CDFW Species of Special Concern and a USFWS Bird of Conservation Concern with a moderate potential to occur on the project site. The loggerhead shrike is a year-round resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled for storagepurposes on suitable substrates, including thorns or spikes on vegetation, and barbed wire fences. Nests in trees and large shrubs; nests are usually placed three to ten feet off the ground. The project site contains suitable foraging habitat for the species, and patches of dense trees and shrubs may be suitable for nesting. This species has not been observed on the project site.

Bryant's Savannah Sparrow

Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*) is a CDFW Species of Special Concern with a moderate potential to occur on the project site. This subspecies of the common and widespread savannah sparrow is a year-round resident of the coastal California fog belt. It typically occupies upper tidally-influenced habitats, often found where wetland communities merge into grassland. Nesting occurs in vegetation on or near the ground, including along roads, levees, and canals. Like most sparrows, Bryant's consumes primarily invertebrates and vegetable matter (e.g., seeds). The project site is within this subspecies' range and contains grasslands near wetlands that may support foraging and nesting for this subspecies. This species has not been observed at the project site.

Samuels Song Sparrow

Samuels song sparrow (*Melospiza melodia samuelis*) is a CDFW Species of Special Concern and a USFWS Bird of Conservation Concern with a moderate potential to occur on the project site. Also known as the San Pablo song sparrow, this subspecies of the common and widespread song sparrow is endemic to tidal

and semi-tidal marshes of San Pablo Bay and northern San Francisco Bay. The essential habitat requirement is dense, taller emergent and herbaceous vegetation, particularly in the upper marsh plain; high-quality habitat tends to include woody shrubs in the upper marsh and adjacent transitional areas. Nests are placed in dense vegetative cover, and invertebrates compose most of the diet. The project site is within this subspecies' home range and contains wetland vegetation that may support foraging and nesting for this subspecies, although it is not the primary salt marsh habitat. This species has not been observed at the project site.

San Francisco Common Yellowthroat

San Francisco (saltmarsh) common yellowthroat (*Geothlypis trichas sinuosa*) is a USFWS Bird of Conservation Concern and a CDFW Species of Special Concern with a moderate potential to occur at the project site. This subspecies of the common yellowthroat is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. Their breeding range extends from Tomales Bay in the north, Carquinez Strait to the east, and Santa Cruz County to the south. This species requires thick, continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting. The project site is within this subspecies' range and contains emergent dense wetland vegetation suitable for foraging and nesting. This species has not been observed at the project site.

Allen's Hummingbird

Allen's hummingbird (*Selasphorus sasin*) is a USFWS Bird of Conservation Concern that is present in the vicinity of the project area and has been observed on the project site. Allen's hummingbird, common in many portions of its range, is a summer resident along the majority of California's coast and a year-round resident in portions of coastal southern California and the Channel Islands. Breeding occurs in association with the coastal fog belt,and typical habitats used include coastal scrub, riparian, woodland and forest edges, and eucalyptus and cypress groves. It feeds on nectar, as well as insects and spiders. One individual was observed in the project area during a WRA survey in March 2017. This species breeds in Solano County and the project site contains dense vegetation to support nesting along its southern perimeter.

California Red-Legged Frog

CRLF (*Rana draytonii*) is listed as threatened under the ESA and is a California Species of Special Concern. CRLF is dependent on suitable aquatic, elevation, estivation[4], and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse away from their estivation sites to seek suitable breeding habitat. Aquatic and breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April. CRLF can be found during the dry months in small mammal burrows, moist leaf litter, incised stream channels, and large cracks in the bottom of dried ponds.

[4] Estivation is very similar to hibernation, when some mammals spend the winter moving very little and sleeping a lot, in order to save energy (vocabulary.com, 2019).

CRLF is known from the open ranchlands to the north and east of the project site. One occurrence of CRLF has been documented approximately 0.9-mile northeast of the project site, opposite a large commercial shopping center, residential development, and several major arterial roads. CRLF has not been detected nor is expected to occur on the project site. A CRLF survey conducted by Olberding Environmental in June 2016 did not detect any CRLF in the area; WRA completed protocol-level surveys per USFWS guidance and no life-stage of CRLF was detected.

In addition to these surveys, the project site does not contain any habitat capable of supporting CRLF, and the site is surrounded by complete barriers to dispersal, therefore CRLF is unlikely to occur. The site supports several acres of seasonal wetland swale that results from non-point source storm run-off from surrounding residential and commercial developments. The project site contains a small (85 feet) day-lighted section of Blue Rock Springs Creek in the far southwestern corner. CRLF are not known to occur in this creek and it is not hydrologically connected to any known CRLF aquatic habitats. Finally, this section of creek was sampled for CRLF environmental DNA on May 31, 2017. Based on the laboratory analysis of these samples, CRLF was determined to be absent upstream and downstream of the project site. The 2016 CRLF survey noted that site conditions were dry in June of that year. Furthermore, in 2017, a year where precipitation exceeded 150 percent of average, the wetlands features were observed to be completely dry in May, when CRLF young would still be dependent on water prior to metamorphosis. Therefore, there are no wetlands on the site that can support CRLF habitation.

No dispersal corridors are present that would allow CRLF to immigrate to, or emigrate from, the project site. The project site is bordered by roadways and residential and commercial development. All of these features represent complete barriers to dispersal and prevent ingress to or egress from the project site. Because the site lacks aquatic habitat, even in a very wet year, and there is no potential for overland dispersal, and the species appears to be absent from the site, CRLF are not expected to occur on the project site.

CRITICAL HABITAT AND ESSENTIAL FISH HABITAT

The project site does not contain designated Critical Habitat for any listed species. The project site is also not connected to a natural watercourse and therefore has no potential to impact migratory fish or other special-status fish species; additionally, the site does not contain Essential Fish Habitat. Blue Rock Springs Creek crosses the southwest boundary of the project site, subsequently undergrounds downstream, and is thus not accessible by migrating special-status fish.

Jurisdictional Waters

Field surveys were conducted by WRA on May 3 and 17, 2017 to determine jurisdictional delineation under Section 404 of the CWA. The project site was evaluated for the presence or absence of indicators of the three wetland parameters described in the U.S. Army Corps Wetlands Delineation Manual (Corps Manual) and the Arid West Supplement.

The three parameters used to delineate wetlands are the presence of: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

> "...evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

The surveys also evaluated the presence of "Waters of the U.S." other than wetlands potentially subject to Corps jurisdiction under Section 404 of the CWA. Other areas, besides wetlands, subject to Corps jurisdiction include lakes, rivers, and streams (including intermittent streams) in addition to all areas below the high tide line in areas subject to tidal influence. Jurisdiction in non-tidal areas extends to the OHWM defined as:

> "...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

The Arid West Supplement includes recommended procedures for completing wetland delineations in areas of "difficult wetland situations." The Corps Manual describes "problem areas," defined as naturally occurring wetland types which periodically lack wetland indicators due to normal seasonal or annual variability.

The project site contains two wetland categories: seasonal wetland stream and anthropogenic depressions. All wetlands mapped on the project site are likely to be considered jurisdictional by the Corps as they all drain (or would potentially drain) to the San Francisco Bay, a navigable waterway. The jurisdictional wetlands are shown in **Figure 4.3-4: Jurisdictional Waters of the U.S**.

Seasonal Wetlands

Seasonal wetland swales at the project site meet the three wetland criteria and are assumed to drain into receiving waters that are jurisdictional Waters of the U.S. and therefore, are expected to be considered jurisdictional under Section 404 of the CWA.

Anthropogenic Depressions

Excavations and tire ruts exist on the project site that were formed by extensive and regular off-road vehicle use and other forms of ground disturbance. Although the excavations and tire ruts are manmade on otherwise upland areas, Corps personnel indicated during a site visit that the Corps would claim jurisdiction over these features as Waters of the U.S. Therefore, anthropogenic depressions mapped on the project site are considered to be jurisdictional under Section 404 of the CWA.

Potentially Jurisdictional Features	
Seasonal Wetland Swale	**Acres**
W01	5.00
W02	0.02
Anthropogenic Depressions	**Acres**
AD01	0.02
AD02	0.01
AD03	0.00
AD04	0.01
AD05	0.02
AD06	0.01
AD07	0.01
Waters	**Acres/Linear Ft.**
S01	0.02/85
Total	5.12/85

Source: WRA, 2019

FIGURE 4.3-4: Jurisdictional Waters of the U.S.
Fairview at Northgate Project

Kimley»Horn

Potential Corps Jurisdiction

Based on the findings of the wetland delineation, the project site contains 5.10 acres of potentially jurisdictional wetlands and 0.02 acre (85 linear feet) of potentially jurisdictional non-wetland waters, as summarized in *Table 4.3-1: Summary of Potential CWA Section 404 Jurisdictional Areas*.

There are two wetland types delineated on the project site; seasonal wetland swale and anthropogenic depressions. Non-wetland waters were determined based on the presence of an OHWM; the one type of non-wetland waters delineated on the project site was a perennial stream.

Table 4.3-1: Summary of Potential CWA Section 404 Jurisdictional Areas

Feature Type (FGDC 2013)	Potential Jurisdictional Waters of the U.S. (acres/linear feet)
Potential Jurisdictional Section 404 Wetlands	
Seasonal Wetland Swale (PEM1)	5.02
Anthropogenic Depressions	0.08
Potential Jurisdictional Section 404 Non-wetland Waters	
Perennial Stream (R2UB)	0.02/85
Total Section 404 Jurisdictional Areas	5.12/85

Source: WRA, 2019.

4.3.2 REGULATORY SETTING

FEDERAL

Federal Endangered Species Act

The Federal Endangered Species Act (ESA) provisions protect federally listed threatened and endangered species and their habitats from unlawful take and ensure that federal actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Under the ESA, “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct.” USFWS regulations define harm to mean “an act which actually kills or injures wildlife.” Such an act “may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 CFR § 17.3).

Critical habitat is defined in Section 3(5)(A) of the ESA as “(i) the specific areas within the geographical area occupied by the species on which are found those physical or biological features (I) essential to the conservation of the species, and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species upon a determination by the Secretary of Commerce or the Secretary of the Interior that such areas are essential for the conservation of the species.” The effects analyses for designated critical habitat must consider the role of the critical habitat in both the continued survival and the eventual recovery (i.e., the conservation) of the species in

question, consistent with the recent Ninth Circuit judicial opinion, Gifford Pinchot Task Force v. United States Fish and Wildlife Service. Activities that may result in "take" of individuals are regulated by the USFWS. The USFWS produced an updated list of candidate species on December 6, 2007. Candidate species are not afforded any legal protection under ESA; however, candidate species typically receive special attention from federal and State agencies during the environmental review process.

Migratory Bird Treaty Act

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under both federal and State regulations. The Federal Migratory Bird Treaty Act (MBTA) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary. This act encompasses whole birds, parts of birds, and bird nests and eggs.

Regulated Habitats

Areas meeting the regulatory definition of "Waters of the U.S." (Jurisdictional Waters) are subject to the jurisdiction of the USACE under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U.S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3).

Construction activities within jurisdictional waters are regulated by the USACE. The placement of fill into such waters must comply with permit requirements of the USACE. No USACE permit would be effective in the absence of State water quality certification pursuant to Section 401 of the Clean Water Act. As a part of the permit process, the USACE works directly with the USFWS to assess project impacts on biological resources.

STATE

California Endangered Species Act

Provisions of the California Endangered Species Act (CESA) protect State-listed Threatened and Endangered species. CDFW regulates activities that may result in "take" of individuals ("take" means "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under CDFW Code. Additionally, the CDFW Code contains lists of vertebrate species designated as "fully protected" (§§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed.

In addition to federal and State-listed species, CDFW also has produced a list of Species of Special Concern to serve as a "watch list." Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special

Concern may receive special attention during environmental review, but they do not have statutory protection.

Birds of prey are protected under the CDFG Code. Section 3503.5 states it is "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto." Construction-related disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by CDFW. Under Sections 3503 and 3503.5 of the State Fish and Wildlife Code, activities that would result in the taking, possessing, or destroying of any birds-of-prey, taking or possessing of any migratory nongame bird as designated in the MBTA, or the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or non-game birds protected by the MBTA, or the taking of any non-game bird pursuant to CDFG Code Section 3800 are prohibited.

Regulated Habitats

The State Water Resources Control Board is the State agency (together with the RWQCB) charged with implementing water quality certification in California. The proposed project falls under the jurisdiction of both the Central Valley and San Francisco Bay RWQCBs.

The CDFW potentially extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS), and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife". Such areas of the proposed project were determined using methodology described in A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607.

Activities that result in the diversion or obstruction of the natural flow of a stream; or which substantially change its bed, channel, or bank; or which utilize any materials (including vegetation) from the streambed, may require that the project applicant enter into a Streambed Alteration Agreement with the CDFW.

LOCAL

Propel Vallejo General Plan 2040

Project relevant General Plan policies for biological resources are addressed in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below.

Policy NBW-1.1	Natural Resources. Protect and enhance hillsides, waterways, wetlands, occurrences of special-status species and sensitive natural communities, and aquatic and important wildlife habitat through land use decisions that avoid and mitigate potential environmental impacts on these resources to the extent feasible.

Action NBE-1.1A	Cooperate with federal, State, and local regulatory and stewardship agencies to promote the restoration and long-term sustainability of local natural resources, including wetlands and wildlife habitat at River Park.
Action NBE-1.1B	Continue to participate in the implementation of regional habitat conservation and restoration programs, including the Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan, and wetland restoration occurring in the Napa/Sonoma Marshes.
Action NBE-1.1C	Pursue habitat enhancement at South White Slough and River Park through mitigation banking and/or similar mechanisms, whereby developers contribute to the preservation, enhancement, restoration, or creation of a wetland, stream, or habitat conservation areas, which could offset environmental impacts on other sites.
Action NBE-1.1E	Protect the remaining woodlands and native tree resources, and require replacement plantings where native trees must be removed.
Action NBE-1.1F	Require a biological assessment for new development proposed on sites that are determined to have some potential to contain sensitive biological and wetland resources. The assessment should be conducted by a qualified professional to determine the presence or absence of any sensitive resources, should evaluate potential adverse effects, and should define measures for protecting the resources in compliance with State and federal laws. Detailed surveys are not necessary in locations where past and existing development have eliminated natural habitat and the potential for presence of sensitive biological resources.
Action NBE-1.1G	Avoid potential impacts on jurisdictional wetlands and other waters as part of new development to the maximum extent feasible. This should include streams and associated riparian habitat and coastal salt marsh habitat along the Vallejo shoreline. Where complete avoidance is not possible, require that appropriate authorizations be secured from State and federal jurisdictional agencies and that adequate replacement mitigation be provided to ensure there is no net loss in habitat acreage or values.
Policy NBE-1.2	Sensitive Resources. Ensure that adverse impacts on sensitive biological resources, including special-status species, sensitive natural communities, and wetlands are avoided and mitigated to the greatest extent feasible as development takes place.
Action NBE-1.2C	Protect the nests of raptors and other birds when in active use, as required by State and federal regulations. As part of new development, avoid disturbance to and loss of bird nests in active use by scheduling vegetation removal and new construction during the non-nesting season (September through February) or by conducting a preconstruction survey by a

	qualified biologist to confirm nests are absent or to define appropriate buffers until any young have successfully fledged the nest.
Action NBE-1.2D	Continue to require environmental review of development applications pursuant to CEQA to assess the potential impacts on native species and habitat diversity. Require adequate mitigation measures for ensuring the protection of sensitive resources and achieving “no net loss” of sensitive habitat acreage, values, and functions and encourage early consultation with all trustee agencies and agencies with review authority pursuant to CEQA for projects in areas supporting special-status species, sensitive natural communities, or wetland that may be adversely affected by new development.
Policy NBE-1.3	Interpretive Facilities. Encourage the development of facilities that provide education about local environmental resources and ecosystems.
Action NBE-1.3B	Work with landowners to facilitate assembly and retention of parcels of sufficient size to preserve valuable tidal marshes, seasonal marshes, managed wetlands and contiguous grassland areas for the protection of aquatic and wildlife habitat.
Action NBE-1.3C	Provide or encourage public access to natural resource areas where appropriate, to enhance environmental awareness as well as passive recreational opportunities.
Policy NBE-1.4	Waterway Restoration. Restore riparian corridors and waterways throughout the city.
Action NBE-1.4A	Collaborate with GVRD, Vallejo Sanitation & Flood Control District (VSFCD), and other partners to evaluate creek conditions and restoration opportunities, and to develop policies covering setbacks from creeks, damage prevention, stewardship, nuisance abatement, public access, and other community and environmental concerns.

City of Vallejo Development Code

Section 10.12, Trees

Regulation of tree removal in the City is identified in Section 10.12 of the Development Code. The ordinance defines a “significant tree” as any tree or stand of trees on private property having either a height of twenty-five feet measured above ground level, or a diameter of ten inches. A "street tree" is defined as any tree of any species or size planted in parkways, sidewalk areas, easements, and rights-of-way granted to the City. Section 10.12 of the City’s Development Code requires a permit prior to removal of any street tree or significant tree.

The Solano Multi-Species Habitat Conservation Plan

The City of Vallejo is a participant in preparation of the Solano Multi-Species Habitat Conservation Plan (HCP). The Solano HCP establishes a framework for complying with State and federal endangered species

regulations while accommodating future urban growth, development of infrastructure, and ongoing operations and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure undertaken by or under the permitting authority/control of the plan participants in Solano County over the next 30 years. There is no timeframe for when the Solano HCP will be adopted.

Other Applicable Regulations, Plans, and Standards

The mission of the California Native Plant Society (CNPS) Rare Plant Program is to develop current, accurate information on the distribution, ecology, and conservation status of California's rare and endangered plants, and to use this information to promote science-based plant conservation in California. Once a species has been identified as being of potential conservation concern, it is put through an extensive review process. Once a species has gone through the review process, information on all aspects of the species (listing status, habitat, distribution, threats, etc.) are entered into the online CNPS Inventory. The program currently recognizes more than 2,300 plant taxa (species, subspecies, and varieties) as rare or endangered in California.

Vascular plants listed as rare or endangered by the CNPS, but which might not have designated status under State endangered species legislation, are defined as follows:

- List 1A – Plants considered by the CNPS to be extinct in California
- List 1B – Plants rare, threatened, or endangered in California and elsewhere
- List 2 – Plants rare, threatened, or endangered in California, but more numerous elsewhere
- List 3 – Plants about which we need more information – a review list
- List 4 – Plants of limited distribution – a watch list

In addition to the list designations above, the CNPS adds a Threat Rank as an extension added onto the CNPS List and designates the level of endangerment by a 1 to 3 ranking, with 1 being the most endangered and 3 being the least endangered and are described as follows:

- 0.1 – Seriously threatened in California (high degree/immediacy of threat)
- 0.2 – Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 – Not very threatened in California (low degree/immediacy of threats or no current threats known

The combined definition and Threat Rank (such as 1B.1) provide an overall classification of the species.

4.3.3 STANDARDS OF SIGNIFICANCE

Appendix G of the State CEQA Guidelines provides a checklist of potential impacts to consider when analyzing the significance of project effects. The impacts listed in Appendix G may or may not be significant, depending on the level of the impact. For biological resources, these impacts include whether the project would:

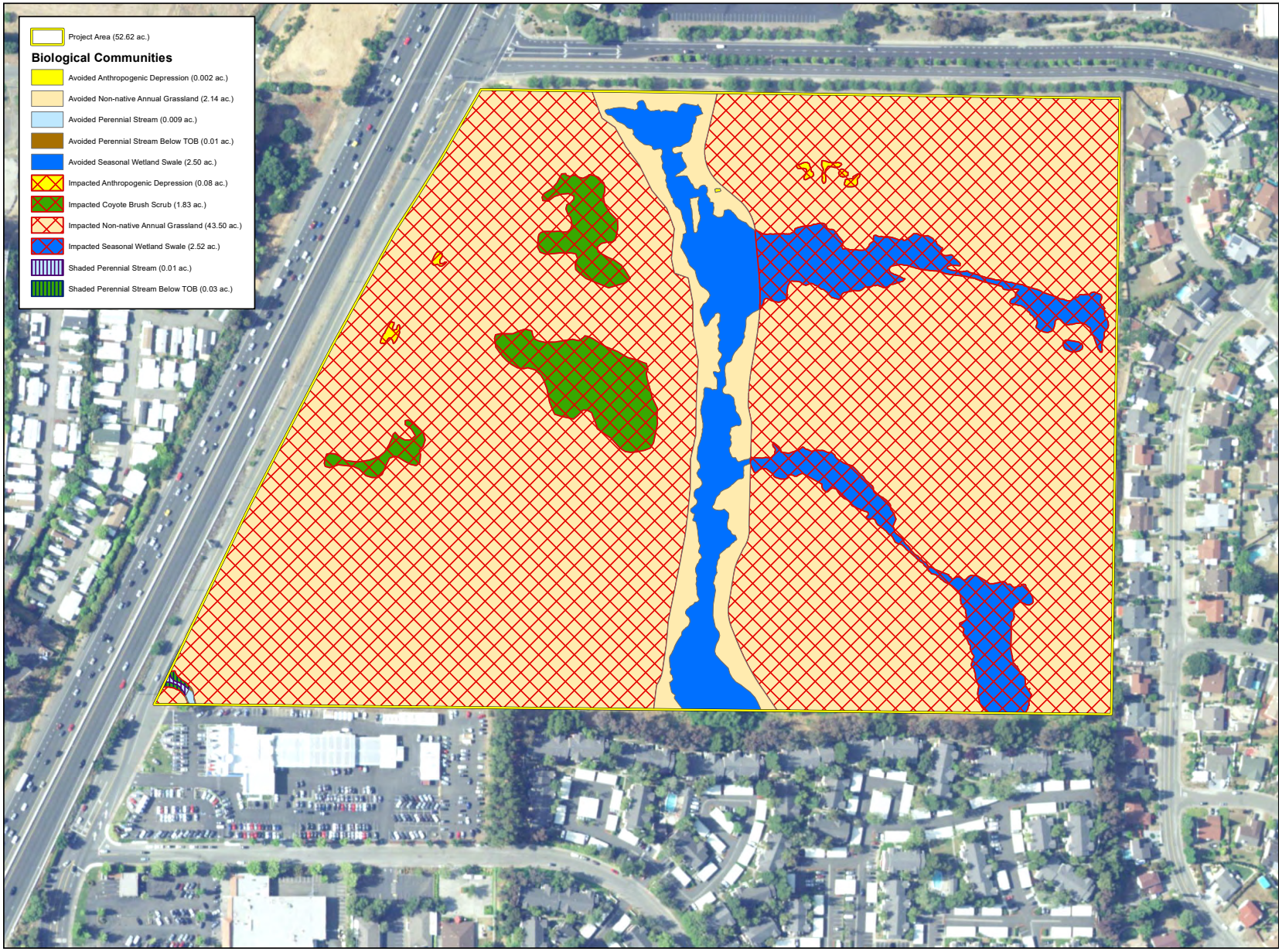
- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.
- 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.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 PROJECT IMPACTS AND MITIGATION

Potential impacts on existing biological resources were evaluated by comparing the quantity and quality of habitats present on the 51.3-acre project site under baseline conditions to the anticipated conditions after implementation of proposed project activities. Direct and indirect impacts on special-status species and sensitive natural communities were assessed based on the potential for the species, their habitat, or the natural community in question to be disturbed or enhanced by construction or operation of the proposed project. Project impacts on the biological communities onsite are shown in **Figure 4.3-5: Impacts on Biological Communities.**

IMPACT BIO-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 PLANS, POLICIES, OR REGULATIONS, OR BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME OR U.S. FISH AND WILDLIFE SERVICE?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The project site has a moderate potential to support one special-status plant species, the coast iris. Following observation of this species blooming at a nearby reference site, a protocol-level plant survey was conducted on the project site; however, no coast iris individuals were documented. As such, coast iris was found to be absent from the project site, and no avoidance and minimization measures are recommended for this species.



Source: WRA, 2019

FIGURE 4.3-5: Impacts on Biological Communities
Fairview at Northgate Project

Kimley»Horn

The project site has a moderate to high potential to support nesting habitat for eight special-status bird species: white-tailed kite, northern harrier, Nuttall's woodpecker, oak titmouse, loggerhead shrike, Bryant's savannah sparrow, Samuel's song sparrow, and San Francisco common yellowthroat. In addition, a special-status bird was observed during the May visit: Allen's hummingbird. The project site has potential to support common bird species protected by the Migratory Bird Treaty Act and California Fish and Game Code. Activities that result in the removal of active nests (nests containing eggs and/or young) or disturbance to nesting birds sufficient to result in the abandonment of active nests may be considered a significant impact under the State CEQA Guidelines and a violation of the Migratory Bird Treaty Act and the California Fish and Game Code. Based on these conditions, proposed project activities should be in accordance with Mitigation Measure BIO-1 to ensure impacts on special-status bird species are reduced to a less than significant level. Implementation of Mitigation Measure AES-1 would also reduce potential impacts on special status bird species by avoiding light spillover in the open space area.

Mitigation Measure:

MM BIO-1: **Nesting Birds.** Project activities should be initiated outside of the nesting season to the extent feasible (September 1 - January 31). However, if vegetation removal, grading, or initial ground-disturbing activities must be conducted during the nesting season, a pre-construction nesting bird survey shall be conducted by a qualified biologist prior to vegetation removal or initial ground disturbance. Nesting habitat may include grasslands, shrubs, trees, snags and open ground. The survey should be conducted in a sufficient area around the work site to identify the location and status of any nests that could potentially be affected by Project activities.

If active nests are found within the project limits of impact or close enough to these areas to affect breeding success, a work exclusion zone shall be established around each nest by a qualified biologist and confirmed by the City. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes vary dependent upon bird species, nest location, existing visual buffers and ambient sound levels, and other factors; an exclusion zone radius shall be a minimum of 25 feet (for common, disturbance-adapted species) or as large as 250 feet or more for raptors. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities outside the reduced radius are not adversely impacting the nest.

IMPACT BIO-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 GAME OR US FISH AND WILDLIFE SERVICE?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The project site contains three sensitive biological communities: perennial stream, anthropogenic depressions, and seasonal wetland swales. The project has been designed to avoid approximately 2.50 acres of seasonal wetlands in the central region of the project site; however, project activities would impact 2.52 acres of seasonal wetland swale and 0.08 acre of anthropogenic depression. Construction activities within the seasonal wetlands in the central part of the project site, the proposed open space area, would consist of a single span (temporary bridge) over the seasonal wetland. This span would allow graded soil to be transferred from the western portion of the project site to the eastern portion of the project site without trucks having to use local roadways. Additionally, this process would minimize dust pollutants and greenhouse gas emissions because trucks would be traveling the shortest possible distance. With the construction of a temporary span, grading activities would avoid any physical impacts to the wetlands in this area, but the coverage from the temporary span over the wetland would result in temporary impacts from shading. Construction of the Admiral Callaghan Lane roadway improvements would result in shading to 0.01-acre of perennial stream, in the southwestern corner of the project site, below the OHWM (0.03 acre below the top of bank).

Wetland swales and anthropogenic depressions are within the jurisdiction of the Corps under Section 404 of the CWA and the RWQCB under the Porter Cologne Act and Section 401 of the CWA. The perennial stream is jurisdictional by those agencies as well as the CDFW under Section 1602 of the California Fish and Game Code. Permits from these agencies will be required for work on or affecting wetlands and open water habitats. In addition, the existing PG&E gas line and portion of the existing sewer line that underlie the project site and would no longer be used would be abandoned in place. These lines would remain underground and no additional disturbance would occur. The applicant shall demonstrate compliance with these regulations through the implementation of Mitigation Measure BIO-2. In order to compensate for impacts to Waters of the U.S. and State, the applicant shall provide compensation in accordance with Mitigation Measure BIO-3. Implementation of Mitigation Measures BIO-4 and BIO-5 ensure that the wetland areas preserved onsite are not adversely impacted during project construction. Thus, with the implementation of Mitigation Measures BIO-2 through BIO-5, impacts on wetland habitats would be reduced to a less than significant level.

Mitigation Measures:

MM BIO-2: **Wetland Permits.** Prior to the approval of grading permits or improvement plans, the applicant shall provide, to the satisfaction of the Planning & Development Services Director, evidence that the U. S. Army Corps of Engineers (USACE) California Department of Fish and Wildlife (CDFW), and the San Francisco Regional Water Quality Control Board (RWQCB) have been notified in writing regarding the existence of wetlands on the property. Any permits required shall be obtained and copies submitted to the Director prior to any equipment staging, clearing, grading, or excavation work. The permit shall include authorization for temporary construction work within the wetland area.

MM BIO-3: **Wetland Compensation.** Prior to the approval of grading permits or improvement plans, the applicant shall submit to the satisfaction of the Planning & Development Services Director evidence that the following measures have been completed:

Provide written evidence that compensatory mitigation has been established through the purchase of mitigation credits at a qualified wetland mitigation bank established by and in agreement with the U. S. Army Corps of Engineers (USACE) and the San Francisco Regional Water Quality Control Board (RWQCB). The purchase of credits shall be a minimum of 1:1 or equal to the amount necessary as determined and by USACE and RWQCB to replace impacted jurisdictional wetlands including compensation for temporal loss in accordance with approved regulatory permits (e.g., Regional Water Quality Control Board Section 401 Water Quality Certification, US Army Corps of Engineers 404 Permit, and California Department of Fish and Game Section 1602 Lake and Streambed Alteration Agreement). The total amount of impacted jurisdictional wetlands, as determined by the regulatory agencies, shall be replaced in accordance with the total amount of impacted acreage.

MM BIO-4: **Construction Fencing.** Prior to approval of grading or improvement plans, the applicant shall submit to the satisfaction of the Planning & Development Services Director evidence that the following measures have been completed:

The grading or improvement plans shall identify the location of protective construction fencing. High visibility and silt fencing shall be erected at the edge of the construction/maintenance footprint if work is anticipated to occur within 50 feet of the preserved jurisdictional features and riparian areas. A qualified biologist shall be present during the fence installation and during any initial grading or vegetation clearing activities within 50 feet of jurisdictional features and riparian areas which are proposed for avoidance.

Temporary construction activities related to the transfer of graded soil material and equipment to and from the commercial and residential areas shall be described and included in the permit issued for grading and encroachment in the wetland area. The crossing shall be limited to a single span in a single location and shall not be moved during any grading activities. The span shall be fenced and marked and shall be removed at the earliest feasible time upon the completion of grading. The span shall be installed, operated, and removed to minimize disturbance to the wetland area to the maximum extent feasible.

MM BIO-5: **Construction Staging.** Prior to the approval of grading or improvement plans, the applicant shall submit to the satisfaction of the Planning & Development Services Director evidence that the following measures have been completed:

All equipment shall be stored, fueled and maintained in a vehicle staging area 300 feet (or the maximum distance possible) from any wetland feature. The staging area shall be no closer than 200 feet unless a bermed area is constructed between it and the wetland. Within the staging area the refueling areas shall be lined to prevent fuel contamination and hazardous-material absorbent pads shall be available in the event of a spill. The grading or improvement plans shall include a note clearly stating the requirements for the staging area distances, berming requirements, and use of liners in the refueling areas.

IMPACT BIO-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?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The project site contains two wetland categories, seasonal wetland stream and anthropogenic depressions. All wetlands mapped on the project site are likely to be considered jurisdictional by the Corps as they all drain (or would potentially drain) to the San Francisco Bay, a navigable waterway. Anthropogenic Depressions on the project site were formed by extensive and regular off-road vehicle use and other forms of ground disturbance. Although the excavations and tire ruts are manmade on otherwise upland sites, Corps personnel indicated during a site visit that the Corps would claim jurisdiction over these features as Waters of the U.S. Therefore, anthropogenic depressions mapped on the project site are considered to be jurisdictional under Section 404 of the CWA. Permits from the Corps under Section 404 of the CWA, the RWQCB under the Porter-Cologne Act and Section 401 of the CWA, and the CDFW under Section 1602 of the California Fish and Game Code would be required for work on or affecting wetlands and open water habitats. Compliance with Mitigation Measures BIO-2 through BIO-5 are required to mitigate impacts to protected wetlands. Thus, impacts would be reduced to a less than significant level with mitigation incorporated.

IMPACT BIO-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?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

Environmental corridors are segments of suitable habitat that provide connectivity between larger areas of suitable habitat, allowing species to disperse through otherwise unsuitable areas. On a broader level, corridors may also function as avenues along which wide-ranging animals can travel, plants can propagate, genetic interchange can occur, populations can move in response to environmental changes and natural disasters and threatened species can be replenished from other areas. In the project region, environmental corridors often consist of riparian areas along streams, rivers, or other natural features. In addition, the rivers and streams themselves may serve as migration corridors for fish and other aquatic species.

The project site is surrounded by existing single-family homes and other types of urban development. Therefore, activities associated with the proposed project would not result in fragmentation of natural habitats. The project site is also not connected to a natural watercourse and thus, has no potential to impact migratory fish or other special-status fish species, nor does the project site contain Essential Fish Habitat. Blue Rock Springs Creek crosses the southwest boundary of the project site, subsequently

undergrounds downstream, and is thus not accessible by in migrating special-status fish. Therefore, the proposed project would not interfere substantially with the movement of any native resident or migratory fish or nursery sites. As a result, impacts would be less than significant.

Migratory birds are protected under the MBTA and Sections 3500 and 4511 of the California Fish and Game Code which prohibit the "take" of migratory birds and their eggs, nests, or young. As previously discussed, the project site has the potential to support nesting for eight special-status bird species which are also protected under the MBTA. Adherence to Mitigation Measure BIO-1 would minimize the potential impacts of project activities to all birds covered under the MBTA as it would require a pre-construction nesting bird survey prior to vegetation removal or initial ground disturbance during the nesting season. Thus, compliance with Mitigation Measure BIO-1 would reduce impacts on nesting birds to a less than significant level with mitigation incorporated.

IMPACT BIO-5	***CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE?*** ***(LESS THAN SIGNIFICANT IMPACT)***

Section 16.70. of the City's zoning code regulates screening and landscaping, including tree planting and tree removal for new development within the City. Trees identified as significant trees or street trees within the City are required to be replaced when removed. Section 16.04.475 of the zoning code defines a "significant tree" as any tree or stand of trees on private property having either a height of twenty-five feet measured above ground level, or a diameter of ten inches. A "street tree" is defined as any tree of any species or size planted in parkways, sidewalk areas, easements, and rights-of-way granted to the City. Section 16.70.070 of the zoning code states that for every significant tree removed, it shall be replaced on a one-for-one basis with large box-sized trees. According to the project plans, the project would remove 8 of the 15 existing trees on the project site including some of the street trees along Turner Parkway. Conformance with the listed zoning code and incorporation of the requirements as a condition of approval (COA) would ensure that all of the trees that are removed are replaced with large box sized trees as required by the zoning code. Thus, compliance with the City's zoning code required as part of project approval would reduce impacts to a less than significant and no additional mitigation is required.

IMPACT BIO-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?*** ***(NO IMPACT)***

Although the Solano HCP has not been adopted, the City is a participating member agency in the preparation and approval process for the Solano HCP. The proposed project would comply with Mitigation Measure BIO-1 through BIO-5, which would provide avoidance and mitigation measures related to special-status plant and animal species. Thus, although the proposed project would comply

with mitigation related to special-status plant and animal species, there would be no impact to an adopted habitat conservation plan or natural community conservation plan as the Solano HCP has not been adopted. Thus, no impact would occur, and mitigation is not required.

4.3.5 CONCLUSION

Based on a review of relevant resources and the types and condition of biological communities observed at the site, it was determined that one special-status plant species had a moderate potential to occur on the project site, the coast iris; however, this species was not observed during surveys and is assumed to be absent. Protocol-level surveys for the federal threatened CRLF were completed on July 12, 2017, and no life-stage of CRLF or CRLF habitat was determined to be present. Eight special-status wildlife species were determined to have a moderate to high potential to occur on the project site; they are bird species that may nest on the site. Further, one special status bird, Allen's hummingbird was observed on the site and may nest on the site. Mitigation Measure BIO-1 requires pre-construction nesting bird survey prior to vegetation removal or initial ground disturbance during the nesting season, and Mitigation Measures BIO-3 and would reduce impacts to a less than significant level.

Project activities associated with the proposed project would not result in fragmentation of natural habitats and adherence to Mitigation Measure BIO-1 would minimize the potential impacts of project activities to all birds covered under the MBTA. The City is a participating member agency in the preparation and approval process for the Solano HCP; there would be no impact to an adopted habitat conservation plan or natural community conservation plan because the Solano HCP has not been adopted. The project site contains three sensitive biological communities: perennial stream, anthropogenic depressions, and seasonal wetland swales. The project has been designed to avoid 2.50 acres of seasonal wetlands in the central region of the project site. However, project activity would impact 2.52 acres of seasonal wetland swale and 0.08 acre of anthropogenic depression. Per Mitigation Measures BIO-2 through BIO-5, the applicant shall obtain the necessary jurisdiction wetland permits, provide compensatory at a minimum 1:1 ratio through the purchase of mitigation credits from an approved mitigation bank with a service site that includes the project site, and provide protections for the wetland areas during construction activities.

4.3.6 CUMULATIVE IMPACTS

The project would result in potential impacts to jurisdictional features and special-status wildlife species including migratory birds. Impacts would be fully mitigated in accordance with previous larger planning efforts and in consultation with State and federal wildlife agencies. Although the Solano HCP has not been adopted, project impacts were considered in connection with the Solano HCP, which is a regional effort to offset significant cumulative biological impacts, and development in the County. Therefore, the proposed project would not affect the implementation of an existing HCP, nor would the proposed project affect the potential adoption of the proposed HCP. Other cumulative projects within the cumulative impact area for biological resources have been identified to have a less than significant impact because they are located within an urban area and there is no native habitat on or adjacent to the cumulative project sites. The Solano360 Specific Plan covers an area of 149.11 acres currently containing the Solano

County Fairgrounds. The Solano360 project site has a relatively low biotic resource value mainly because of its long-term commercial use and the built-up condition of the surrounding area.[5] Similar to the proposed project, mitigation measures requiring pre-construction surveys, wetland preservation and avoidance, and wetland mitigation. The Solano360 EIR concluded that implementation of the mitigation measures would reduce potential impacts on biological resources to less than significant. Because of the disturbed nature of both the Fairgrounds site and the proposed project site, potential impacts on biological resources are considered less than cumulative considerable. As such, cumulative impacts are considered less than significant. As such, cumulative impacts are considered less than significant.

[5] Solano360 Specific Plan Draft EIR, prepared by Michael Brandman and Associates, November 2012, page 3.3-1

4.3.7 REFERENCES

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4.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

The purpose of this section of the Environmental Impact Report (EIR) is to identify any potential cultural resources within or adjacent to the proposed project, and to assist the City of Vallejo (City) in determining whether such resources meet the official definitions of "historical resources," as provided in the California Public Resources Code (PRC), in particular under the California Environmental Quality Act (CEQA). The analysis in this section has been prepared in accordance with §15064.5 of the State CEQA Guidelines, which considers the potential impacts on prehistoric, historic, paleontological, and Tribal Cultural resources. This section describes the potential cultural resources within the project study area, and the applicable regulations that govern those resources. The following analysis of the potential environmental impacts related to cultural and tribal cultural resources is derived from the listed sources and agencies. The cultural resources reports are contained in Appendix E of this EIR.

- Propel Vallejo 2040 General Plan.
- Peak & Associates. Determination of Eligibility and Effect for the Fairview at Northgate Project, City of Vallejo, September 2017.
- ECORP Consulting, Inc. Cultural Resources Technical Review for the Fairview at Northgate Project, City of Vallejo, Solano County, California, September 11, 2018.

As part of the cultural resources report, a review of existing records and mapping for the project site and surrounding area was conducted. The project site appeared to have had one previous survey conducted in 1973 along the extreme northern property edge. The cultural resources survey had a negative result (no resources were found) for the presence of cultural resources. Additionally, other cultural surveys have been conducted in the vicinity of the project site, in which no other cultural resource sites have been recorded within a 0.10-mile radius of the project site.

A review of archaeological records was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) on June 9, 2017. The review included viewing maps and records for archaeological sites in this area of the City including resource records, Office of Historic Preservation Historic Properties; an Archaeological Determination of Eligibility; California Inventory of Historic Resources (1976); and local inventories.

As part of the research conducted to prepare the cultural resources report written by Peak & Associates, the State of California Native American Heritage Commission (NAHC) was contacted for a review of their Sacred Lands file for properties on or near the project site. On May 17, 2017, the NAHC responded and indicated that there are no known sacred sites in the immediate vicinity of the project but did provide an additional list of Native American tribal contacts that could possibly provide additional information. The contacts are members of the Cortina Indian Rancheria of Wintun Indians and the Yocha Dehe Wintun Nation. Letters were sent on May 18, 2017, with a request for any information or concerns they might

have regarding the proposed project. On June 20, 2017, a representative from the Wintun Nation responded indicating that the project site was within their ancestral tribal territory and that the project could impact known archaeological/cultural sites and requested a copy of the cultural resource report for the project (Appendix E). The final report was provided to their office and no additional contact has been received.

4.4.1 ENVIRONMENTAL SETTING

The project site is located southeast of the intersection of Turner Parkway at Admiral Callaghan Lane and is approximately 51.3 acres. The project site is currently undeveloped, vacant land and there are no permanent structures on the site. Approximately 44 acres contains non-native annual grassland with some elements of mixed woodland and coyote brush scrub intermixed. Soils series on the project site consist of Dibble-Los Osos loams in the eastern half of the project area comprising approximately 50 percent of the total area; Dibble Los Osos clay loams are in the western project area, and Clear Lake clay are also in the western project area along the western margin of the site and in the center of the project areas as a band between the other two series.

A seasonal wetland traverses the site flowing from south to north and ultimately drains from two existing culverts that convey water off the property underneath Turner Parkway. Turner Parkway borders the project site on the north. The culverts are east of the Turner Parkway at Admiral Callaghan Lane intersection. A perennial stream traverses the southwestern most corner of the property and surface water flows on and off the property through existing underground culverts.

The project site is bordered by urban land uses including single-family residential uses to the east, Turner Parkway and a commercial shopping center to the north, and multi-family condominiums and apartments and a Honda auto dealership to the south. Admiral Callaghan Lane and I-80 border the project site near the western property line. The project site has a General Plan land use designation of Retail/Entertainment on the western portion of the property and Mix of Housing Types designation on the eastern portion of the property. The existing zoning classification is Pedestrian Shopping and Service District

ARCHAEOLOGICAL AND ETHNOGRAPHIC BACKGROUND

The prehistory of Solano County is thought to have experienced a human presence over the past 13,000 years. Evidence of the previous activities have allowed archeologists to divide these previous 13,000 years into periods or phases based on the kinds of subsistence behaviors practiced. Six periods have been identified with locally defined phases and regional cultures added to the mix and include:

- Early Holocene (Lower Archaic), 8000 - 3500 B.C;
- The Early Middle Period (Middle Archaic), 3500 B.C. - 500 B.C;
- The Lower Middle Period (Initial Upper Archaic), 500 B.C. – A.D. 430;
- Upper Middle Period (Late Upper Archaic), A.D. 430 – A.D. 1050;
- Initial Late Period (Lower Emergent), A.D. 1050 – A.D. 1550; and

- Terminal Late Period: Protohistoric Ambiguities, A.D. 1550 – 1775

Within the later periods listed above, the project site was within the ethnographic territory of the Patwin who occupied the southern Sacramento Valley west of the Sacramento River from the town of Princeton, north to Colusa, and south to San Pablo and Suisun bays. The Patwin included River Patwin who resided in large villages near the Sacramento River and Hill Patwin, whose villages were situated in the small valleys along the lower hills of the Vaca Mountains and Coast Range. Linguistically, together these groups are classified as southern Wintuan belonging to the Penutian language family. Populations varied depending on how hospitable the land was with numbers being lower in the plains due to flooding and unreliable water sources compared to larger populations in the hills and valleys near more consistent sources of water. Structures used by the people generally consisted of earth-covered semi-subterranean structures and were used for housing and ceremonial needs. Food sources were derived from hunting land animals as well as from waterfowl, salmon and other fish, and gathering vegetation and seed foods. It is thought that the Patwin generally buried their dead, although the tribelets furthest south may have cremated the deceased.

Historical Background

The first written historical accounts of the Patwin begin in the early 1800s when the first contacts with non-native persons were made. The writings are from the early mission registers of Mission Dolores and Mission San Jose and record baptisms, marriages and deaths of the native people. Pre-contact population is difficult to estimate but a survey of various sources indicates that the Patwin may have numbered 4,000 before their first encounter with non-Indians. After that time, the Patwin suffered from a succession of devastating impacts to their numbers including: missionization, punitive military expeditions, and confrontations with ranchers. For example, a party of trappers associated with John Work from the Hudson's Bay Company came down the Sacramento River in 1832, returning up the river in 1833. They unintentionally introduced a deadly disease to native California and a malaria epidemic swept through the Sacramento Valley. Four years later, in 1837, smallpox was introduced and it is estimated that up to 75 percent of the Patwin died. Those who survived these tragedies eventually settled on small reservations or worked as ranch laborers. Throughout the 1800s and 1900s, the population decreased further; and in 1972, the Bureau of Indian Affairs counted only 11 Patwin in the entire territory. Three reservations--Colusa, Cortina and Rumsey--remain active; the reservations are occupied primarily by descendants of Wintun and other groups.

More recently, in the historical context of the City and project site, the area is associated with the then community and Vallejo Township, which was generally used for agricultural production. The project site appears to be associated with this trend and the General Land Office plat for Township 3 North Range 3 West shows the project site as a portion of an 80-acre landholding. The land was owned by a person identified as "Mitchell" and appears to have been acquired by Ann Mitchell by 1863, possibly as early as 1860. The 1863 map shows two fences on the property and a home on the northwestern corner of the property. Based on the censuses from the time, it is likely the project site was owned by a widow, Ann Mitchell, who farmed the property and who had three sons and a daughter. The land was later transferred to a W.E. Cochran who lived on the property at or around 1915. Cohran subsequently sold the property

to August and Minnie Kuckuk in 1926. In 1933, a deed was recorded to allow State highway construction to split the property from north to south, leaving the residence and other structures on the west side of the current location of I-80. This location is on the west side of I-80.

Archaeological Reconnaissance

A complete inspection including a field survey of the project site was conducted on June 16, 2017. At the time of the survey, the vegetation consisted of mostly dead grasses with occasional native oaks as well as ornamental and fruit trees at various locations on the site. Due to recent discing and disturbance from rodent activity, the soil visibility was excellent. The soil was uniform in color, texture, and moisture content (a medium tan sandy loam with light gravel and sporadic cobbles of local stone). The survey used five- to ten-meter-wide parallel transects to provide complete coverage of the project site. Where necessary, small holes were dug to clear vegetation and to examine the sediments. During the survey, no evidence of prehistoric period or historic period cultural resources were located.

4.4.2 REGULATORY SETTING

FEDERAL

Section 106 of the National Historic Preservation Act (NHPA)

At the federal level, archaeological resources are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (54 USC 300101 et seq.); and its implementing regulation, Protection of Historic Properties (36 CFR Part 800), the Archaeological and Historic Preservation Act of 1974, and the Archaeological Resources Protection Act of 1979. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), discussed below, established the position of State Historic Preservation Officer (SHPO), provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

The Section 106 review process is implemented using a five-step procedure: (1) identification and evaluation of historic properties; (2) assessment of the effects of the undertaking on properties that are eligible for the National Register; (3) consultation with the State Historic Preservation Office (SHPO) and other agencies for the development of a memorandum of agreement (MOA) that addresses the treatment of historic properties; (4) receipt of Advisory Council on Historic Preservation comments on the MOA or results of consultation; and (5) the project implementation according to the conditions of the MOA.

Prior to implementing an “undertaking” (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the ACHP and the SHPO a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the NRHP. As indicated in Section 101(d)(6)(A) of the NHPA, properties of traditional religious and cultural importance to a tribe are eligible for inclusion in the NRHP. Under the

NHPA, a resource is considered significant if it meets the NRHP listing criteria at 36 Code of Federal Regulations (CFR) 60.4.

National Register of Historic Places (NRHP)

The NRHP is "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The federal regulations explicitly provide that the National Register listing of private property, "does not prohibit under Federal law or regulation any actions which may be taken by the property owner with respect to the property."

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

For a property to be eligible for listing in the NRHP it must meet one of the criteria for significance (36 CFR 60.4 [a, b, c, or d]) and retain integrity. Integrity, in terms of historical significance has seven aspects including location, design, setting, materials, workmanship, feeling, and association, and is defined as "the authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period."

The eligibility for inclusion in the NRHP is determined by applying the following criteria, developed by the National Park Service as per provisions of the National Preservation Act:

- The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
- That are associated with events that have made a significant contribution to the broad patterns of our history; or
- That are associated with the lives of persons significant in our past; or
- That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- That have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

Native American Graves Protection and Repatriation Act of 1990

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 sets provisions for the intentional removal and inadvertent discovery of human remains and other cultural items from federal and tribal lands. It clarifies the ownership of human remains and sets forth a process for repatriation of human remains and associated funerary objects and sacred religious objects to the Native American

groups claiming to be lineal descendants or culturally affiliated with the remains or objects. It requires any federally funded institution housing Native American remains or artifacts to compile an inventory of all cultural items within the museum or with its agency and to provide a summary to any Native American tribe claiming affiliation.

STATE

State historic preservation regulations affecting the proposed project include the statutes and guidelines contained in CEQA Sections 21083.2 and 21084.1 and the State CEQA Guidelines Sections 15064.5 and 15126.4 (b). A "historical resource" includes but is not limited to any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (Public Resources Code §5020.1). CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

The State CEQA Guidelines Section 15064.5 requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. CEQA Section 21098.1 further cites: A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. More specifically, under CEQA Section 21084.1), 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 (14 California Code of Regulations [CCR] 15064.4) recognizes that historical resources include:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR;

- A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and

- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR), CEQA and Archaeological Resources, 1994. The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies be solicited as part of the process of cultural resources inventory. In addition, California law

protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code §7050.5, California Public Resources Codes §5097.94 et al).The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 of CEQA and 14 CCR 15064.4 of the State CEQA Guidelines apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired) in the significance of a historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (14 CCR 15064.4(b)(1), 15064.4(b)(4)).

If an archaeological site does not meet the historical resource criteria contained in the State CEQA Guidelines, then the site may be treated as a unique archaeological resource in accordance with the provisions of PRC Section 21083. As defined in PRC Section 21083.2 of CEQA, a unique archaeological resource is an archaeological artifact, object, or site for which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

If an archaeological site meets the criteria for a unique archaeological resource as defined in PRC Section 21083.2, then the site is to be treated in accordance with the provisions of PRC Section 21083.2, which states that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (PRC S§21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The State CEQA Guidelines Section 15064.4(c)(4) note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment.

California Register of Historic Resources (CRHR) (PRC Section 5020 et seq.)

The SHPO maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the NRHP are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the CRHR. When a project will impact a site, it needs to be determined whether the site is an historical resource. The criteria are set forth in Section 15064.5(a)(3) of the State CEQA Guidelines, and are defined as any resource that does any of the following:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the State CEQA Guidelines, Section 15064.5(a) (4) states:

> "*The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1*."

California Historical Landmarks (CHLs)

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the city or town council in whose jurisdiction it is located; be recommended by the State Historic Resource Commission (SHRC); and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of historical interest designated after December 1997 and recommended by the SHRC are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

Native American Heritage Commission (NAHC)

PRC Section 5097.91 established the NAHC, the duties of which include inventorying of places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another State agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a State or local agency."

California Health and Safety Code Sections 7050.5, 7051, and 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5(e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

Assembly Bill 52

Assembly Bill (AB) 52 establishes a formal consultation process for California tribes as part of CEQA and equates significant impacts on tribal cultural resources with significant environmental impacts. AB 52 defines a "California Native American Tribe" as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission. AB 52 requires formal consultation with California Native American tribes prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects. AB 52 also requires that consultation address project alternatives, mitigation measures for significant effects, if requested by the California Native American tribe, and that consultation be considered concluded when either the parties

agree to measures to mitigate or avoid a significant effect, or the agency concludes that mutual agreement cannot be reached. Under AB 52, such measures shall be recommended for inclusion in the environmental document and adopted mitigation monitoring program if determined to avoid or lessen a significant impact on a tribal cultural resource.

LOCAL

Propel Vallejo 2040 General Plan

The City of Vallejo General Plan describes cultural resources as buildings, objects, features, structures, or locations with historic or cultural value. Within the City, cultural resources typically include buildings or structures that are associated with an event or person that have contributed to the shaping or development of the city; but also include unknown or buried objects, such as Native American artifacts discovered at a particular location or area of the city; or an archaeological, geological, or paleontological artifact, such as fossils. Within the City, early indigenous inhabitants of the region around Vallejo, include the Patwin and Carquin peoples. The General Plan recognizes that due to their previous settlements and presence with the area, there is a potential for artifacts from these locations. Of particular note are locations near freshwater sources where plant and animal life were abundant and could provide needed resources to the inhabitants.

In addition to the past Native American presence, more modern buildings and locations can qualify as historic or historical sites or structures. Downtown Vallejo has seven buildings listed as local landmarks, including one building on the NRHP and two on the CRHR.

To help protect both known and unknown resources, the General Plan identifies goals, policies and action items to preserve sites as well as artifacts that may remain buried. Those that would be applicable to the proposed project include the following:

Policy NBE-1.9	Cultural Resources. Protect and preserve archaeological, historic, and other cultural resources.
Action NBE-1.9A	Continue to require that land use activities comply with State requirements and follow best practices to ensure that cultural resources are not impacted, and that appropriate agencies and technical experts are involved in the evaluation and protection of resources and sites.
Action NBE-1.9B	Maintain a dialogue with local Native American groups regarding sensitive cultural resources in Vallejo.
Action NBE-1.10B	Require the identification and protection of all on-site historic resources in conjunction with any proposed development, in compliance with all applicable City provisions (including the Downtown Specific Plan Historical Resource Assessment) and State and federal guidelines for the treatment of historic properties.

Policy NBE-1.12	Historic Preservation. Promote community awareness of the benefits of historic preservation.

4.4.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

In accordance with the State CEQA Guidelines, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to cultural and tribal cultural resources, if it would:

a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.?

c) Disturb any human remains, including those interred outside of dedicated cemeteries.

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

   i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

   ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

Methodology

This analysis is based on the regional and site-specific information that is publicly available and relevant to the proposed project. The evaluation of the project's potential effects on cultural or tribal cultural resources that may be present or associated with the project site stems from the prehistoric and historic context of the region and project site, the historical integrity the site exhibits, and association to significant people and or events.

Pertaining to tribal cultural resources, the NOP/IS was sent to the appropriate groups (refer to Appendix E of this EIR) and letters accordance with AB 52 were sent to tribal contacts that have requested

consultation with respect to the proposed project's potential impacts on Native American places, features, and objects. In addition, based on responses from these individual, additional letters were sent to other parties who were thought to potentially have relevant information pertaining to the proposed project. As mentioned above, one comment letter has been received with respect to the proposed project's potential impacts on Native American places, features, and objects. All of this information has been evaluated against the thresholds of significance to determine the potential for environmental impacts.

4.4.4 PROJECT IMPACTS AND MITIGATION

In accordance with CEQA, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. Cultural resources impacts are analyzed below according to topic. Mitigation measures directly correspond with an identified impact.

IMPACT CUL-1	***CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A HISTORICAL RESOURCE PURSUANT TO § 15064.5?*** ***(LESS THAN SIGNIFICANT IMPACT)***

Cultural resources that are significant under Section 106 are evaluated in terms of eligibility for listing in the NRHP. NRHP significance criteria applied to evaluate the cultural resources are defined in 36 CFR 60.4 as described in the Regulatory Settings above. The CRHR includes buildings, sites, structures, objects, and districts significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. To qualify for inclusion in the CRHR, a historical resource must meet the criteria previously described. If no eligible resources are identified within a project's area of potential effect (APE), then the project is not considered to have a significant impact on cultural resources.

To determine if the project site or any of its known constituents would qualify for listing under Section 106, the project site was evaluated for the presence of potential historical resources. The results of archival research, comment solicitation, previous surveys proximate to the project site, and the environmental context all contributed to the assessment of the sensitivity level for the project site. Based on information from these sources as compiled in the cultural resources report (Peak & Associates, 2017), there are no historic properties present in the study area or adjacent area. Therefore, no historic properties would be affected, and impacts would be less than significant.

IMPACT CUL-2	***CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF AN ARCHAEOLOGICAL RESOURCE PURSUANT TO § 15064.5?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The project site was also evaluated for the presence of significant archaeological resources. As part of the cultural resource report a field assessment was conducted. At the time of the assessment, the soils on

the project site were highly visible due to limited vegetative cover and had been highly disturbed from recent discing. The site survey found no evidence of prehistoric period or historic period cultural resources. Based on these efforts, there are no known archaeological resources occurring within the project site.

Although no historical or archaeological resources were located on the project site, the region in which the project site is located is known to have been occupied by native peoples. This region includes the ethnographic territory of the Patwin who occupied the southern Sacramento Valley west of the Sacramento River from the town of Princeton, north to Colusa, south to San Pablo and Suisun bays. Additionally, the project site is known to have been occupied in the 1800s and 1900s by people who used the site for agricultural purposes and unknown and buried resources from these prior times and activities could have been left after occupation ended and may be located within the project site. Impact CUL-2 discusses the Native American consultation efforts by the City to determine if the site may contain known resources requiring protection or have other value to any tribes.

Implementation of the proposed project would result in ground disturbance including grading and excavation. To account for existing land contours, the excavation depth for the proposed project would be approximately 5 to 10 feet on the eastern side of the project site and as much as 20 feet on the western side. Ground disturbance and grading is required to create the finished elevations for the site and enable setting footings and creating building pads for the commercial sites, residences, and reach roadway grades. The site disturbance could result in impacts by damaging or destroying unknown buried historic and archaeological resources should they exist below the ground surface. The incorporation of mitigation measures for project-specific impacts would address the potential risk from direct impacts, as well as secondary or accidental impacts to cultural resources. Without mitigation, impacts resulting from the proposed project could be significant. Mitigation Measure CUL-1, requires the implementation of a Cultural Awareness Training Program; Mitigation Measures CUL-2 and CUL-3, address procedures for monitoring and inadvertent discovery. Implementation of these mitigation measures would reduce this impact to a less than significant level.

The purpose of the Cultural Awareness Training Program is to inform construction personnel of the types of cultural resources that may be encountered during construction, and to bring awareness to personnel of actions that need to be taken in the event of a discovery of a cultural resource. Training may include: a discussion of applicable cultural resources statues, regulations and related enforcement provisions; an overview of the prehistoric and historic environmental setting and context, as well as current cultural information regarding local tribal groups; samples or visuals of artifacts that might be found in the project area; and a discussion of what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction. The process for protecting unearthed resources is described in detail in Mitigation Measure CUL-2, below.

If unearthed cultural resources are discovered, per State CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with State CEQA Guidelines Section 15126.4(b)(3)(C), if resources cannot be

avoided, additional treatment measures shall be developed (as required by Mitigation Measure CUL-2 below) in consultation with the City of Vallejo Planning & Development Services Department. The City of Vallejo shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. The qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the City of Vallejo Planning & Development Services Department and to the Northwest Information Center. The mitigation measures listed below explain the process of resource protection should resource(s) be discovered.

Mitigation Measures:

MM CUL-1: **Cultural Awareness Training Program.** Prior to the issuance of grading permits, a Cultural Awareness Training Program shall be provided to all construction managers and construction personnel prior to commencing ground disturbance work at the project site. The training shall be prepared and conducted by a qualified archaeologist to the satisfaction of the City of Vallejo Planning & Development Services Department. The training shall be a length of time adequate to explain applicable statues, regulations, enforcement provisions; the prehistoric and historic environmental setting and context, local tribal groups; show sample artifacts; and what prehistoric and historic archaeological deposits look like at the surface and when exposed during construction. The training may be discontinued to new workers to the site when ground disturbance is completed. Construction personnel shall not be permitted to operate equipment within the construction area unless they have attended the training. A list of the names of all personnel who attended the training and copies of the signed acknowledgement forms shall be submitted to the City Planning & Development Services Department for their review and approval.

MM CUL-2: **Cultural Resources Construction Monitoring.** During mass grading activities, a qualified archaeologist shall be continuously present onsite, and on-call during trenching activities, to observe disturbance areas. The qualified archaeologist or contractor shall halt work in the immediate vicinity if artifacts, exotic rock, shell or bone are uncovered during the construction. In the event such cultural resources are unearthed during ground-disturbing activities, and the qualified archaeologist is not in that location, the project operator shall cease all ground-disturbing activities within 50 feet of the find and immediately contact the qualified archaeologist. Work shall not resume until the potential resource can be evaluated by the qualified archaeologist. The qualified archaeologist shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find until the qualified archaeologist has evaluated the find, determined whether the find is culturally sensitive, and designed an appropriate short-term and long-term treatment plan. The significance of the find shall be determined by the archaeologist. If determined to be significant the archaeologist shall prepare a treatment plan in consultation with local experts, Native American Representatives, and the City Planning & Development Services Department.

MM CUL-3: **Discovery of Unknown Resources.** The project applicant shall continuously comply with the following requirement: In the event that unanticipated cultural or tribal cultural resources are encountered during the course of grading or construction, the project operator/contractor shall cease any ground-disturbing activities within 50 feet of the find. Cultural and/or tribal cultural resources may include prehistoric archaeological materials such as flaked and ground stone tools and debris, shell, bone, ceramics, and fire-affected rock, as well as historic materials such as glass, metal, wood, brick, or structural remnants. A qualified archaeologist shall evaluate the resource and recommend treatment measures, as appropriate.

Per State CEQA Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources, if discovered. Consistent with State CEQA Guidelines Section 15126.4(b)(3)(C), if resources cannot be avoided, additional treatment measures shall be developed in consultation with the City of Vallejo Planning & Development Services Department and may include testing and evaluation or data recovery excavation. The City of Vallejo shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. By law, the qualified archaeologist shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the City of Vallejo Planning & Development Services Department and to the Northwest Information Center.

IMPACT CUL-3	***DISTURB ANY HUMAN REMAINS, INCLUDING THOSE INTERRED OUTSIDE OF DEDICATED CEMETERIES?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

Future ground-disturbing activities during grading and construction activities could encounter buried human remains that were not identified during the cultural resource report conducted for the proposed project. This could result in damage to unknown, buried human remains and mitigation would be required. Mitigation Measure CUL-4 identifies procedures for recording and treating any human remains should they be discovered during project construction. The measure requires that these items be protected, preserved and treated in accordance with applicable laws, regulations and guidelines. With the implementation of mitigation, potential impacts would be less than significant.

Mitigation Measure:

MM CUL-4: **Discovery of Human Remains.** The project applicant shall continuously comply with the following: If human remains are uncovered during ground disturbing activities, the project proponent shall immediately halt work and contact the Solano County Coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. The City of Vallejo Police Department and City of Vallejo Planning & Development Services Department shall be contacted immediately after contact or attempted contact with the County Coroner. All excavation activities on

the project site shall cease. If the County Coroner determines that the remains are Native American, the Native American Heritage Commission shall be notified, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). No further excavation activity shall occur on the site or any nearby area reasonably suspected to overlie adjacent human remains until consultation is complete with the most likely descendant, the Coroner and the City Planning & Development Services Department staff. Authorization to resume construction shall only be given by the City after consultation with the most likely descendent and shall include implementation of all appropriate measures to protect any possible burial sites or human remains.

IMPACT CUL-4	**WOULD THE PROJECT CAUSE A SUBSTANTIAL ADVERSE CHANGE IN THE SIGNIFICANCE OF A TRIBAL CULTURAL RESOURCE, DEFINED IN PUBLIC RESOURCES CODE SECTION 21074 AS EITHER A SITE, FEATURE, PLACE, CULTURAL LANDSCAPE THAT IS GEOGRAPHICALLY DEFINED IN TERMS OF THE SIZE AND SCOPE OF THE LANDSCAPE, SACRED PLACE, OR OBJECT WITH CULTURAL VALUE TO A CALIFORNIA NATIVE AMERICAN TRIBE, AND THAT IS:** **I. LISTED OR ELIGIBLE FOR LISTING IN THE CALIFORNIA REGISTER OF HISTORICAL RESOURCES, OR IN A LOCAL REGISTER OF HISTORICAL RESOURCES AS DEFINED IN PUBLIC RESOURCES CODE SECTION 5020.1(K), OR** ***II. A RESOURCE DETERMINED BY THE LEAD AGENCY, IN ITS DISCRETION AND SUPPORTED BY SUBSTANTIAL EVIDENCE, TO BE SIGNIFICANT PURSUANT TO CRITERIA SET FORTH IN SUBDIVISION (C) OF PUBLIC RESOURCES CODE SECTION 5024.1, THE LEAD AGENCY SHALL CONSIDER THE SIGNIFICANCE OF THE RESOURCE TO A CALIFORNIA NATIVE AMERICAN TRIBE.*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The NAHC was contacted for a check of their Sacred Lands file for properties near the project site; they indicated there were no known sacred sites in the immediate vicinity of the project site. Additional Native American representatives were contacted from four Tribes, Bands, or Nations that had requested contact related to this and other projects in the area. Formal letters inviting consultation for the project pursuant to PRC § 21080.3.1(b) were sent. One response to the letters was received in August 2019 and indicated that the project site was within the ancestral tribal territory of the Yocha Dehe Wintun Nation and that the proposed project could impact known archaeological/cultural sites. The letter requested that the project include cultural monitors during development and ground disturbance. It should be noted that the cultural resources report did not locate any archaeological or tribal cultural resources on the project site. Mitigation Measure CUL-2 requires the project archaeologist to consult with local experts and Native

American Representatives for the preparation of a treatment plan if significant unknown cultural resources are discovered during construction mass grading and trenching activities.

As discussed above, implementation of the proposed project could result in disturbance or destruction of unknown buried tribal cultural resources that were not located during previous study and site evaluation. Mitigation Measure CUL-1 requires a Cultural Awareness Training Program for all project workers and Mitigation Measures CUL-2 through CUL-4 require mitigation to protect inadvertently discovered archaeological resources and human remains, respectively. In addition, all such finds would be required to be treated in accordance with all CEQA requirements and all other applicable laws and regulations. With implementation of these measures, impacts in this regard would be less than significant.

4.4.5 CONCLUSION

Based on the absence of known existing archaeological, cultural, and tribal cultural resources within the project site, and incorporation of mitigation measures CUL-1 through CUL-4 to reduce impacts to unknown resources should they be discovered during site disturbance activities, impacts to these resources would be less than significant.

4.4.6 CUMULATIVE IMPACTS

The geographic scope for cumulative impacts is defined in Section 3.7, Cumulative Projects. With respect to cultural and tribal cultural resources, the geographic scope of analysis is the City of Vallejo and Solano County. This area provides a reasonable context wherein cumulative actions could affect these resources.

For these resources, impacts are site-specific and not generally subject to cumulative impacts unless multiple projects impact a common resource, or an affected resource extends off-site, such as a historic townsite or district. The cumulative analyses for historical, archaeological, and tribal cultural resources considers whether the proposed project, in combination with the past, present, and reasonably foreseeable projects, could cumulatively affect any common cultural or paleontological resources.

The proposed project could result in potential site-specific impacts to currently unknown archaeological, cultural, and tribal cultural resources discovered during grading and trenching activities during construction. Other projects within the cumulative study area also have the potential to result in damage and/or loss to these resources. The combination of the proposed project as well as past, present, and reasonably foreseeable projects in the City and Solano County would be required to comply with all applicable State, federal, and County and local regulations concerning preservation, salvage, or handling of cultural and paleontological resources, including compliance with required mitigation. Similar to the proposed project, these projects also would be required to implement and conform to mitigation measures, which would be likely to reduce impacts to less than significant. Although in the process of development, some known or unknown resources may be lost, it is not anticipated that these impacts would be cumulatively considerable. In addition, implementation of Mitigation Measures CUL-1 through CUL-4 would reduce project-specific impacts to a less than significant level. Therefore, the project's contribution to cumulative impacts would be less than significant.

4.4.7 REFERENCES

Peak & Associates, 2017. Determination of Eligibility and Effect for the Fairview at Northgate Project, City of Vallejo, Solano County – California.

ECORP Consulting Inc., 2018. Cultural Resources Technical Review for the Fairview at Northgate Project, City of Vallejo, Solano County, California.

4.5 GEOLOGY AND SOILS

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting related to geology and soils within the proposed project site and other regional geologic conditions that may affect the proposed project. It also describes the impacts on geology and soils that would result from near sea implementation of the proposed project and mitigation measures that would reduce these impacts. The following analysis of the potential environmental impacts related to geology and soils is also derived from the sources listed below. The geotechnical report is attached as Appendix F to the EIR.

- Propel Vallejo 2040 General Plan.
- Propel Vallejo 2040 General Plan EIR.
- ENGEO Incorporated. 2017. Preliminary Geotechnical Report for Cooke Property.

4.5.1 ENVIRONMENTAL SETTING

This section presents information on geology and soils conditions in the project area. The current soils condition was used as the baseline against which to compare potential impacts of the project.

PROJECT SETTING

Topography

The project site is currently undeveloped, vacant land. It is square-shaped on the north, east, and southern boundaries, with the western side angled to the southwest following the alignment of the undeveloped City right-of-way adjacent to Admiral Callaghan Lane.

The topography of the City of Vallejo and its Sphere of Influence (SOI) is varied. The environment along Mare Island and parts of the east margin of the Napa River includes gently sloping terrain in the central part of the City (especially the area flanking I-80 north of Curtola Parkway), hillier terrain that dominates the east-central and northeast parts of the City and include the East Bay Hills and Briones Hills to the southwest, the Vaca Mountains and Napa Valley to the north, and the Diablo Ranges to the southeast. Elevations range from near sea level on the shores of the Carquinez Strait to nearly 1,000 feet above mean sea level along the crest of Sulphur Springs Mountain in the northeast part of the City.

Geology

The City is located in southern Solano County in the Coast Ranges geomorphic province, which is characterized as northwest trending ridges and valleys. The shallowest alluvium (and youngest geologic deposits) in the project area consist of unconsolidated sediments as well as the adjacent alluvium, described as Holocene-age younger alluvium and coarse-grained alluvium, that occurs in relict stream courses. These sediments are composed of unconsolidated, poorly sorted gravel, silt, sand, and clay and organic matter and typically found in active drainage channels and small alluvial fans.

Soils

The U.S. Department of Agriculture (USDA) Soil Conservation Survey and California Soil Resource Laboratory's web soil mapping data was used to identify the major soil types in the Vallejo area. The identified soils within approximately 12 percent of the proposed project area include Clear Lake clay with 0 to 2 percent slopes; approximately 55 percent Dibble- Los Osos loams with 2 to 9 percent slopes; and approximately 33 percent Dibble-Los Osos clay loams with 9 to 30 percent slopes. Clear Lake clay soils generally drain poorly and its soil profile is made up of clay ranging from 0 to 60 inches in depth. Typical soil profiles for Dibble loams include loam from 0 to 13 inches, clay loam from 13 to 30 inches, and weathered bedrock from 30-34 inches in depth. Los Osos loams include loam from 0 to 7 inches, clay loam from 7 to 25 inches, weathered bedrock from 25 to 59 inches in depth.

Regional Faulting, Seismicity, and Related Seismic Hazards

Seismicity is the geographic and historical distribution of earthquakes, including their frequency, intensity, and distribution. Geologic hazards include surface rupture, ground shaking, liquefaction, landslides, subsidence, expansive soils, and soil erosion. Earthquakes are classified by their magnitude, a measure of the amount of energy released during an event. During a seismic event, the project site may be subjected to high levels of ground shaking because of its proximity to active faults.

The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone. The five closest faults to the project site are shown in *Table 4.5-1: Regional Faults and Seismicity*.

Table 4.5-1: Regional Faults and Seismicity

Fault Name	Approximate Distance from Project Site	Maximum Characteristic Magnitude
West Napa	2.7	6.7
Green Valley Connected	6.3	6.8
Hayward Rodgers Creek RC+HN+HS	11.1	7.5
Great Valley 5, Pittsburg Kirby Hills	16.5	6.7
Great Valley 4b, Gordon Valley	18.6	6.8

Source: ENGEO, 2017

Groundshaking

The severity of ground shaking depends on several variables such as earthquake magnitude, epicenter distance, local geology, thickness, seismic wave-propagation properties of unconsolidated materials, groundwater conditions, and topographic setting. Ground shaking hazards are most pronounced in areas near faults or with unconsolidated alluvium.

Based on observations of damage from recent earthquakes in California (e.g., San Fernando 1971, Whittier-Narrows 1987, Landers 1992, Northridge 1994), ground shaking is responsible for 70 to 100

percent of all earthquake damage. The most common type of damage from ground shaking is structural damage to buildings, which can range from cosmetic stucco cracks to total collapse. The overall level of structural damage from a nearby large earthquake would likely be moderate to heavy, depending on the characteristics of the earthquake, the type of ground, and the condition of the building. Besides damage to buildings, strong ground shaking can cause severe damage from falling objects or broken utility lines. Fire and explosions are also hazards associated with strong ground shaking.

In 2003, the United States Geological Survey (USGS) estimated a 62 percent probability of a magnitude 6.7 or greater earthquake to occur in the Bay Area in the next 30 years (USGS, 2018). Seismic forecasts presented on the Association of Bay Area Government's (ABAG) website suggest that most parts of Vallejo are expected to experience "very strong" shaking" (ABAG, 2014).

Landslides

In steep areas, strong ground shaking could activate landslides on hillsides, slope failures on creek banks (lurch cracking), and tension cracking in areas underlain by loose, low-density soils. Debris flows are a type of landslide than can develop as a result of saturation of unconsolidated soils by heavy rainfall, forming dense sediment flows that contain large boulders and debris and can travel long distances from the source areas. Debris flows typically form on steep slopes and can be channeled into existing drainages to areas. The project site is relatively flat and is not located adjacent to any areas with steep slopes but has two small hills in the westerly portion of the project site.

Liquefaction

Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. Liquefaction can produce excessive settlement, ground rupture, lateral spreading, or failure of shallow bearing foundations. In order to determine the liquefaction susceptibility of a region, three major factors must be analyzed: (1) density and textural characteristics of the alluvial sediments; (2) intensity and duration of ground shaking; and (3) depth to groundwater. Liquefaction can only occur in saturated soil layers, often in areas of shallow groundwater.

Unstable Geologic Units

Expansive soils can undergo significant volume change with changes in moisture content. In general, expansive soils shrink and harden when dried, and swell and soften when wet. Such changes can cause distress to building foundations and structures, slabs on grade, pavements, and other surface improvements. Expansive soils are also generally a major contributing factor to soil creep on slopes. The USDA Soil Conservation Survey and California Soil Resource Laboratory's web soil mapping data and ENGEO's laboratory testing results identified soil complexes in the project area with moderate to high shrink-swell potential with variations in moisture content. Soils with high shrink-swell potential often represent a local hazard, varying property to property.

Paleontological Setting

Paleontological resources (i.e., fossils) are the remains and/or traces of prehistoric plant and animal life. Although typically it is assumed that fossils must be older than approximately 10,000 years (i.e., the generally accepted end of the last glacial interval of the Pleistocene Epoch), organic remains of the early Holocene age can also be considered to represent fossils because they are part of the record of past life. Fossil remains such as bones, teeth, shells, leaves, wood, burrows, and trackways are found in the geologic deposits (rock formations) within which they were originally buried (Department of Paleo Services, 2012).

According to the City's General Plan EIR, a search of the UC Museum of Paleontology at Berkeley was completed for the City to assess the probable existence, sensitivity, and distribution of significant paleontological resources within the project area (inclusive of the project site). Paleontological resources include fossils – the remains or traces of once-living organisms preserved in sediments or sedimentary rocks – and the geologic context in which they occur. By convention, paleontological resources do not include human remains, artifacts (objects created by humans), or other evidence of past human activities. According to the General Plan EIR, there are no known significant fossil deposits in the City's Planning Area, inclusive of the project site.

4.5.2 REGULATORY SETTING

FEDERAL REGULATIONS

Earthquake Hazards Reduction Act

The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977, Public Law (P.L.) 95–124. At the time of its creation, Congress' stated purpose for NEHRP was "to reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program." Congress recognized that earthquake-related losses could be reduced through improved design and construction methods and practices, land use controls and redevelopment, prediction techniques and early-warning systems, coordinated emergency preparedness plans, and public education and involvement programs. Since NEHRP's creation, it has become the federal government's coordinated long-term nationwide program to reduce risks to life and property in the United States that result from earthquakes. Four basic NEHRP goals are as follows:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems
- Improve earthquake hazards identification and risk assessment methods, and their use
- Improve the understanding of earthquakes and their effects.
- Congress has recognized that several key federal agencies can contribute to earthquake mitigation efforts. Today, there are four primary NEHRP agencies:

- Federal Emergency Management Agency (FEMA) of the Department of Homeland Security.
- National Institute of Standards and Technology (NIST) of the Department of Commerce (NIST is the lead NEHRP agency).
- National Science Foundation (NSF).
- USGS of the Department of the Interior.

Congress completed a review of NEHRP, resulting in the NEHRP Reauthorization Act of 2004, PL 108–360. PL 108–360 directed that NEHRP activities be designed to develop effective measures for earthquake hazard reduction; promote the adoption of earthquake hazards reduction measures by government agencies, standards and codes organizations, and others involved in planning and building infrastructure; improve the understanding of earthquakes and their effects through interdisciplinary research; and, develop, operate, and maintain both the Advanced National Seismic System and the George E. Brown, Jr. Network for Earthquake Engineering Simulation. PL 108–360 also directed that NEHRP support development and application of performance-based seismic design.

California Health and Safety Code

Section 19100 et seq. of the California Health and Safety Code establishes the State's regulations for earthquake protection. This section of the code requires structural designs to be capable of resisting likely stresses produced by phenomena such as strong winds and earthquakes.

STATE REGULATIONS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed in 1972 to regulate development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. Under the Alquist-Priolo Act, the California State Geologist identifies areas that are at risk of surface fault rupture. The primary purpose of the Alquist-Priolo Act is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. An active fault is defined by the State Mining and Geology Board as one which has "had surface displacement within Holocene time (about the last 11,000 years)." The California Geological Survey (CGS), previously known as the California Division of Mines and Geology, has compiled Special Publication 42 – Fault Rupture Hazard Zones (California Geological Survey [CGS], 2018), which delineates and defines active fault traces and zones that require specific studies to address rupture hazards with respect to "structure[s] for human occupancy." Any project that involves the construction of buildings or structures for human occupancy is subject to the Alquist-Priolo Act, and any structures for human occupancy must be located at least 50 feet from any active fault.

Seismic Hazards Mapping Act

In accordance with Public Resources Code, Chapter 7.8, Division 2, the CGS is directed to delineate Seismic Hazard Zones through the Seismic Hazards Zonation Program. The purpose of the Act is to reduce the

threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards, such as those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Cities, counties, and State agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. In accordance with the Seismic Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within seismic hazard zones.

California Building Code (CBC 2016)

The State of California provides minimum standards for building design through the California Building Code (CBC). The CBC is based on the International Building Code (IBC), which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis) and has been modified for conditions within California. Starting in 1989, revised editions of the California Code of Regulations (CCR) Title 24 has been published every three years. The 2016 edition of the CBC is based on the 2015 IBC published by the International Code Council. The current version of the CBC became effective January 1, 2017. Local agencies must ensure that development in their jurisdictions complies with guidelines contained in the CBC. Cities and counties can adopt building standards beyond those provided in the code with the approval of the State based upon local conditions. Chapter 16 of the CBC contains definitions of seismic sources and the procedure used to calculate seismic forces on structures.

Paleontological Resources

Consideration of paleontological resources is required by CEQA (see Appendix G of the CEQA Guidelines). Other State requirements for paleontological resource management are found in PRC Chapter 1.7, Section 5097.5, Archaeological, Paleontological, and Historical Sites. This statute specifies that State agencies may undertake surveys, excavations, or other operations as necessary on State lands to preserve or record paleontological resources.

No State or local agencies have specific jurisdiction over paleontological resources. No State or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction-related earth moving on State or private land in a project site.

LOCAL PLANS AND REGULATIONS

Propel Vallejo 2040 General Plan (VGP)

The policies, goals, and implementation measures in the VGP's Nature and Built Environment Chapter applicable to geology and soils as related to the proposed project are provided below.

Goal NBE-5	Hazard Protection: Protect life and property from natural and human-made hazards.
Policy NBE-5.3	Health and Safety Codes. Enforce development regulations and building code requirements to protect residents, businesses, and employees from flooding, liquefaction, earthquakes, fires, and other hazards.

Action NBE-5.3B	Continue to require development to comply with building and safety codes and continue to route plans and drawings to all relevant City departments for review.
Policy NBE-5.4	Project Location and Design. Prohibit development in any area where it is determined that the potential risk from natural hazards cannot be mitigated to acceptable levels.
Action NBE-5.4B	Continue to require drainage and erosion control measures for landslide-prone or geologically hazardous hillside areas to minimize risks to downhill areas.
Action NBE-5.4C	Continue to use the development review process to ensure that development is planned and constructed to resist the encroachment of uncontrolled fire.

To help protect known and unknown resources, the General Plan includes goals, policies and action items to preserve sites as well as paleontological resources or artifacts that may remain buried. Those that would be applicable to the proposed project are as follows:

Policy NBE-1.9	Cultural Resources. Protect and preserve archaeological, historic, and other cultural resources.
Action NBE-1.9A	Continue to require that land use activities comply with State requirements and follow best practices to ensure that cultural resources are not impacted, and that appropriate agencies and technical experts are involved in the evaluation and protection of resources and sites.

City of Vallejo Municipal Code

Title 12, Section 12.40.070, Excavating, Grading, and Filling, of the Vallejo Municipal Code includes a Grading Ordinance that addresses hazards associated with erosion and land stability. The ordinance establishes requirements for grading permits including submittal and construction requirements. An erosion and sedimentation control plan is required with a grading permit application, along with drainage plan, and pollution control plan. Implementation of these plans would help ensure that the storm water runoff from a construction site meets applicable water quality standards.

4.5.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

The following criteria, included in Appendix G of the State CEQA Guidelines (14 CCR 15000 et seq.), is used to determine the significance of potential geology and soils impacts, including paleontological resources. Impacts would be significant if the proposed project would:

Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist–Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42;
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction; or
- Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- 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; or
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.
- 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.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.5.4 PROJECT IMPACTS AND MITIGATION

IMPACT GEO-1	***WOUL THE PROPOSED PROJECT, DIRECTLY OR INDIRECTLY CAUSE POTENTIAL SUBSTANTIAL ADVERSE EFFECTS, INCLUDING THE RISK OF LOSS, INJURY, OR DEATH INVOLVING:*** **a) 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** **b) Strong seismic ground shaking** **c) Seismic-related ground failure, including liquefaction** a) **Landslides** ***(LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED)***

a) 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.

As previously discussed, there are no mapped Alquist–Priolo Earthquake Fault Zones in Vallejo. Since there are no known faults crossing the project site and the property is not within an Earthquake Fault Specialty

Study Zone, the likelihood of primary ground rupture in the project area is considered low. In addition, the applicant would be required to conform to the California Building Standards Code and the California Health and Safety Code for all structures proposed as part of the project. The building and safety standards established by these codes have been developed to address structural integrity during a seismic event. Policy NBE-5.4 and Action NBE-5.4A in the General Plan would also ensure that the proposed project would not have an adverse impact on hazards associated with rupture of an active fault.

As a result, the proposed project would not expose people or structures to potential risk of loss or injury where there is high potential for earthquake-related ground rupture in the vicinity of major fault crossings. Any potential impacts would therefore be less than significant.

b) Strong seismic ground shaking

According to the 2017 ENGEO report, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the project site, similar to that which has occurred in the past. All structures would be required to be designed using sound engineering judgment and meeting the then-current CBC requirements. According to the 2017 ENGEO report, conformance to the current building code recommendations does not constitute that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, having a well-designed and well-constructed structure would lessen the chance of collapse or cause loss of life in a major earthquake. In addition, the project applicant would be required to submit a design-level geotechnical report to the City as part of MM GEO-1 and implement all remedial grading measures in the 2017 ENGEO report. The implementation of this measure would mitigate impacts to a less than significant level.

c) Seismic-related ground failure, including liquefaction

While there are no known active or potentially active faults crossing the project site, there are numerous faults in the region. Rupture of any of these faults could cause ground shaking, which may expose people or structures to adverse effects associated with a seismic event, including ground failure. According to the 2017 ENGEO report, the site is not located within a State of California Seismic Hazard Zone for areas that may be susceptible to liquefaction.

Nine test pits were drilled by ENGEO to depths ranging between 0 and 14 feet below existing ground surface. Except for one test pit (TP-5), the test pit explorations generally encountered stiff to hard lean clays and elastic silts underlain by weak to very strong, highly to slightly weathered siltstone, claystone, and sandstone. According to the 2017 ENGEO report, the risk of liquefaction at the project site is low based on the material types and densities of granular materials encountered in the test pits. The different types of ground failure associated with liquefaction often leaves geomorphic evidence after the event in the form of scarps, and open or unfilled groups cracks, and sand volcanoes. Due to the shallow bedrock at the project site, soil liquefaction and liquefaction are not a concern for development on the project site.

As discussed above, the applicant would be required to submit a geotechnical investigation report to the City as part of MM GEO-1 and implement all remedial grading measures in the 2017 ENGEO report. This would reduce any potential impacts associated with seismic-related ground failure and liquefaction.

d) Landslides

Lateral spreading and earthquake-induced landslides involve lateral ground movements caused by seismic shaking. According to the 2017 ENGEO report, the risk of subsidence and landslides is low based on ENGEO's review of topographic and lithologic data due to the shallow bedrock. The project site is relatively flat and is not located adjacent to any areas with steep slopes. However, as discussed above, the applicant would be required to submit a geotechnical investigation report to the City as part of MM GEO-1 and implement all remedial grading measures in the 2017 ENGEO report. This would reduce any potential impacts associated with landslides.

Mitigation Measure:

MM GEO-1: **Geotechnical Investigation.** Prior to construction, the project applicant shall prepare a design-level geotechnical investigation and a final geotechnical report with site-specific recommendations, which must be reviewed and approved by the City of Vallejo prior to issuance of any grading permit. All recommended remedial grading measures identified in the ENGEO reports dated April 17, 2017 shall be updated to reflect current building code requirements and be implemented unless alternative techniques developed by a certified geotechnical engineer or engineering geologist are identified as part of the final geotechnical report.

IMPACT 4.5-2	***WOULD THE PROPOSED PROJECT, RESULT IN SUBSTANTIAL SOIL EROSION OR THE LOSS OF TOPSOIL?*** ***(LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED)***

The proposed project site is generally flat but still has the potential for soil erosion. Buildout of the proposed project would involve construction-related activities and during the early stages of construction, topsoil would be exposed associated with grading activities. As a result, once grading is complete but prior to overlaying the ground surface with structures, the potential exists for wind and water erosion to occur which could affect project site soils causing a potentially significant impact.

Projects involving disturbance of one acre or more are required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that specifies how water quality would be protected during construction activities. The SWPPP would include best management practices (BMPs) to protect the quality of storm water runoff. Construction BMPs would include, but are not limited to, stabilization of construction entrances, straw wattles on embankments, and sediment filters on existing inlets. These measures would minimize erosion, protect exposed slope areas, control surface water flows over exposed soils, and require the implementation of a sediment monitoring plan. These measures would be further refined with the subsequent preparation of a SWPPP to ensure compliance with the erosion control

ordinances required by the City. In addition, the project applicant would be required to submit a geotechnical investigation report to the City as part of MM GEO-1. As a result, with implementation of MM GEO-1 and measures from the SWPPP, impacts associated with soil erosion and loss of topsoil would be less than significant.

IMPACT 4.5-3	***WOULD THE PROPOSED PROJECT BE LOCATED ON A GEOLOGIC UNIT OR SOIL THAT IS UNSTABLE OR THAT WOULD BECOME UNSTABLE AS A RESULT OF THE PROJECT, AND POTENTIALLY RESULT IN ON- OR OFF-SITE LANDSLIDE, LATERAL SPREADING, SUBSIDENCE, LIQUEFACTION OR COLLAPSE?*** ***(LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED)***

As described in the 2017 ENGEO report, nine test pits were drilled by ENGEO on the project site in preparation for construction of the existing development. The test pits were drilled to depths ranging between 0 and 14 feet below existing ground surface. Except for one test pit (TP-5), the test pit explorations generally encountered stiff to hard lean clays and elastic silts underlain by weak to very strong, highly to slightly weathered siltstone, claystone, and sandstone. The test pit logs were logged in the field by a registered geologist of ENGEO.

Based on the results of these test pits, the potential risk of landslide, lateral spreading, subsidence, liquefaction, and collapse as a result of the proposed project are summarized below.

SUBSIDENCE, LANDSLIDES

According to the 2017 ENGEO report, the risk of subsidence and landslides is low based on ENGEO's review of topographic and lithologic data.

Liquefaction and Lateral Spreading

According to the 2017 ENGEO report, the risk of liquefaction at the project site is low based on the material types and densities of granular materials encountered in the test pits. The different types of ground failure associated with liquefaction often leaves geomorphic evidence after the event in the form of scarps, and open or unfilled groups cracks, and sand volcanoes. Due to the shallow bedrock at the project site, soil liquefaction and liquefaction are not a concern for development on the project site.

Collapse

As discussed above, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the project site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures will be required to be designed using sound engineering judgment and the current CBC requirements, as a minimum. According to the 2017 ENGEO report, conformance to the current building code recommendations does not constitute that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, having

a well-designed and well-constructed structure will lessen the chance of collapse or cause loss of life in a major earthquake. In addition, the project applicant would be required to submit a design-level geotechnical report to the City as part of MM GEO-1 and implement all remedial grading measures in the 2017 ENGEO report. The implementation of this mitigation measure would ensure that any buildings constructed within the project is not exposed to strong ground shaking hazards and impacts would be less than significant.

IMPACT 4.5-4	***WOULD THE PROPOSED PROJECT, BE LOCATED ON EXPANSIVE SOIL, AS DEFINED IN TABLE18-1-B OF THE UNIFORM BUILDING CODE (1994), CREATING SUBSTANTIAL DIRECT OR INDIRECT RISKS TO LIFE OR PROPERTY?*** ***(LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED)***

According to the 2017 ENGEO report, soils in the vicinity of the project site were observed to be potentially expansive. Laboratory testing of the test pits indicates that these soils have moderate to high shrink/swell potential with variations in moisture content. Future development on the project site would be subject to existing CBC regulations and provisions, as adopted in Chapter 12.04 of the City of Vallejo Municipal Code and enforced by the City during plan review prior to building permit issuance.

In addition, the Solano County Public Health and Safety Chapter and City of Vallejo Nature and Built Environment Chapter for each agency in their respective General Plans, establishes policies and actions that are designed to protect people and structures from geologic hazards, including expansive soils. Implementation of MM GEO-1 (Geotechnical Report) and consistency with the General Plan policies and actions would require that a site-specific design-level geotechnical investigation be prepared by a licensed professional and submitted to the City for review and confirmation prior to construction. This design-level geotechnical investigation would identify the potential for damage related to expansive soils and non-uniformly compacted fill and engineered fill. If a risk is identified, design criteria and specification options may include removal of the problematic soils, and replacement, as needed, with properly conditioned and compacted fill material that is designed to withstand the forces exerted during the expected shrink-swell cycles and settlements.

Design criteria and specifications set forth in the design-level geotechnical investigation would ensure impacts from problematic soils are minimized. As a result, with implementation of MM GEO-1 (Geotechnical Report) and compliance with City ordinances and policies, impacts associated with expansive soils would be reduced to less-than-significant levels.

IMPACT 4.5-5	***WOULD THE PROPOSED PROJECT, 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?*** ***(NO IMPACT)***

The proposed project would involve disposal of wastewater through the City's existing sanitary sewer system for treatment of wastewater rather than septic systems, which is not allowed in the City. Therefore, no septic systems would be constructed as part of the project and no impacts would occur.

IMPACT 4.5-6	***WOULD THE PROPOSED PROJECT, DIRECTLY OR INDIRECTLY DESTROY A UNIQUE PALEONTOLOGICAL RESOURCE OR SITE OR UNIQUE GEOLOGIC FEATURE?*** ***(LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED)***

There are no known paleontological resources located in Vallejo's Planning Area, including the project site. However, development of the proposed project could result in the discovery and disturbance of previously unknown or undiscovered paleontological resources. While fossils are not expected to be discovered during construction, it is possible that significant fossils could be discovered during excavation activities, even in areas with a low likelihood of occurrence. Fossils encountered during excavation could be inadvertently damaged. If a unique paleontological resource is discovered, the impact to the resource could be substantial. MM GEO-2 would require that a qualified archeologist monitor grading and excavation activities, and a paleontologist be notified if paleontological resources are found. If any scientifically important large fossil remains are uncovered, the paleontologist would have the authority to divert heavy equipment away from the fossil site.

With implementation of MM GEO-2 and consistency with General Plan Action NBE-1.9A, impacts associated with paleontological resources would be less than significant.

Mitigation Measure:

MM GEO-2: **Paleontological Monitor.** Prior to the issuance of a grading permit, the project applicant shall, to the satisfaction of the Planning & Development Services Director, provide evidence that a qualified paleontologist has been retained to monitor mass grading and construction activities. The paleontological monitor may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. In the event that any potentially significant paleontological resources are discovered, the paleontological monitor shall stop work inside a zone designated by him/her where additional paleontological resources could be found. A plan for the evaluation of the resource shall be submitted to the Planning & Development Services Director for approval. In the event that a paleontological resource (fossilized invertebrate, vertebrate,

plan or micro-fossil) is found during construction, excavation within 50 feet of the find shall be temporarily halted or diverted until the discovery is evaluated. Upon discovery, the Planning & Development Services Director shall be notified immediately, and a qualified paleontologist shall be retained to document and assess the discovery in accordance with Society of Vertebrate Paleontology's 2010 Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, and determine procedures to be followed before construction is allowed to resume at the location of the find. If determined to be significant, the paleontologist will prepare an excavation plan for mitigating the Project's impact on this resource, including preparation, identification, cataloging, and curation of any salvaged specimens.

4.5.5 CONCLUSION

The 2017 Preliminary Geotechnical Report did not identify any site-specific seismic hazard concerns associated with the project site. The incorporation of mitigation to implement all remedial grading measures in the 2017 ENGEO report to reflect current building code requirements would reduce impacts from seismic hazards to a less than significant level. In addition, based on the lack of known paleontological resources in the project area, and incorporation of mitigation to reduce impacts to unknown resources should they be discovered during construction, impacts to paleontological resources would be less than significant.

4.5.6 CUMULATIVE IMPACTS

Geology and soil-related impacts are generally site-specific and are determined by a particular site's soil characteristics, topography, and proposed land uses. Development projects are analyzed on an individual basis and must comply with established requirements of the applicable jurisdiction's development requirements and the California Building Standards Code as they pertain to protection against known geologic hazards and potential geologic and soil-related impacts.

Cumulative effects related to geology resulting from the implementation of future development of the site and surrounding areas could expose more persons and property to potential impacts due to seismic activity. Long-term impacts related to geology include the exposure of people to the potential for seismically induced ground shaking. Implementation of other cumulative projects would incrementally increase the number of people and structures subject to a seismic event. Seismic and geologic significance would be considered on a project-by-project basis through the preparation of a design-level geotechnical study and such exposures would be minimized through strict engineering guidelines as they pertain to protection against known geologic hazards and potential geologic and soil-related impacts.

Development projects would be required to be constructed in accordance with the latest edition of the CBC and to adhere to all current earthquake construction standards, including those relating to soil characteristics. The proposed project would not contribute to any cumulatively considerable geologic and/or soils impacts. Therefore, cumulative effects of increased seismic risk would be less than significant.

4.5.7 REFERENCES

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4.6 GREENHOUSE GAS

This section of the Environmental Impact Report (EIR) evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is provided. Appendix C to this EIR and includes:

- Air Quality and GHG modeling assumptions and output results.
- Climate Action Plan Checklist.

4.6.1 ENVIRONMENTAL SETTING

GREENHOUSE GASES AND CLIMATE CHANGE

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years,

whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere.[1] *Table 4.6-1: Description of Greenhouse Gases* describes the primary GHGs attributed to global climate change, including their physical properties.

Table 4.6-1: Description of Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	CO_2 is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO_2 is variable because it is readily exchanged in the atmosphere. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N_2O)	N_2O is largely attributable to agricultural practices and soil management. Primary human-related sources of N_2O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N_2O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years. The Global Warming Potential of N_2O is 298.
Methane (CH_4)	Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, about 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH_4 include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH_4 is about 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase-out of Chlorofluorocarbons (CFCs) and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF_6)	SF_6 is an inorganic, odorless, colorless, and non-toxic, non-flammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF_6 is 23,900.
Hydrochlorofluorocarbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase-out. The United States is scheduled to achieve a

[1] Intergovernmental Panel on Climate Change, *Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.

Greenhouse Gas	Description
	100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen trifluoride	Nitrogen trifluoride (NF_3) was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.

Source: Compiled from U.S. EPA, *Overview of Greenhouse Gases*, April 11, 2018 (https://www.epa.gov/ghgemissions/overview-greenhouse-gases); U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016*, 2018; IPCC *Climate Change 2007: The Physical Science Basis*, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, April 2010.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. For example, CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of 25 and 298 times that of CO_2, respectively.

In emissions inventories, GHG emissions are typically reported in terms of metric tons of CO_2 equivalents ($MTCO_2e$). $MTCO_2e$ are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in carbon dioxide equivalents (CO_2e), both from residential developments and human activity in general.

Potential Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO_2 concentrations were found to have increased by nearly 30 percent above pre-industrial (circa 1860) concentrations.

There is international scientific consensus that human-caused increases in GHGs have contributed and would continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea-level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. As the CARB Climate Change Scoping Plan noted, the legislature in enacting Assembly Bill (AB) 32 found that global warming would cause detrimental effects to some of the state's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and the adequacy of electrical power generation. The Climate Change Scoping Plan states as follows: "The impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the state, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are causing sea levels to rise – about 8 inches of increase has been recorded at the Golden Gate

Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms." AB 32 is discussed further below under Regulatory Setting.

4.6.2 REGULATORY SETTING

The following sections provide federal, State, and local regulations for GHGs and global climate change. These agencies work jointly, as well as individually, to understand and regulate the effects of GHG emissions and resulting climate change through legislation, regulations, planning, policy-making, education, and a variety of programs.

FEDERAL

No national standards have been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding

The U.S. EPA authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs (carbon dioxide [CO_2], methane [CH_4], nitrous oxide [N_2O], hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]) constitute a threat to public health and welfare. Therefore, it is the Supreme Court's interpretation of the existing Act and the U.S. EPA's assessment of the scientific evidence that form the basis for the U.S. EPA's regulatory actions.

Federal Vehicle Standards

In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the U.S. EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the U.S. EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, U.S. EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the U.S. EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. On January 12, 2017, the U.S. EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks. It should be noted that the U.S. EPA is currently proposing to freeze the vehicle fuel efficiency standards at their planned 2020 level (37 mpg), canceling any future strengthening (currently 54.5 mpg by 2026).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the U.S. EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the U.S. EPA, this regulatory program would reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the U.S. EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program would apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.

Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, the U.S. EPA published a final rule (effective December 22, 2015) establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two

subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units and (2) stationary combustion turbines. Concurrently, the U.S. EPA published a final rule (effective October 23, 2015) establishing standards of performance for GHG emissions from new, modified, and reconstructed stationary sources: electric utility generating units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits. Additionally, in March 2017, the federal government directed the U.S. EPA Administrator to review the Clean Power Plan in order to determine whether it is consistent with current executive policies concerning GHG emissions, climate change, and energy.

Presidential Executive Order 13783

Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth (March 28, 2017), orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

STATE

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO_2e in the world and produced 440 million gross metric tons of CO_2e in 2015. In the State, the transportation sector is the largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark AB 32 California Global Warming Solutions Act of 2006, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major legislation related to GHG emissions reduction.

California Environmental Quality Act and Climate Change

Under CEQA, lead agencies are required to disclose the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, alter rainfall and snowfall, and affect habitat.

Senate Bill 97 (CEQA: Greenhouse Gas Emissions)

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency

guidelines for the feasible mitigation of GHG emissions and thresholds to analyze the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted amendments to the State CEQA Guidelines, as required by SB 97. These State CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

State CEQA Guidelines

The State CEQA Guidelines are embodied in the California Code of Regulations (CCR), Public Resources Code, Division 13, starting with Section 21000. State CEQA Guidelines section 15064.4 specifically addresses the significance of GHG emissions, requiring a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of: (1) the extent to which the project may increase or reduce GHG emissions; (2) whether the project emissions would exceed a locally applicable threshold of significance; and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The CEQA Guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (State CEQA Guidelines §15064(h)(3)). The State CEQA Guidelines do not, however, set a numerical threshold of significance for GHG emissions.

The State CEQA Guidelines also include the following direction on measures to mitigate GHG emissions, when such emissions are found to be significant:

> Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of GHG emissions may include, among others:
>
> (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
>
> (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
>
> (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
>
> (4) Measures that sequester greenhouse gases; and
>
> (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions,

mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Assembly Bill 32 (California Global Warming Solutions Act)

AB 32 instructs the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. AB 32 directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CARB Scoping Plan

CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual"). The Scoping Plan evaluates opportunities for sector-specific reductions; integrates early actions by CARB and the State's Climate Action Team and additional GHG reduction measures by both entities; identifies additional measures to be pursued as regulations; and outlines the adopted role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewables energy mix of 33 percent by 2020.
- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several Sustainable Communities Strategies have been adopted).
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).
- Creating targeted fees, including a public goods charge on water use, fees on gasses with high global warming potential, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation (CARB 2008).

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated considering current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO_2e ($MMTCO_2e$) to 545 $MMTCO_2e$. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated State-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit)

Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017, CARB adopted a second update to the Scoping Plan[2]. The 2017 Scoping Plan details how the State would reduce GHG emissions to meet the 2030 target set by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and support the Clean Power Plan and other federal actions.

SB 375 (The Sustainable Communities and Climate Protection Act of 2008)

Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

[2] California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed November 13, 2018.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards)

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the U.S. EPA's denial of an implementation waiver. The U.S. EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules would be fully implemented, new automobiles would emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.

SB 1368 (Emission Performance Standards)

SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than five years from resources that exceed the emissions of a relatively clean, combined-cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, of 1,100 lbs. CO_2 per megawatt-hour (MWh).

SB 1078 and SBX1-2 (Renewable Electricity Standards)

SB 1078 (2002) requires California to generate 20 percent of its electricity from renewable energy by 2017. In 2005, SB 107 accelerated the due date of the 20 percent mandate to 2010 instead of 2017. These mandates apply directly to investor-owned utilities. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the State's load-serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2 (2011), which codified the 33 percent by 2020 goal.

SB 350 (Clean Energy and Pollution Reduction Act of 2015)

Signed into law on October 7, 2015, SB 350 implements the goals of Executive Order B-30-15. The objectives of SB 350 are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 25 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator (ISO) to develop more regional electricity transmission markets and improve accessibility in these markets, which would facilitate the growth of renewable energy markets in the western United States.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs with executive orders. Although not regulatory, they set the tone for the State and guide the actions of State agencies.

Executive Order S-3-05

Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that would stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07

Issued on January 18, 2007, Executive Order S 01-07 mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Executive Order S-13-08

Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08

Issued on November 17, 2008, Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly-owned electricity retailers.

Executive Order S-21-09

Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002), which

established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15

Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMCO_2e$. The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The Executive Order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations

The appliance efficiency regulations (California Code of Regulations Title 20, §§1601-1608) include standards for new appliances. Twenty-three categories of appliances are included in the scope of these regulations. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24 Building Energy Efficiency Standards

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations Title 24, Part 6), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy-efficient technologies and methods. Energy-efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and take effect on January 1, 2020. Under the 2019 standards, homes would use about 53 percent less energy and nonresidential buildings would use about 30 percent less energy than buildings under the 2016 standards.

Title 24 California Green Building Standards Code

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) commonly referred to as the CALGreen Code, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community

Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary measures (CALGreen Tier 1 and Tier 2) that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and becomes effective on January 1, 2020.

Among the key mandatory provisions are requirements that new buildings:

- Reduce indoor potable water use by at least 20 percent below current standards;
- Recycle or salvage at least 50 percent of construction waste;
- Utilize low VOC-emitting finish materials and flooring systems;
- Install separate water meters tracking non-residential buildings' indoor and outdoor water use;
- Utilize moisture-sensing irrigation systems for larger landscape areas;
- Receive mandatory inspections by local officials of building energy systems, such as HVAC and mechanical equipment, to verify performance in accordance with specifications in non-residential buildings exceeding 10,000 square feet; and
- Earmark parking for fuel-efficient and carpool vehicles.

REGIONAL

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

Under CEQA, BAAQMD is a commenting responsible agency on air quality within its jurisdiction or impacting its jurisdiction. BAAQMD reviews projects to ensure that they would: (1) support the primary goals of the latest Air Quality Plan; (2) include applicable control measures from the Air Quality Plan; and (3) not disrupt or hinder implementation of any Air Quality Plan control measures.

In May 2010, BAAQMD adopted its updated CEQA Air Quality Guidelines as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. BAAQMD CEQA Air Quality Guidelines include methodologies and thresholds for addressing project and program level air quality and GHG emissions. The CEQA Air Quality Guidelines were called into question by an order issued March 5, 2012, in *California Building Industry Association (CBIA) v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The Alameda County Superior Court issued a judgment finding that BAAQMD had failed to comply with CEQA when it adopted the thresholds.

The court issued a writ of mandate ordering BAAQMD to set aside the thresholds and cease dissemination of them until BAAQMD had complied with CEQA. Notably, the court's ruling was based solely on BAAQMD's failure to comply with CEQA. The court did not reach any issues relating to the validity of the scientific reasoning underlying the recommended significance thresholds.

In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. CBIA sought review by the California Supreme Court on three issues, including the Appellate Court's decision to uphold BAAQMD's adoption of the thresholds. The Supreme Court granted review on just one issue: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the California Supreme Court confirmed that CEQA, with several specific exceptions, is concerned with the impacts of a project on the environment, not the effects the existing environment may have on a project. BAAQMD published a new version of its Guidelines dated May 2017, which includes revisions made to address the Supreme Court's opinion. BAAQMD is currently working on revising any outdated information in the Guidelines as part of its update to the State CEQA Guidelines and thresholds of significance.

Clean Air Plan

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The 2017 Clean Air Plan: Spare the Air, Cool the Climate was adopted on April 19, 2017, by BAAQMD.

The 2017 Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD would continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the 2017 Clean Air Plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious greenhouse gas (GHG) reduction targets for 2030 and 2050 and provides a regional climate protection strategy that would put the Bay Area on a pathway to achieve those GHG reduction targets.

The 2017 Clean Air Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful to Bay Area residents, such as particulate matter, ozone, and toxic air contaminants; to reduce emissions of methane and other "super-GHGs" that are potent climate pollutants in the near-term; and to decrease emissions of carbon dioxide by reducing fossil fuel combustion.

LOCAL

Propel Vallejo General Plan 2040

Goal EET-4	Sustainable Economic Development: Pursue economic development that enhances equitable local wealth growth, improves quality of life, and respects the natural environment.

Policy EET-4.2	Responsible Development. Favor residential, commercial, and industrial development that can mitigate or avoid environmental impacts.
Action EET-4.2A	Continue to incorporate sustainable design elements such as solar panels and water-efficient landscaping into the construction of City-owned and operated facilities.
Action EET-4.2B	Consider adopting thresholds of significance for environmental review of proposed developments under the California Environmental Quality Act.
Action EET-4.2C	Assess how the City's procurement policies and employee commute modes and patterns could contribute to greenhouse gas reductions, and offer programs to mitigate potential impacts.
Goal MTC-2	Mobile Community: Enhance local transportation options and maintain a safe, convenient, and sustainable local transportation system.
Policy MTC-2.12	Resource Efficiency. Facilitate use of emerging vehicle technology to help reduce vehicle miles traveled and greenhouse gas emissions.

City of Vallejo Climate Action Plan (CAP)

The City of Vallejo's Climate Action Plan (CAP) was first published in August 2012. The CAP identifies policies that would achieve the state-recommended GHG reduction target of 15 percent below 2008 levels by 2020. The CAP provides goals and associated measures, also referred to as reduction measures, in the sectors of energy use, transportation, land use, water, solid waste, and off-road equipment.

City of Vallejo Municipal Code

Chapter 12.50, Green Building Ordinance, of the City's Municipal Code includes the CALGreen requirements. The Vallejo Municipal Code also includes Water-Efficient Landscape Requirements (Chapter 16.71).

4.6.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

Based upon the criteria derived from Appendix G of the *CEQA Guidelines*, a project normally would have a significant effect on the environment if it would:

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

BAAQMD Thresholds

BAAQMD's 2017 CEQA Air Quality Guidelines provide significance thresholds for project GHG emissions that are used by the City of Vallejo. If the BAAQMD thresholds are exceeded, a potentially significant impact could result. These thresholds are substantiated in the Options and Justification Report (dated October 2009) prepared by BAAQMD. These recommendations represent the best available science on the subject of what constitutes a significant GHG effect on climate change for this project. BAAQMD's recommended thresholds are as follows:

- Compliance with a Qualified Climate Action Plan or
- Meet one of the following thresholds:
- 1,100 MT CO_2e/year (yr); or
- 4.6 MTCO_2e/service population (sp)/yr (residents and employees)

These thresholds are recommended by BAAQMD based on the substantial evidence that such thresholds represent quantitative and/or qualitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. The GHG CEQA significance thresholds recommended above are intended to serve as interim levels during the implementation of the AB 32 Scoping Plan and SB 375, which will occur over time. Until AB 32 has been fully implemented in terms of adopted regulations, incentives, and programs and until SB 375 required plans have been fully adopted, or the California Air Resources Board (ARB) adopts a recommended threshold, BAAQMD recommends that local agencies apply the recommended GHG thresholds in the Bay Area.[3]

METHODOLOGY

Global climate change is, by definition, a cumulative impact of GHG emissions. Therefore, there is no project-level analysis. The baseline against which to compare potential impacts of the project includes the natural and anthropogenic drivers of global climate change, including world-wide GHG emissions from human activities which almost doubled between 1970 and 2010 from approximately 20 gigatonnes (Gt) of CO_2/yr to nearly 40 GtCO_2/yr. As such, the geographic extent of climate change and GHG emissions' cumulative impact discussion is worldwide.

Addressing GHG impacts requires an agency to make a determination as to what constitutes a significant impact. The amendments to the CEQA Guidelines specifically allow lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions will have a "significant" impact on the environment. The guidelines direct that agencies are to use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" the project's GHG emissions (14 CCR Section 15064.4[a]).

[3] Options and Justification Report, BAAQMD, October 2009 (pages D-11 and D-12).

A number of expert agencies throughout the state have drafted or adopted varying threshold approaches and guidelines for analyzing 2020 operational GHG emissions in CEQA documents. The different thresholds include (1) compliance with a qualified GHG reduction strategy, (2) performance-based reductions, (3) numeric "bright-line" thresholds, and (4) efficiency-based thresholds. The California Supreme Court decision in the Centers for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company (November 30, 2015, Case No. S217763) (hereafter "Newhall Ranch") confirmed that when an "agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method."

Efficiency-based thresholds represent the rate of emission reductions needed to achieve a fair share of California's GHG emissions reduction target established under AB 32. Efficiency-based thresholds are typically calculated by dividing emissions associated with residential and commercial uses (also called the "land use sector") in the state by the sum of jobs and residents. (The 2020 Business As Usual (BAU) emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors—e.g., transportation, electrical power, commercial and residential/land use, industrial, etc.). The sum of jobs and residents is called the "service population," and a project's service population is defined as the people that work, study, live, and congregate on the project site. Therefore, for the purposes of this analysis, the proposed project is compared to an efficiency-based significance threshold.

Although noting that use of such thresholds is not required, the Court noted that BAAQMD adopted GHG significance thresholds and their validity was not under examination. The thresholds are based on compliance with AB 32 and use a service population GHG metric for land use projects. It is important to note that the Court recognized the use of efficiency (i.e., service population) metrics. The Court's support of efficiency metrics as a superior approach was based on the recognition that California's population will continue to grow, while at the same time GHG emissions will need to shrink.

U.S. Supreme Court rulings establish that the U.S. Constitution limits exactions on new development to those having a "nexus" and "rough proportionality" to the impact actually caused by the new development. While there is a nexus for requiring GHG reductions for new development that results in new GHG emissions, the reductions mandated must be proportional to the impact caused by new development. Requiring new development to meet the average statewide GHG efficiency is a proportional measure but requiring more than average levels of efficiency would be mitigating existing conditions beyond the impact associated with a proposed development. A requirement to mitigate beyond a project's impact would be in conflict with the law. Using the efficiency-based standard, it is possible to directly compare a proposed project's GHG to the State plan to determine compliance. As the adopted state plan is presumed to be adequate to meet the GHG reduction goals of AB 32, if a project is consistent with the plan, it is also consistent with the GHG reduction goals of AB 32.

The Newhall Ranch decision also identified the need to analyze both year 2020 and post-2020 emissions, as applicable, stating that an "EIR taking a goal-consistency approach to CEQA significance may in the near future need to consider the project's effects on meeting longer-term emissions reduction targets." The

recent Cleveland National Forest Foundation v. San Diego Association of Governments Supreme Court decision has affirmed this requirement. SB 32 codifies the 2030 target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes the state board to adopt an interim GHG emissions level target to be achieved by 2030. SB 32 states that the intent is for the legislature and appropriate agencies to adopt complementary policies that ensure that the long-term emissions reductions advance specified criteria. Furthermore, while not legally binding on local land use agencies, Executive Order S-03-05 has set forth a long-term reduction target to reduce GHG emissions by 80 percent below 1990 levels by 2050. At the time of writing this analysis, however, no specific policies or emissions reduction mechanisms have been established.

The Association of Environmental Professionals' Climate Change Committee recommended that CEQA analyses for most land use development projects can continue to rely on current thresholds for the immediate future, but that long-term projects should consider "post- 2020 emissions consistent with 'substantial progress' along a post-2020 reduction trajectory toward meeting the 2050 target."[4] The committee further recommends that the "significance determination … should be based on consistency with 'substantial progress' along a post-2020 trajectory." Accordingly, project-related impacts in both 2020 and 2030 are considered in this analysis using the efficiency-based threshold concept.

Post-2020 (Substantial Progress) Threshold Calculation

As noted above, BAAQMD developed GHG efficiency metrics for the land use sector that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020). The resultant GHG efficiency metric is 4.6 MT CO_2e/SP. BAAQMD has determined that a project with GHG emissions per service population less than 4.6 MT CO_2e/SP would be considered less than significant. Development of the proposed project would occur beyond 2020 (with an opening year of 2023). Therefore, a threshold that addresses a future target is appropriate. The BAAQMD thresholds were used to develop plan level thresholds for 2040. Although BAAQMD has not published a post-2020 quantified threshold, this EIR analysis uses a substantial progress efficiency metric based on linear interpolation. The substantial progress efficiency metric has been calculated for the 2023 (the project's opening year) and 2030 (the horizon year consistent with SB 32, which requires GHG emissions to be 40 percent below 1990 levels). It should be noted that the 2030 threshold is only provided for information purposes.

Linear Interpolation Equation

The inventory goal for the years 2023 and 2030 are selected because these represent the opening year and consistency with the goal of SB 32 (statewide GHG reductions of 40 percent below 1990 levels by 2030) as well as the necessary trajectory toward meeting the goal of Executive Order S-03-05 (statewide GHG reductions of 80 percent below 1990 levels by 2050). As BAAQMD's 4.6 $MTCO_2e$/SP threshold was established to meet the AB 32 2020 goal, the substantial progress 2030 goal should be 2.76 $MTCO_2e$/SP

[4] Association of Environmental Professionals' (AEP) Climate Change Committee, 2015. *Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California* (Beyond 2020).

(i.e., 40 percent below 4.6 $MTCO_2e/SP$). The opening year (2023) threshold was calculated by interpolating between the 2020 threshold and the 2030 threshold.

$$2023\ Threshold = \frac{((2023 - 2020) * (2.76 - 4.6))}{(2030 - 2020)} + 4.6$$

Where:

2023 Threshold = Interpolated threshold between 2020 and 2030

2.76 = 40 percent below BAAQMD's 4.6 $MTCO_2e/SP$ threshold (2.76 $MTCO_2e/SP$)

4.6 = BAAQMD's 4.6 $MTCO_2e/SP$ threshold

Project Emissions Calculations

The project's construction and operational emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). For analytical purposes, construction is anticipated to occur for approximately three years. The modeling conservatively assumed that construction would begin in 2020 with buildout in 2023. It should be noted that analyzing construction at an earlier date is conservative, because the model incorporates cleaner emissions factors in future years to account for the implementation of more stringent emissions standards and fleet turnover. Details of the modeling assumptions and emission factors are provided in Appendix C of this EIR. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecasted based on the proposed construction schedule, included in Appendix C of this EIR, and applying the mobile-source and fugitive dust emissions factors derived from CalEEMod. The project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The project's operations-related GHG emissions would be generated by vehicular traffic (vendor delivery trucks, and worker/consumer/resident vehicles), area sources (e.g., landscaping maintenance, consumer products), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste.

It should be noted that CalEEMod emission factor incorporates compliance with some, but not all, applicable rules and regulations regarding energy efficiency and vehicle fuel efficiency, and other GHG reduction policies, as described in the CalEEMod User's Guide (November 2017). The reductions obtained from each regulation and the source of the reduction amount used in the analysis are described below.

The following regulations are incorporated into the CalEEMod emission factors:

- Pavley I motor vehicle emission standards
- Low Carbon Fuel Standard (LCFS)
- 2016 Title 24 Energy Efficiency Standards

The following regulations have not been incorporated into the CalEEMod emission factors and require alternative methods to account for emission reductions provided by the regulations:

- Pavley II (LEV III) Advanced Clean Cars Program (extends to model year 2025)
- Renewable Portfolio Standards (RPS)
- Green Building Code Standards (indoor water use)
- California Model Water Efficient Landscape Ordinance (Outdoor Water)
- 2019 Title 24 Energy Efficiency Standards (effective January 1, 2020)

Pavley II/LEV III standards have not been incorporated in the latest version of CalEEMod. Reductions from standards are calculated by adjusting the CalEEMod GHG passenger car and light truck emission factors by CARB's estimated three percent reduction expected from the vehicle categories subject to the regulation by 2020.

RPS is not accounted for in the current version of CalEEMod. Reductions from RPS are addressed by revising the electricity emission intensity factor in CalEEMod to account for the utility complying with the 33 percent renewable mandate by 2020. The Pacific Gas & Electric Company (PG&E) has exceeded the 33 percent renewable energy goal for 2020 (PG&E's 2018 power mix included 39 percent renewables[5]) and will be required to achieve the 60 percent renewable energy goal by 2030 established by SB 100.

Energy savings from water conservation resulting from the Green Building Code Standards for indoor water use and California Model Water Efficient Landscape Ordinance for outdoor water use are not included in CalEEMod. The Water Conservation Act of 2009 mandates a 20 percent reduction in urban water use that is implemented with these regulations. Benefits of the water conservation regulations are applied in the CalEEMod mitigation component. Adjustments were also made for project design features that would reduce GHG emissions. The proposed project would also be constructed in conformance with CALGreen, which requires high-efficiency water fixtures for indoor plumbing and water-efficient irrigation systems.

The 2019 Building Energy Efficiency Standards (adopted on May 9, 2018) take effect on January 1, 2020. Under the 2019 standards, homes would use about 53 percent less energy and nonresidential buildings would use about 30 percent less energy than buildings under the 2016 standards. Adjustments were made for project design features that would reduce GHG emissions. Furthermore, the project would develop new buildings that would achieve the latest Building Energy Efficiency Standards pursuant to Chapter 12.50 (Green Building Ordinance) of the Vallejo Municipal Code.

The mitigated output from CalEEMod show reductions from existing regulatory requirements and project design features that are termed "mitigation" within the model; however, those modeling components associated with locational measures and compliance with existing regulations are not considered mitigation under CEQA, but rather are treated as project design features. The project would incorporate

[5] Pacific Gas & Electric Company, *Clean Energy Solutions*, 2019, https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page?WT.mc_id=Vanity_cleanenergy, accessed November 15, 2019.

design features and would obtain benefits from its location that would reduce project vehicle miles traveled compared to default values. The measures incorporated into the CalEEMod modeling and mitigation component include:

- **LUT-3 Increase Diversity of Land Uses**: The measure requires at least three different land uses within 0.25 mile. There are single-family residential, multi-family residential, retail, and office land uses within this distance from the project.
- **LUT-4 Improve Destination Accessibility**: The measure is based on distance to downtown or major job centers. The project is within three miles from an existing job center (CARB designated business district) in downtown Vallejo.
- **SDT-1 Improve Pedestrian Access**: This measure provides pedestrian access linking the project to other areas to encourage walking. The measure requires both on-site and off-site pedestrian infrastructure. The proposed project incorporates sidewalks, paseos, and a trail designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space.
- **LUT-5 Increase Transit Accessibility**: This measure requires the presence of a transit stop within walking distance of the project. CalEEMod calculates the reduction on distance to the stop. Mitigation Measure TR-4 (refer to Section 4.15, Transportation) requires a new SolTrans bus pull-out.

The reductions attributable to these measures in CalEEMod are derived from methodologies compiled in the CAPCOA report Quantifying GHG Measures. Each measure was assessed to determine its consistency with CAPCOA criteria for the use of the measure.

4.6.4 PROJECT IMPACTS AND MITIGATION

IMPACT GHG-1	***WOULD THE PROJECT GENERATE GREENHOUSE GAS EMISSIONS, EITHER DIRECTLY OR INDIRECTLY, THAT COULD HAVE A SIGNIFICANT IMPACT ON THE ENVIRONMENT?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION)***

The project would include direct and indirect GHG emissions from project commercial and residential construction and operations. Construction is considered a direct source since these emissions occur at the site. Direct operational-related GHG emissions for the proposed project would include emissions from area and mobile sources, while indirect emissions are from energy consumption, water demand, and solid waste. These sources are discussed in detail below.

CONSTRUCTION EMISSIONS

Construction of the project would result in direct emissions of CO_2, N_2O, and CH_4 from the operation of construction equipment and the transport of materials and construction workers to and from the project site. BAAQMD does not have a threshold for construction GHG emissions. However, BAAQMD advises that construction GHG should be disclosed and a determination on the significance of construction GHG emissions in relation to meeting AB 32 GHG reduction goals should be made. Total GHG emissions generated during all phases of construction were combined and are presented in Table 4.6-2, *Construction Greenhouse Gas Emissions*. The CalEEMod outputs are contained within the Appendix C, Air Quality and GHG Data. As shown in *Table 4.6-2: Construction Greenhouse Gas Emissions*, construction activities would result in 4,004 $MTCO_2e$ over the entire construction period.

Table 4.6-2: Construction Greenhouse Gas Emissions

Year	Emissions ($MTCO_2e$)[1]
2020	319
2021	535
2022	1,672
2023	1,478
Total	**4,004**
Exceeds BAAQMD Thresholds?[2]	**N/A**

Notes:
1. Due to rounding, total $MTCO_2e$ may be marginally different from CalEEMod output. $MTCO_2e$ = metric tons of carbon dioxide equivalent
2. BAAQMD does not have a threshold for construction GHG emissions.

Source: Kimley-Horn and Associates, 2019; refer to Appendix C.

OPERATIONAL

Operational or long-term emissions occur over the life of the proposed project. GHG emissions would result from direct emissions such as project generated vehicular traffic, on-site combustion of natural gas, operation of any landscaping equipment. The calculations include energy consumption rates to represent the latest building code, 2019 Title 24. Operational GHG emissions would also result from indirect sources, such as off-site generation of electrical power over the life of the project, the energy required to convey water to, and wastewater from the project site, the emissions associated with solid waste generated from the project site, and any fugitive refrigerants from air conditioning or refrigerators. *Table 4.6-3: Operational Greenhouse Gas Emissions*, summarizes the total GHG emissions associated with proposed project. A description of the primary sources of operational emissions is provided below.

Area Sources. Area source emissions occur from hearths (i.e., natural gas fireplaces)[6], architectural coatings, landscaping equipment, and consumer products. Landscaping is anticipated to occur throughout the project area. Additionally, the primary emissions from architectural coatings are volatile organic

[6] Wood-burning fireplaces are not permitted under BAAQMD Regulation 6, Rule 3.

compounds, which are relatively insignificant as direct GHG emissions. The proposed project's unmitigated area source emissions would be 23 $MTCO_2eq/yr$ (refer to Table 4.6-3).

Energy Consumption. Energy consumption consists of emissions from project consumption of electricity and natural gas. The project's unmitigated emissions would be a maximum of 484 $MTCO_2e/yr$ from energy consumption (refer to Table 4.6-3).

Mobile Sources. Mobiles sources from the proposed project were calculated with CalEEMod based on the trip generation from the project Traffic Impact Analysis. As shown in Table 4.6-3, unmitigated project mobile source emissions would be a maximum of 8,594 $MTCO_2eq/yr$.

Solid Waste. Solid waste releases GHG emissions in the form of methane when these materials decompose. The unmitigated solid waste emissions would be 461 $MTCO_2e/yr$ from solid waste (refer to Table 4.6-3).

Water and Wastewater. GHG emissions from water demand would occur from electricity consumption associated with water conveyance and treatment. The proposed project would result in a maximum of 50 $MTCO_2e/yr$ from water and wastewater conveyance and treatment (refer to Table 4.6-3).

Vegetation Land Use Change (Loss of Sequestration). Sequestration refers to the process of vegetation storing CO_2 (resulting in a carbon sink and reducing CO_2 emissions). As the project would develop natural land with vegetation that is currently sequestering CO_2, loss of the existing vegetation would result in approximately 173 $MTCO_2e$ that would not be sequestered, which is approximately 9 $MTCO_2e/yr$ over a 20-year growing period.

Table 4.6-3: Operational Greenhouse Gas Emissions

Category	Emissions ($MTCO_2e$)[1]			
	2023 Unmitigated	**2023 Mitigated**	**2030 Unmitigated**	**2030 Mitigated**
Area	23	2	23	2
Energy	484	482	448	415
On-Road Mobile Sources[2]	8,594	4,067	7,255	3,494
Off-Road	177	177	177	177
Waste	461	115	461	115
Water/Wastewater	50	41	47	38
Sequestration Loss	9	9	9	9
Total	**9,798**	**4,893**	**8,420**	**4,250**
Emissions per Service Population Per Year ($MTCO_2e/SP/year$)[3]	**13.06**	**6.52**	**11.23**	**5.67**
BAAQMD Efficiency Metric Threshold ($MTCO_2e/SP/year$) (Adjusted for 2023 and 2030)[4]	**4.05**	**4.05**	**2.76**	**2.76**
Exceeds BAAQMD Thresholds?	**Yes**	**Yes[5]**	**Yes**	**Yes[5]**

Category	Emissions ($MTCO_2e$)[1]			
	2023 Unmitigated	2023 Mitigated	2030 Unmitigated	2030 Mitigated

Notes:
1. Emissions were calculated using CalEEMod version 2016.3.2. Emissions may not total due to rounding. Mitigated emissions also include implementation of regulations identified in the Methodology Section.
2. Proposed project mobile emissions are based on the net total project trip generation of 11,060 daily vehicle trips on weekdays, 11,539 daily vehicle trips on Saturdays, and 10,875 daily vehicle trips on Sundays per the project Transportation Impact Analysis.
3. The service population consists of residents and employees. As noted in Chapter 4.12 (Population and Housing), the project would have 60 net new Costco employees at the proposed Costco, 32 new retail commercial employees, 513 new residents, and 145 backfill employees at the existing Costco site when the building is re-occupied, for a total service population of 750.
4. Although BAAQMD has not published a post-2020 quantified threshold yet, this analysis uses their substantial progress efficiency metric of 4.05 MT CO_2e/ year/SP in 2023 and 2.76 in 2030 MT CO_2e/ year/SP.
5. Implementation of Mitigation Measure GHG-12 requires the purchase of GHG carbon credits and/or offsets to reduce any remaining emissions below the BAAQMD threshold.

Source: Kimley-Horn, 2019; refer to Appendix C.

Table 4.6-3 lists the emissions from the project unmitigated scenario, the project with mitigation and regulations in 2023, as well as the unmitigated and mitigated emissions in 2030. As the unmitigated emissions would exceed thresholds, mitigation would be required. The mitigated scenario includes project design features (e.g., diversity of land uses, improved destination accessibility, improved pedestrian access) as well as mitigation measures to be implemented by the project applicant to reduce greenhouse gas emissions. These mitigation measures are listed below. MM GHG-1 requires outdoor electrical outlets for the use of electric-powered landscape equipment, MM GHG-2 prohibits wood and natural gas burning hearths, MM GHG-3 requires a residential and non-residential Transportation Demand Management (TDM) program to reduce vehicle miles traveled and mobile source emissions. MM GHG-4 through MM GHG-6 require traffic calming measures, pedestrian connectivity features, and internal trails to encourage non-motorized transportation. Additionally, MM GHG-7 through MM GHG-9 require alternatively fueled equipment (e.g., forklifts), truck idling restrictions, and electrical hookups at loading docks. MM GHG-10 requires the proposed Costco building to be solar-ready and add solar panels within four years of project opening. MM GHG-11 includes additional energy efficiency, water efficiency, solid waste reduction, and educational measures to further reduce emissions. GHG emissions offsets to reduce the remaining emissions below thresholds are required by MM GHG-12. GHG mitigation credits and carbon offsets are required to be of sufficient criteria to meet the standards of an Approved Registry. Carbon offsets shall be real, additional, quantifiable, enforceable, validated, and permanent.

With a service population (SP) of 750[7], the project would generate approximately 6.52 $MTCO_2e$/SP/yr and 5.67 $MTCO_2e$/SP/yr for 2023 and 2030 conditions, respectively, with the implementation of mitigation measures GHG-1 through GHG-11. Additionally, mitigation measure GHG-12 would ensure that project GHG emissions are reduced below thresholds because the project applicant would be required to purchase carbon offset credits to reduce project greenhouse gas emissions below the BAAQMD thresholds. Therefore, impacts would be less than significant with the implementation of mitigation.

As noted above, development of the proposed project would occur beyond 2020 (with an opening year of 2023). Therefore, a threshold that addresses a future target is appropriate. Although BAAQMD has not

[7] The service population consists of residents and employees of the proposed project. This includes 60 net new Costco employees at the proposed Costco, 32 new retail commercial employees, 513 new residents, and 145 backfill employees at the existing Costco site when the building is re-occupied, for a total service population of 750.

published a post-2020 quantified threshold, this EIR analysis uses a "Substantial Progress" efficiency metric of 4.05 MT CO_2e/year/SP. This is calculated for 2023 based on the GHG reduction goals of SB 32, taking into account the 1990 inventory (refer to the methodology discussion in Section 4.6.3). It should be noted that 2030 emissions and thresholds are provided for informational purposes only.

Table 4.6-3 shows that most of the project's emissions (approximately 93 percent in the mitigated opening year scenario) are from energy and mobile sources. As noted above, energy and mobile sources are targeted by statewide measures such as continued implementation of the Renewable Portfolio Standard (the target is now set at 60 percent renewables by 2030) and extension of the Cap and Trade program (requires reductions from industrial sources, energy generation, and fossil fuels). The Cap and Trade program covers approximately 85 percent of California's GHG emissions as of January 2015. The statewide cap for GHG emissions from the capped sectors (i.e., electricity generation, industrial sources, petroleum refining, and cement production) commenced in 2013 and will decline approximately three percent each year, achieving GHG emission reductions throughout the program's duration. The passage of AB 398 in July 2017 extended the duration of the Cap and Trade program from 2020 to 2030.

The proposed project is required to comply with all building codes in effect at the time of construction which include energy conservation measures mandated by Title 24 of the California Building Standards Code – Energy Efficiency Standards. Title 24 standards require energy conservation features in new construction (e.g., high-efficiency lighting, high-efficiency heating, ventilating, and air conditioning (HVAC) systems, thermal insulation, double-glazed windows, water-conserving plumbing fixtures), which help reduce GHG emissions. California's Building Energy Efficiency Standards are updated on an approximately three-year cycle. Residential buildings built to the 2016 standards use about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than residences built to the 2013 standards. Residences built to the 2019 standards will use about 53 percent less energy and nonresidential buildings would use about 30 percent less energy than buildings under the 2019 standards when compared to the 2016 standards.[8]

Additionally, MTC and ABAG's SB 375 regional plan climate targets are also expected to help California reach its GHG reduction goals with reductions in per capita transportation emissions of 7 percent by 2020 and 15 percent by 2035. The project is an infill development project that would include retail, residential, and open space areas near existing residential areas and retail services, thereby potentially reducing the need to travel long distances for some residents and reducing associated GHG emissions.

It should be noted that service population is typically defined as residents and employees, and projects with high numbers of customers or visitors are not counted as service population. Therefore, retail projects tend to exceed service population thresholds even for highly efficient projects because the additional customers are not included in the service population calculation although they generate mobile source emissions (usually the highest emissions source), though that is not the case on this project based on 4.6-3. For the evaluation of the proposed project against a service population threshold, the

[8] California Energy Commission, *2019 Building Energy Efficiency Standards Frequently Asked Questions*, March 2018.

transportation emissions associated with customers and visitors are conservatively included even though those emissions are already accounted for with their own residences or origins.

The project site is an infill project within an urban area near I-80, a mix of land uses, and large roadways. The proposed project includes 179,690 sf of retail uses including a Costco store, 178 single-family dwelling units, open space, and green areas. To reduce energy consumption and associated GHG emissions and promote sustainability, Costco would incorporate various energy-saving measures when constructing the new facility. Below are some of the significant practices that Costco currently incorporates into new buildings that help conserve energy and other natural resources:

- Parking lot light standards are designed in order to provide even light distribution, and utilize less energy compared to a greater number of fixtures at lower heights. The use of LED lamps provides a higher level of perceived brightness with less energy than other lamps such as high-pressure sodium.
- New and renewable building materials are typically extracted and manufactured within the region.
- The use of pre-manufactured building components, including structural framing and metal panels, helps to minimize waste during construction.
- Pre-manufactured metal wall panels with insulation carry a higher R-Value and greater solar reflectivity to help conserve energy. Building heat absorption is further reduced by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall.
- Costco uses a reflective cool roof material to produce lower heat absorption and thereby lowering energy requirements during the hot summer months. This roofing material meets the requirements for the U.S. EPA's Energy Star energy efficiency program.
- A substantial amount of the proposed plant material for the new site is native drought tolerant and would use less water than other common species.
- The irrigation system includes the use of deep root watering bubblers for parking lot trees to minimize usage and ensure that water goes directly to the intended planting areas.
- Storm water management plans are designed to maintain quality control and storm water discharge rates.
- Use of native species vegetation and drip irrigation systems greatly reduces potable water consumption.
- High-efficiency restroom fixtures that achieve a 40 percent decrease and water savings over U.S. standards by using high efficient restroom fixtures.
- Building envelopes are all insulated to meet or exceed current energy code requirements.
- Testing and maintenance of mechanical systems to maintain efficiency and increase reliability.
- HVAC comfort systems are controlled by a computerized building management system to maximize efficiency.

- HVAC units are high efficiency direct ducted units.
- HVAC units have phased out the use of HCFC's completely, long before the Montreal Protocol timeline.
- Parking lot and exterior lights are controlled by a photosensor and time clock.
- Lighting is controlled by the overall project energy management system.
- High-efficiency light source and ballasts (LED) and bi-level switching for fluorescent fixtures are used.
- Energy-efficient Transformers (i.e., Square D Type EE transformers) are used.
- Variable speed motors would be used on make-up air units and booster pumps.
- Gas water heaters are direct vent and 94 percent efficient or greater.
- Reclaim tanks are used to capture heat released by refrigeration equipment to heat domestic water in lieu of rejecting heat to the outside.
- Main Building structure is a pre-engineered system that uses 100 percent recycled steel materials and is designed to minimize the amount of material utilized.
- Roof material is 100 percent recycled standing seam metal panel, designed to maximum efficiency for spanning the structure.
- When masonry and concrete are used, the materials purchased are local to the project minimizing the transportation and impact to local road networks.
- Construction waste is recycled whenever possible.
- Floor sealant is No-VOC and represents over 80 percent of the floor area.
- Lighting systems are designed with employee controllability in mind. Lighting is controlled by timers but over-ride switches are provided for employee use.
- CO_2 is monitored throughout the warehouse
- Extensive recycling/reuse program is implemented for warehouse and office space including tires, cardboard, grease, plastics and electronic waste.
- Suppliers are required to reduce packaging and consider alternative packaging solutions.
- Distribution facilities are strategically located to minimize miles traveled for delivery.
- Deliveries are made in full trucks.
- All Costco trucks are equipped with an engine idle shut off timer.

As shown in Table 4.6-3, with the implementation of MM GHG-1 through GHG-11, net GHG emissions resulting from the proposed project would exceed the BAAQMD efficiency metric of 4.6 MT CO_2e/year/SP and the substantial progress efficiency metric of 4.05 MT CO_2e/year/SP for 2023. Mitigation Measure GHG-12 requires the purchase of GHG offset credits to reduce the emission levels below BAAQMD

thresholds. Therefore, project-related GHG emissions would be significant and the following mitigation measures are required.

Mitigation Measures:

MM GHG-1 **Electric Powered Landscape Equipment.** Prior to issuance of building permits, the project applicant shall prepare and submit building plans to the City of Vallejo Chief Building Official that demonstrate that all new residential and non-residential structures have outdoor electrical outlets accessible to maintenance workers and landscapers in the front, side and rear exteriors of all structures to allow the use of electric-powered equipment.

MM GHG-2 **Hearth Emissions.** Prior to the issuance of building permits, the building official shall confirm that the applicable project plans and specifications do not include wood-burning and natural gas hearths.

MM GHG-3 **Vehicle Trip Reduction.** The project applicant shall submit a qualifying Commute Trip Reduction (CTR)/Transportation Demand Management (TDM) plan prepared by a qualified transportation consultant acceptable to the City to reduce vehicle miles traveled by at least 17.8 percent. The TDM plan shall be approved by the City of Vallejo Public Works Director prior to the issuance of occupancy permits and incorporated into the project's Covenants. Conditions and Restrictions (CC&Rs). The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The TDM plan shall include a requirement for annual reporting to the City Planning Division showing good faith compliance with plan requirements. The TDM plan may be modified with the City's agreement, provided that no additional trips are generated.

Examples of trip reduction measures for non-residential uses may include, but are not limited to:

- Include a pedestrian access system integrated into the design of the project to encourage pedestrian travel as an alternative to automobile travel.
- Post transit information (maps, schedules, fares, etc.) in a public area of Costco that is accessible to employees and patrons;
- Provide a work commute trip reduction program for on-site employment that may include employer carpooling promotion, employer ride-matching assistance, preferential carpool parking on-site, employer vanpool assistance, and on-site bicycle end-trip facilities including bicycle parking.
- Provide employer-subsidized transit passes;
- Sponsor an employee ride-sharing program;
- Provide employee lockers for personal items;

- Provide employees with an employee-only restroom with a shower (applies only to Costco warehouse);
- Provide secure indoor bicycle parking (racks or lockers) for employees;
- Provide customer bicycle parking (racks) in safe and convenient locations;
- Allow flex scheduling or compressed scheduling practices;
- Provide preferential parking spaces for clean air vehicles;
- Provide additional parking spaces designated for electric vehicles and electric vehicle charging stations beyond what is already required (applies only to Costco warehouse) and
- If home delivery service is provided in the future, it shall be performed using low emission or alternative-fueled (electric, natural gas, hydrogen, etc.) vehicles.

Examples of trip reduction measures for residential uses may include, but are not limited to:

- Provide a ride-matching assistance program that will include ride-matching through a website and/or social media site and/or advertisements in community common areas;
- Provide a school trip matching program via the Homeowners Association (HOA) and the local schools to match local students together for potential carpools through the HOA, PTA, and school website and/or social media site and/or promotion at the local schools;
- Establish a Transit Management Association, such as through a HOA, to promote, manage, and monitor transit and mobility services and infrastructure, such as through distributing information to homeowners on transit options or through posters in inform the public; and
- The Transit Management Association shall work with local automotive dealers to help promote CNG electric and hybrid electric vehicles, such as requesting that dealers offer incentive programs to residents of the project.

MM GHG-4 **Traffic Calming.** The project developers shall integrate traffic calming measures into the community-wide circulation network to promote reduced speeds and encourage pedestrian and bicycle trips. Prior to the issuance of building permits, the building official shall confirm with the Public Works Director that the applicable project public improvement plans and specifications include traffic calming measures such as marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others where applicable.

MM GHG-5 **Pedestrian Connectivity.** The project developers shall provide as part of the project and consistent with City requirements and limitations, sidewalks and crosswalks at all streets (along with general pedestrian connectivity throughout the project) to encourage pedestrian travel and offer an alternative to vehicle trips.

MM GHG-6 **Internal Trails.** The project developers shall construct a multi-purpose internal trail system that includes an off-road multi-use trail and bike lanes within the street right-of-way.

MM GHG-7 **Alternatively Fueled Equipment.** To the extent that such equipment is readily available and can adequately perform all tasks, Costco shall use electric-, propane-, or natural gas-powered mobile equipment (forklifts, non-street legal street sweepers, etc.) for operational activities within the project site. Existing gasoline- or diesel-powered mobile equipment may continue to be used until its service life is exhausted.

MM GHG-8 **Idling Limitation.** Prior to issuance of occupancy permits for the Costco store, the project applicant shall submit to the satisfaction of the Planning & Development Director, an idling restriction program for heavy-duty diesel vehicles. The program shall require that all trucks comply with state regulations limiting idling to no more than 5 minutes. The program shall be implemented through signage in all loading areas and training of store personnel about the idling restrictions.

MM GHG-9 **Loading Dock Electrical Hookups.** Prior to issuance of building permits for the proposed Costco store, the project applicant shall provide at least of one electrical hookup in each of the proposed loading docks that is capable of powering a truck-mounted transport refrigeration unit (TRU) with an electrical hookup option.

MM GHG-10 **On-Site Renewable Energy.** Prior to issuance of building permits for the proposed Costco store, the project applicant shall submit to the satisfaction of the Chief Building Official, a roof layout plan that illustrates how future installation of a photovoltaic system could be accommodated, including plans that identify installation of conduit from the roof to the electrical room—or to electrical panels if no electrical room is provided—to accommodate future photovoltaic system or other collector/power generation installation. Within four years of project occupancy, Costco shall install rooftop photovoltaic panels or another renewable energy source that generates at least 500,000-kilowatt hours (kWh) per year.

MM GHG-11: **Additional GHG Emissions Reduction Measures.** The proposed project shall include, but not be limited to, the following list of Project Design Features, which shall be incorporated into the project to ensure compliance with BAAQMD GHG thresholds. The project applicant may submit a report to the City, prepared by a qualified independent consultant, that substantiates why specific measures are considered infeasible at that point in time and identify alternate measures that would achieve equivalent reductions. The recommended measures for reducing operational GHG emissions are listed below. The recommended measures may be updated as new technologies or methods become

available, to the satisfaction of the Planning & Development Services Director. The project applicant shall be required to implement the following:

Energy Efficiency Measures

- Include conduits and space for the future addition of energy storage to optimize renewable energy generation systems and avoid peak energy use. Electrical panels should appropriately sized to allow for future expanded use. This measure shall be verified prior to building permit issuance.
- The City shall verify before issuance of all residential building permits that where appliances are offered by residential project developers, Energy Star-rated appliances (or other equivalent technology) for clothes washers, dishwashers, refrigerators, and fans shall be installed in the residences.
- The City shall verify before issuance of all residential and non-residential building permits that high-efficiency light bulbs and lighting fixtures are installed in residential and non-residential buildings. High-efficiency light bulbs include compact fluorescent lamps (CFLs), light-emitting diodes (LED), and other light bulbs that provide an energy efficiency of at least 75% compared to traditional incandescent bulbs.
- The City shall verify before issuance of building permits that buildings comply with Title 24 Building Energy Efficiency Standards, which includes energy-efficient design practices such as high-performance glazing. Energy Star compliant systems, radiant heat roof barriers (including but not limited to high-albedo white thermoplastic polyolefin roof membrane), high-efficient HVAC with hot-gas reheat, insulation on all pipes, programmable thermostats, solar access, shading of HVAC systems from direct sunlight, use of formaldehyde-free insulation, use of recycled-content gypsum board, sealed ducts, orientation of building and incorporation of landscaping to maximize passive solar (heating during cool seasons, and minimize heat gain during hot season), and designs that take advantage of prevailing winds .
- The project developers shall site and design buildings to take advantage of daylight where feasible and consistent with building purpose.
- The project developers shall use lighter-colored paving or open-grid paving materials for surface parking areas or break up large expanses of paved area with shade trees or shade structures or use light-colored roofing materials.

Water Efficiency Measures

- To the extent feasible, project developers shall landscape to preserve natural vegetation and maintain watershed integrity. This measure shall be verified prior to building permit issuance.

- The project shall use native species and drought-tolerant species for a minimum of 50 percent of the ornamental plant palette in non-turf areas for all retail, common, and public areas, and residential front-yard landscaping to minimize water demand.
- Use recycled water for landscape irrigation where available. This measure shall be verified prior to building permit issuance.

Solid Waste Measures

- Reuse, recycle, and divert construction waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard). This measure shall be verified prior to grading permit issuance.
- Provide interior and exterior storage areas for recyclables and adequate recycling containers located in public areas. Recycling bins in the storage areas shall be included to promote recycling of paper, metal, glass, and other recyclable material. These bins shall be emptied and recycled accordingly as part of the proposed project's regular solid waste disposal program. The project applicant or its successor in interest shall only contract for waste disposal services within a company that recycles waste in compliance with AB 341. This measure shall be implemented prior to issuance of occupancy permit.

GHG Reduction Education and Information

- The project applicant or its successors or the HOA shall maintain a Fairview website that includes, but is not limited to, information about greenhouse gas (GHG) reduction opportunities to help educate project residents, as well as schools, other agencies, and businesses with facilities on the project site.
- The project applicant or its successors or the HOA shall include on the Fairview website information about rebates and low-interest loans to residents that make energy-saving improvements to their homes.
- The project applicant or its successors or the HOA shall include on the Fairview website information about the air quality and greenhouse gas benefits of electric landscape maintenance equipment.
- The project applicant or its successors or the HOA shall include on the Fairview website educational information on energy and water conservation and efficiency for project residents, customers, tenants, and large energy users.
- The project applicant or its successors or the HOA shall include in the Fairview website information about energy conservation and financial incentive programs.

MM GHG-12: **GHG Emissions Offsets.** The project applicant shall purchase and retire GHG offsets to reduce the project's GHG emissions for the first 30 years below the BAAQMD's thresholds of significance (i.e., below 1,100 MTCO2e per year, or 4.6 MTCO2e per service population per year [as adjusted for post-2020 GHG reduction targets], or the latest applicable

threshold at the time). GHG offsets shall be purchased either with a lump sum payment prior to occupancy for the entire 30-year period, or on an annual basis for a period of thirty years from project occupancy. If annual payments are made, evidence of the purchase of GHG offsets for the first year of occupancy shall be submitted to the satisfaction of the Planning & Development Services Director prior to the issuance of occupancy permits. Evidence of the GHG offsets years 2-30 shall be submitted annually on or before the anniversary of the occupancy permit (or as adjusted by the Planning & Development Services Director). GHG offsets shall be purchased on an annual basis for a period of thirty years. GHG offsets shall be consistent with the performance standards and requirements set forth below.

- The GHG offsets shall be secured from an accredited registry that is recognized by the California Air Resources Board (CARB) or a California air district, or from an emissions reduction credits program that is administered by CARB or a California air district.
- The GHG offsets shall represent the past reduction or sequestration that is "not otherwise required," in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.4(c)(3).
- The GHG offsets shall be real, permanent, quantifiable, verifiable, and enforceable.
- Recognizing that future regulatory mandates, technological advances, new renewable energy programs, or final project design features would likely result in GHG emissions that are lower than the levels presented in this EIR, the project applicant may prepare a final project GHG emissions inventory prior to issuance of the certificate of occupancy. The inventory shall be subject to verification by a City-approved third party (at applicant expense), with the final emissions estimates dictating the increment to be mitigated through purchase of GHG offsets. The offsets must also be secured by the applicant and verified by the City prior to issuance of the certificate of occupancy, thus providing full mitigation prior to completion of the project.

IMPACT GHG-2	***WOULD THE PROJECT RESULT IN A CUMULATIVELY CONSIDERABLE NET INCREASE OF ANY CRITERIA POLLUTANT FOR WHICH THE PROJECT REGION IS NON-ATTAINMENT UNDER AN APPLICABLE FEDERAL OR STATE AMBIENT AIR QUALITY STANDARD?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION)***

CITY OF VALLEJO CLIMATE ACTION PLAN (CAP)

To address this threshold associated with project buildout, project consistency with the City of Vallejo CAP is used. The CAP is a qualified Greenhouse Gas Reduction Strategy under CEQA, which can be used to determine the significance of GHG emissions from a project (CEQA Guidelines §15183.5). BAAQMD also recognizes the use of a CAP as a significance threshold for a project's GHG emissions. Therefore, if the

project is consistent with the CAP, then the project would result in a less than significant cumulative impact to global climate change in 2023.

The City of Vallejo CAP (adopted March 2012) identifies sources of GHG emissions within the City's boundaries; presents current and future emissions estimates; identifies a GHG reduction target for future years; and, presents strategic goals, measures, and actions to reduce emissions. The CAP provides goals and associated reduction measures in the sectors of energy use, renewable energy, transportation demand management, optimized travel, water, wastewater, solid waste, and off-road equipment. The CAP has a reduction target of 15 percent below 2008 levels by the year 2020 and 55 percent reduction below 2008 levels by 2035.

The proposed project would be consistent with the overall goals of the Vallejo CAP. As an infill project on a currently vacant site near major roadways, I-80, and commercial centers, the proposed project would support efforts to reduce GHG emissions from VMT. The project proposes a mix of uses including a Costco, smaller retail and neighborhood-serving uses, and single-family housing. The project would achieve the current Building Energy Efficiency Standards and would be constructed in conformance with CALGreen, which requires high-efficiency water fixtures for indoor plumbing and water-efficient irrigation systems that would improve energy efficiency. The proposed buildings would comply with Title 24 solar requirements and would meet solar-ready requirements associated with Title 24. While the requirements under Title 24 do not require installation of solar energy systems, all residences and buildings that meet solar-ready requirements would be constructed to accept the installation of such a system. Additionally, the project would be required to follow Green Building Ordinance (Chapter 12.50) of the Vallejo Municipal Code. The proposed project would also comply with SB X7-7, which requires California to achieve a 20 percent reduction in urban per capita water use by 2020, as well as implement best management practices for water conservation to achieve the City's water conservation goals. Furthermore, the proposed project would comply with the City's Construction and Demolition Debris Recycling Ordinance (Chapter 7.53), which requires applicable construction projects to divert 50 percent of construction waste. A copy of the Climate Action Plan Checklist prepared for the project is included in Appendix C of this EIR.

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis, shows the consistency between the proposed project and the goals and actions of the CAP. As addressed in the table, the project would be consistent with the applicable CAP reduction measures. Therefore, the project would help implement the CAP and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impacts would be less than significant.

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
Energy (E)		
E-1. Building Stock: Existing – Facilitate energy efficiency upgrades and retrofits in existing commercial,	**E-1.1.** Connect businesses and residents with voluntary programs that provide free or low-cost energy efficiency audits and retrofit installations.	**Consistent**. The City is the responsible party for these measures. The project would not conflict with
	E-1.2. Develop an outreach program to encourage participation in low-income weatherization programs.	

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
residential, and industrial buildings by connecting residents and businesses with technical and financial assistance	**E-1.3.** Work collaboratively with Solano County, other municipalities in the region, and the Association of Bay Area Governments (ABAG) and participate in regional energy efficiency financing programs such as low-interest revolving loan funds, the California Comprehensive Residential Building Retrofit Program, or a Property Assessed Clean Energy (PACE) program that enables Vallejo property owners to obtain low-interest financing for energy improvements.	implementation of these measures.
	E-1.4. Consider creating a Residential Energy Conservation Ordinance (RECO) and Commercial Energy Conservation Ordinance (CECO) to require point-of-sale energy audits and retrofits for all buildings that do not meet minimum energy efficiency requirements.	
E-2. Building Standards – Require all new development to meet the minimum California Title 24 and California Green Building Standards Code requirements, as amended, and encourage new development to exceed the minimum requirements	**E-2.1.** Adopt the California Title 24 minimum requirements and encourage new construction and major remodels to adhere to a Tier 1 or Tier 2 standard of the CALGreen Code.	**Consistent**. The City is the responsible party for these measures. The project would be required to comply with these standards. Additionally, MM GHG-10 requires on-site renewable energy and MM GHG-11 requires the implementation of additional energy and water efficiency measures. Therefore, the project would not conflict with implementation of these measures.
	E-2.2. Require newly constructed buildings and recommend that remodels over 50% and tenant improvements demonstrate compliance with the mandatory CALGreen Code requirements by completing a green building checklist when submitting a request for building permits.	
	E-2.3. Consider requiring new development to comply with the Tier 1 requirements of CALGreen, part 11 of the California Building Standards Code. This optional measure may be necessary to address any shortfall in attaining reduction objectives.	
E-3. Smart Meters - Increase the community's awareness and utilization of real-time energy consumption data available through PG&E's SmartMeter program	**E-3.1.** Support PG&E's installation of SmartMeters on commercial and residential properties by informing the community of the GHG and energy cost-saving potential of the devices.	**Consistent**. The City is the responsible party for these measures. The project would be required to comply with these standards. Therefore, the proposed project would not conflict with implementation of these measures.
	E-3.2. Require newly constructed buildings and recommend that major remodels, over 50% install indoor real-time energy monitors.	
	E-3.3. Inform the community of metering options, such as online applications and in-home monitors.	
	E-3.4. Connect businesses and residents with rebate programs that give priority to appliances with smart grid technology.	
E-3. Cool Roofs and Pavements - Increase tree planting and the use of cool roofs and cool pavement materials to reduce the urban heat island effect and corresponding energy consumption. Implement tree replacement policy for	**E-4.1.** Actively inspect and enforce state requirements for cool roofs on residential and nonresidential roofing projects. Require new buildings to meet Title 24 and recommend that new buildings meet CALGreen Tier 1 requirements for cool roofs, which require a minimum solar reflectance index (SRI) of 10 for steep slope roofs and 64 for low slope roofs.	**Consistent**. The City is the responsible party for these measures. The project would be required to comply with these standards. The proposed Costco would include reflective cool roof material to meet the U.S. EPA's Energy Star energy
	E-4.2. Establish standards for new development and major remodels (to be defined) to reduce exterior heat gain for 50% of non-roof impervious site surfaces (roads, sidewalks, courtyards, parking lots, driveways) through one or more of the following mechanisms:	

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
projects where tree removal is necessary	• Achieve 50% paved surface shading within five to ten years by planting trees and other vegetation and/or installing solar panels or shading structures above parking. • Use paving materials with an SRI of at least 29 for all surfaces.	efficiency program requirements. The project would be planted with a pallet with a minimum of 200 trees within the parking lots of the commercial areas and within the residential area, bio-retention areas, and site perimeter. Trees within the commercial parking area are anticipated to achieve approximately 30% shading upon 5-10 years of maturity. Residential walkways would be lined with fruit trees. The project also includes 5.7 acres of permanent open space.
	E-4.3. Maintain and expand Vallejo's urban forest, including street trees and trees on private property.	
	E-4.4. For public improvements and public projects, require the use of high albedo paving material for sidewalks, roads, crosswalks, parking lots, and driveways.	
Renewable Energy (RE)		
RE-1. Renewable Energy Installations - Support the installation of small-scale renewable energy systems including solar photovoltaic, solar thermal, and wind, river current, and tidal energy conversion systems	**RE-1.1.** Update the Zoning Code to define a renewable energy strategy that removes barriers to small-scale solar energy systems.	**Consistent**. The City is the responsible party for these measures. The project would be evaluated to determine if these standards were applicable. MM GHG-10 requires on-site renewable energy (photovoltaic solar on the Costco roof). Additionally, residences would be required to include solar and/or energy efficiency measures per 2019 Title 24 requirements.
	RE-1.2. Revise the permit processes and fees as appropriate to remove barriers to and incentivize the installation of renewable energy systems in accordance with applicable safety and environmental standards.	
	RE-1.3. Provide training to at least one designated Planning and one Building staff member to enable knowledgeable and expeditious processing of renewable energy applications.	
	RE-1.4. Encourage new homes and businesses to be pre-wired and pre-plumbed for solar and solar thermal installations.	
	RE-1.5. Evaluate site-specific opportunities and constraints related to Vallejo's proximity to the San Francisco Bay and to rivers, channels, and lakes, both manmade and natural.	
RE-2. Renewable Energy Financing - Connect residents and businesses with renewable energy incentives and low-interest financing mechanisms	**RE-2.1.** Participate in a regional financing program such as the Property Assessed Clean Energy (PACE) program or equivalent that achieves similar results to provide low-interest financing for renewable energy installations.	**Not Applicable**. The City is the responsible party for these measures. The project would be required to comply with the applicable standards and would not conflict with implementation of these measures.
	RE-2.2. Designate a City staff person to coordinate local inquiries regarding the regional financing program.	
	RE-2.3. Train Planning and Building staff members on available state, regional, and utility-led financing mechanisms and incentives/rebates.	
	RE-2.4. Collaborate with neighboring jurisdictions and Solano County to explore the feasibility and cost of a community choice aggregation program.	
	RE-2.5. Set a renewable power generation goal for the City to increase communitywide energy generation.	

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
	RE-2.6. Work with Solano County to identify the benefits and costs of a community choice aggregation program and establish a stakeholder advisory group.	
Transportation Demand Management (TDM)		
TDM-1. Local Business – Promote buy local and related initiatives that support local commerce and reduce the need for extensive transport	**TDM-1.1.** Support efforts that encourage people who live, work, or have businesses in Vallejo to buy local goods, food supplies, and services.	**Not Applicable**. The City is the responsible party for this measure.
	TDM-1.2. Implement the elements of the Downtown Specific Plan that encourage the promotion of economic revitalization of the Downtown Commercial Area to create local options for commerce.	**Not Applicable**. The City is the responsible party for this measure. The project site is not in the Downtown Specific Plan area.
	TDM-1.3. Enact new or participate in existing award programs that recognize local employers who provide outstanding contributions to the quality of life in the community, including "green businesses."	**Not Applicable**. The City is the responsible party for these measures.
	TDM-1.4. Promote cooperative benefits organizations to enable individual merchants to achieve benefits of scale and innovation to reduce energy consumption, establish recycling programs, and reduce water use.	
	TDM-1.5. Support strategies to increase local business-to-business commerce.	
TDM-2. Mixed-Use, Higher-Density, Transit-Oriented Development –Promote mixed-use, higher-density development near transit nodes	**TDM-2.1.** Maintain the Downtown Commercial Area as a strong focal point to attract higher-density housing, business, and office use.	**Not Applicable**. The City is the responsible party for this measure. The project site is not in the Downtown Specific Plan area.
	TDM 2.2. Provide a high-quality and relatively high-density Downtown multi-family residential environment connected by selected transit-oriented priority areas and other transit corridors.	**Consistent**. The project site is not in the Downtown Specific Plan area. However, the proposed project includes a mix of uses near major roadways, freeways, and transit stops.
	TDM-2.3. Adopt incentives such as priority processing and revised codes to increase densities in the Downtown or within one-half mile of a regularly scheduled transit stop.	**Not Applicable**. The City is the responsible party for this measure. The project site is not in the Downtown Specific Plan area but would provide increased densities within a half-mile of a transit stop.
	TDM-2.4. Implement elements in the Downtown Specific Plan that encourage pedestrian-oriented plazas, walkways, bike trails, bike lanes, and street furniture and connections to other community areas. Promote pedestrian convenience and recreational opportunities through development conditions requiring sidewalks, walking paths, or hiking trails connecting various land uses with safety amenities such as lighting and signage.	**Not Applicable**. The City is the responsible party for this measure. The project site is not in the Downtown Specific Plan area but would include 11.2 acres of open space and green space.

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
	TDM-2.5. Implement elements in the Downtown Specific Plan that promote mixed-use development support services such as daycare, restaurants, banks, and stores near employment centers, where feasible.	**Not Applicable**. The City is the responsible party for this measure. The project site is not in the Downtown Specific Plan area.
	TDM-2.6. Support "complete streets" by incorporating applicable public transit, bicycle and pedestrian rights-of-way, and facilities for Vallejo residents when evaluating future expansion and new development of streets and highways.	**Consistent**. The project would promote the use bicycle and pedestrian facilities. The project includes mitigation that would require the applicant to provide a new Soltrans bus stop with pull-out on Turner parkway for use by residents and visitors to the site. The project also provides a new sidewalk and bicycle lanes along Admiral Callaghan Lane, and a new bicycle and pedestrian pathway along Turner Parkway.
TDM-3. Bicycle and Pedestrian Travel - Expand and link the network of pedestrian and bicycle paths and facilities through preparation of a Bicycle and Pedestrian Master Plan, with the goal of increasing the bicycle and pedestrian mode share 20% by 2035	**TDM-3.1.** Create a City-wide Bicycle and Pedestrian Master Plan to analyze existing and future pedestrian and bicycle infrastructure and facilities and to qualify for state and federal funding for bicycle- and pedestrian-related infrastructure.	**Consistent**. The City is the responsible party for these measures. The project would not conflict with the City's ability to enact these policies. However, the project includes a pedestrian-friendly residential neighborhood with cohesive design that includes active and passive recreational opportunities and bike/ pedestrian circulation amenities for future residents and users of the commercial space. The project would add bike lanes on both sides of Admiral Callaghan Lane. MM GHG-3 also requires a TDM plan that would include requirements for bicycle support facilities.
	TDM-3.2. Pursue public and private funding to expand and link the network of pedestrian and bicycle paths and facilities beginning in selected, transit-oriented priority areas.	
	TDM-3.3. Revise zoning standards to require the provision of bicycle support facilities (lockers, shower rooms, etc.) for appropriate development at a rate of 1 changing room and shower per 200 occupants.	
TDM-4. Parking - Revise parking requirements for new commercial and multi-family projects and implement the Downtown Parking Meter Installation Plan	**TDM-4.1.** Revise parking requirements for new commercial and multi-family residential projects to provide bike racks for 5% of the building's projected visitors within 200 feet of the building's entrance for commercial project and one long-term bicycle storage space per two multi-family units.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with the City's ability to enact these policies. However, MM GHG-3 requires a TDM plan that requires bicycle parking and other amenities. The TDM plan
	TDM-4.2. Allow up to a 15% reduction in required private vehicle parking spaces in new commercial and multi-family residential projects if justified in an approved trip reduction plan.	
	TDM-4.3. Encourage shared parking programs in mixed-use and transit-oriented development areas.	

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
	TDM-4.4. Design parking lots, where feasible, to include clearly marked and shaded pedestrian pathways between transit facilities and building entrances.	would also include pedestrian pathways.
TDM-5. Transit - Support a convenient, attractive, and comprehensive transit system	**TDM-5.1.** Prioritize and pursue transit improvements that serve local businesses and job sites.	**Consistent**. The City is the responsible party for these measures. The project would not conflict with the City's ability to enact these policies. The TDM program required by MM GHG-3 would include subsidized transit passes.
	TDM-5.2. Encourage major employers to provide free or discounted transit passes or other incentives to employees for using transit.	
	TDM-5.3. On Mare Island, create a network of bicycle and pedestrian paths that connect with transit services, combined with a street framework that is transit-friendly but sensitive to Mare Island's historic character.	**Not Applicable**. The City is the responsible party for this measure. The proposed project is not located on Mare Island.
TDM-6. Food Systems – Support convenient access to neighborhood-serving grocery stores and community gardens	**TDM-6.1.** Encourage the distribution of grocery stores that provide fresh and local foods with convenient access from all residential neighborhoods.	**Consistent**. The proposed project includes a grocery store with fresh produce (Costco). In addition, the Costco and smaller retail area are located close to existing residential area and designed to be walkable from the proposed new residential component.
	TDM-6.2. Improve the distribution, frequency, and attendance of farmers markets in Vallejo.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation. However, the project design includes elements that are consistent with these measures. For example, the project includes residential walkways that would be lined with fruit trees and community herb gardens.
	TDM-6.3. Collaborate with community-based organizations in support of community gardens on applicable sites throughout the city.	
	TDM-6.4. Revise zoning standards as necessary to allow small neighborhood markets in appropriate areas.	
	TDM-6.5. Add an additional week-day Farmer's Market in Vallejo.	
TDM-7. Commute Behavior – Reduce emissions from commute travel to and from schools and workplaces	**TDM-7.1.** Encourage a variety of transportation system demand management techniques for new development, including variable work hours and telecommuting.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation. The project does include mitigation that requires the preparation of a Commute Trip Reduction/ Transportation Demand Management plan that requires the project applicant to demonstrate measures that
	TDM-7.2. Support the establishment and participation in Safe Routes to Schools and similar infrastructure and educational programs that enable safe passage of children and reduce vehicle trips to local schools.	
	TDM-7.3. Collaborate with the Solano Transportation Authority (STA) and Solano County to update the rideshare matching system to include the use of social networking and smartphone platforms and encourage greater use of existing park-and-ride lots.	

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
	TDM-7.4. Collaborate with STA and local employers to support guaranteed ride home programs including preferential parking spaces, employer-assisted ride-matching databases, recognition programs, and other incentives.	can be implemented to reduce vehicle trips to the project site.
	TDM-7.5. Participate in and contribute to regional programs to address Bay Area commute alternatives and commute efficiency.	
TDM-8. Jobs/Housing Balance - Plan for an improved jobs/housing balance in order to reduce the need for long-distance travel from residences to places of work	**TDM-8.1.** Update the City General Plan and corresponding regulations to support additional jobs and economic revitalization that improves Vallejo's jobs/housing balance.	**Not Applicable**. The City is the responsible party for this measure. The project would not conflict with implementation. The proposed project includes 178 single-family homes and is expected to generate approximately 341 jobs.
	TDM-8.2. Support the retention and expansion of local anchor and growth industries including Kaiser and Sutter hospitals, as well as Touro University on Mare Island and the California Maritime Academy.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation.
	TDM-8.3. Review land-use plans and regulations and revise as needed to support additional live/work opportunities and home occupations, provided they are compatible with the existing neighborhood.	
Optimized Travel (OT)		
OT-1. Efficient and Alternative Fuel Vehicles – Support the expanded use of efficient and alternative fuel vehicles	**OT-1.1.** Support use of high-occupancy vehicle (HOV) lanes by fuel-efficient and alternative fuel vehicles designated as zero or partial zero-emission vehicles by CARB through adoption of Climate Action Plan policies and participation on the Metropolitan Transportation Commission and other regional agency committees.	**Not in Conflict**. The City is the responsible party for these measures. The project would not conflict with implementation. However, the TDM plan (required by MM GHG-3) would require carpool incentives and would also require electric vehicle parking and charging stations to exceed code requirements.
	OT-1.2. Revise parking requirements for public and newly constructed commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles for a minimum of 8% of total parking capacity and develop pre-wire stalls for future electric vehicle charging for 2% of total parking capacity.	
	OT-1.3. Encourage new gas stations and automotive uses to include biodiesel facilities and/or offer biodiesel retrofits to diesel vehicles.	**Not in Conflict**. The City is the responsible party for this measure. Although the project includes a gas station, biodiesel and alternative fuels are not currently proposed. However, the project would not conflict with the City's ability to implement these measures.
	OT-1.4. Consider creating refueling stations to provide biodiesel fuel, compressed natural gas, or liquefied natural gas.	
OT-2. Car Sharing - Facilitate a car-sharing network in	**OT-2.1.** Facilitate and encourage at least one car-sharing company, such as Zip Car and City Car Share, to include Vallejo in its service area by 2020.	**Not Applicable**. The City is the responsible party for this measure. The project would

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
Vallejo.		not conflict with implementation.
	OT-2.2. Investigate the possibility of reducing the City's vehicle fleet by using car-sharing vehicles for appropriate City uses by 2020.	**Not Applicable**. The City is the responsible party for this measure. The project would not conflict with implementation.
OT-3. Anti-Idling and Traffic Calming - Support anti-idling and traffic calming infrastructure and enforcement	**OT-3.1.** Synchronize, improve, and construct traffic signal/road improvements that reduce vehicle idling	**Consistent.** The proposed project would improve various intersections through signal and roadway improvements.
	OT-3.2. Work with the Vallejo Police Department to increase enforcement of state idling restrictions for heavy-duty vehicles.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation.
	OT-3.3. Encourage local schools to implement an anti-idling campaign at pick-up and drop-off areas.	
OT-4. Zero Emission Vehicle Stations – Provide electric vehicle charging stations	**OT-4.1.** Install additional electric vehicle charging stations at City Hall and other appropriate municipal parking lots for public use.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation. The project would install electric charging stations per the building code.
	OT-4.2. Coordinate with regional agencies to install charging stations in high traffic areas through grant-funded programs encouraging electric vehicle use.	
	OT-4.3. Use small- and large-scale solar panels to power or supplemental charging stations.	
Water, Wastewater, and Solid Waste (W)		
W-1. Water Conservation Efforts – Promote and require water conservation through outreach and pricing	**W-1.1.** Continue to provide water customers with information on conservation techniques, services, devices, and rebates by posting information at vallejowater.org or through other outreach methods.	**Not Applicable**. The City is the responsible party for this measure. The project would not conflict with implementation. The proposed project would include high-efficiency water-saving techniques.
	W-1.2. Continue to enforce the City's Wasteful Water Use Prohibition Ordinance.	
W-2. Development Standards for Water Conservation - Require water conservation in all new buildings and landscapes	**W-2.1.** Per the minimum requirements of the 2010 CALGreen Code, ensure that all new non-residential buildings larger than 50,000 square feet install individual water meters for each tenant space projected to consume more than 100 gallons per day.	**Consistent**. The project would comply with the requirements of the latest State Codes.
	W-2.2. Per the minimum requirements of the 2010 CALGreen Code, ensure that new non-residential facilities with 1,000 to 5,000 square feet of irrigated landscaped space provide an additional water meter or submeter for landscaping uses.	
	W-2.3. Revise development standards to support the use of greywater, recycled water, and rainwater catchment systems in all zones.	**Not Applicable**. The City is the responsible party for this measure. The project would not conflict with implementation. MM GHG-11 requires the project to use recycled water for landscape irrigation where available.

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
	W-2.4. Per the voluntary requirements of the 2010 CALGreen Code, encourage newly constructed development to treat at least 40% of the average annual rainfall on-site through low impact development strategies.	**Consistent**. The project would comply with the requirements of the latest State Codes.
	W-2.5. Per the minimum requirements of the 2010 CALGreen Code, require a minimum of 20% of the total parking, walkway, and porch area surfaces serving single-family and multi-family residential buildings under 4 units to be permeable to facilitate on-site retention of water and reduce water runoff.	
W-3. Recycling and Composting Efforts - Support waste diversion through composting and recycling programs	**W-3.1.** Collaborate with CalRecycle and VALCORE Community Recycling to continue to host recycling and composting workshops and to disseminate information.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation.
	W-3.2. Provide links to information on composting and VALCORE composting services and classes on the City's website and at other appropriate venues.	
	W-3.3. Prepare a list of GHG-reducing best practices for material management to be considered during the solid waste franchise selection process and applicable City permit processes for major development projects.	
W-4. Development Standards for Recycling and Composting - Require waste diversion and use of recycled materials in new development	**W-4.1.** Continue to update the City's Construction/ Demolition Waste Reuse and Recycling Ordinance as higher diversion rates become feasible, necessary, or required.	**Not Applicable**. The City is the responsible party for these measures. However, the project would comply with the City's Construction and Demolition Debris Recycling Ordinance (Chapter 7.53) which requires applicable construction projects to divert 50 percent of construction waste.
	W-4.2. Support the development of additional markets for recycled content products by requiring new developments to include recycled content materials at a minimum of 10% of total materials.	
Off-Road Equipment (OR)		
OR-1. Lawn & Garden Equipment - Encourage the use of electrified and higher efficiency lawn and garden equipment	**OR-1.1.** Support BAAQMD's efforts to re-establish a voluntary exchange program for residential lawn mowers and backpack-style leaf blowers.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation. The proposed project has been designed to be consistent with the State of California's Model Water Efficient Landscape Ordinance. Additionally, the project includes a mitigation measure requiring the project applicant to install exterior electrical outlets on all new buildings for the use of electric-powered landscaping equipment.
	OR-1.2. Require new buildings to provide electrical outlets on the exterior in an accessible location to charge electric powered lawn and garden equipment.	
	OR-1.3. Encourage the replacement of high maintenance landscapes (like grass turf) with native vegetation to reduce the need for gas-powered lawn and garden equipment.	
OR-2. Construction Equipment -Reduce emissions from heavy-	**OR-2.1.** Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California Airborne Toxics	**Consistent**. The project would comply with the requirements

Table 4.6-4: City of Vallejo Climate Action Plan Consistency Analysis

Goal	Actions	Project Consistency
duty construction equipment by limiting idling and utilizing cleaner fuels, equipment, and vehicles	Control Measure Title 13, Section 2485 of California Code of Regulations [CCR]), or less. Clear signage shall be provided at all access points to remind construction workers of idling restrictions.	of the Air Toxics Control Measure.
	OR-2.2. Construction equipment shall be maintained per manufacturer's specifications.	**Consistent**. This is also a BAAQMD basic construction measure required for all projects and would be required per Mitigation Measure AQ-1.
	OR-2.3. Planning and Building staff will work with project applicants to limit GHG emissions from construction equipment by selecting one of the following measures, at a minimum, as appropriate to the construction project: – Substitute electrified equipment for diesel- and gasoline-powered equipment where practical. – Use alternatively fueled construction equipment on-site, where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel. – Avoid the use of on-site generators by connecting to grid electricity or utilizing solar-powered equipment. – Limit heavy-duty equipment idling time to a period of 3 minutes or less, exceeding CARB regulation minimum requirements of 5 minutes.	**Not Applicable**. The City is the responsible party for these measures. The project would not conflict with implementation.

Source: City of Vallejo, 2012, City of Vallejo Climate Action Plan.

GHG reductions are also achieved as a result of State of California energy and water efficiency requirements for new residential developments. These efficiency improvements correspond to reductions in secondary GHG emissions. For example, in California, most of the electricity that powers homes is derived from natural gas combustion. Therefore, energy-saving measures, such as Title 24, reduces GHG emissions from the power generation facilities by reducing load demand.

The proposed project would be required to comply with existing regulations, including applicable measures from the City's CAP, or would be directly affected by the outcomes (vehicle trips and energy consumption would be less carbon-intensive due to statewide compliance with future low carbon fuel standard amendments and increasingly stringent Renewable Portfolio Standards). As such, the project would not conflict with any other state-level regulations pertaining to GHGs.

CARB SCOPING PLAN

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan provides a range of GHG reduction actions that include direct regulations, alternative compliance

mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as the cap-and-trade program, and an AB 32 implementation fee to fund the program.

The latest CARB Climate Change Scoping Plan (2017) outlines the State's strategy to reduce the State's GHG emissions to 40 percent below 1990 levels by 2030 pursuant to SB 32. The CARB Scoping Plan is applicable to State agencies and is not directly applicable to cities/counties and individual projects. Nonetheless, the Scoping Plan has been the primary tool that is used to develop performance-based and efficiency-based CEQA criteria and GHG reduction targets for climate action planning efforts.

The 2017 Scoping Plan Update identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the First Update to the Climate Change Scoping Plan (2013). Although a number of these measures are currently established as policies and measures, some measures have not yet been formally proposed or adopted. It is expected that these measures or similar actions to reduce GHG emissions would be adopted as required to achieve statewide GHG emissions targets.

As shown in *Table 4.6-5: Project Consistency with Applicable CARB Scoping Plan Measures*, the proposed project is consistent with most of the strategies, while others are not applicable to the proposed project.

Table 4.6-5: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
Transportation	California Cap-and-Trade Program Linked to Western Climate Initiative	Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanism October 20, 2015 (CCR 95800)	**Consistent.** The Cap-and-Trade Program applies to large industrial sources such as power plants, refineries, and cement manufacturers. However, the regulation indirectly affects people who use the products and services produced by these industrial sources when increased cost of products or services (such as electricity and fuel) are transferred to the consumers. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. The project does not conflict or impede this program. MM GHG-12 requires the applicant to purchase carbon offsets available as a result this program.

Table 4.6-5: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
	California Light-Duty Vehicle Greenhouse Gas Standards	Pavley I 2005 Regulations to Control GHG Emissions from Motor Vehicles	**Consistent**. This measure applies to all new vehicles starting with model year 2012. The proposed project would not conflict with its implementation as it would apply to all new passenger vehicles purchased in California. Passenger vehicles, model year 2012 and later, associated with construction and operation of the proposed project would be required to comply with the Pavley emissions standards.
		2012 LEV III Amendments to the California Greenhouse Gas and Criteria Pollutant Exhaust and Evaporative Emission Standards	**Consistent.** The LEV III amendments provide reductions from new vehicles sold in California between 2017 and 2025. Passenger vehicles associated with the site would comply with LEV III standards.
	Low Carbon Fuel Standard	2009 readopted in 2015. Regulations to Achieve Greenhouse Gas Emission Reductions Subarticle 7. Low Carbon Fuel Standard CCR 95480	**Consistent.** This measure applies to transportation fuels utilized by vehicles in California. The proposed project would not conflict with implementation of this measure. Motor vehicles associated with construction and operation of the proposed project would utilize low carbon transportation fuels as required under this measure.
	Regional Transportation-Related Greenhouse Gas Targets.	SB 375. Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, 21159.28	**Consistent**. The project would provide development in the region that is consistent with the growth projections in the Regional Transportation Plan/Sustainable Communities Strategy (SCS) (Plan Bay Area 2040).
	Goods Movement	Goods Movement Action Plan January 2007	**Not applicable**. The proposed project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
	Medium/Heavy-Duty Vehicle	2010 Amendments to the Truck and Bus Regulation, the Drayage Truck Regulation and the Tractor-Trailer Greenhouse Gas Regulation	**Consistent**. This measure applies to medium and heavy-duty vehicles that operate in the state. The proposed project would not conflict with implementation of this measure. Medium and heavy-duty vehicles associated with construction and operation of the proposed project would be required to comply with the requirements of this regulation.
	High-Speed Rail	Funded under SB 862	**Not applicable**. This is a statewide measure that cannot be implemented by a project applicant or Lead Agency.
Electricity and Natural Gas	Energy Efficiency	Title 20 Appliance Efficiency Regulation	**Consistent.** The proposed project would not conflict with implementation of this measure. The proposed project would comply with the latest energy efficiency standards.

Table 4.6-5: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
		Title 24 Part 6 Energy Efficiency Standards for Residential and Non-Residential Building	
		Title 24 Part 11 California Green Building Code Standards	
	Renewable Portfolio Standard/Renewable Electricity Standard.	2010 Regulation to Implement the Renewable Electricity Standard (33% 2020)	**Consistent**. The proposed project would obtain electricity from the electric utility, PG&E. PG&E obtained 33 percent of its power supply from renewable sources in 2016. Therefore, the utility would provide power when needed on-site that is composed of a greater percentage of renewable sources.
		SB 350 Clean Energy and Pollution Reduction Act of 2015 (50% 2030)	
	Million Solar Roofs Program	Tax incentive program	**Consistent.** This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs. Homeowners within the project would be able to take advantage of incentives that are in place at the time of construction.
Water	Water	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The proposed project would comply with the California Green Building Standards Code, which requires a 20 percent reduction in indoor water use. The proposed project would also comply with the City's Water-Efficient Landscape Requirements (Chapter 16.71 of the Vallejo Municipal Code).
		SBX 7-7—The Water Conservation Act of 2009	
		Model Water Efficient Landscape Ordinance	
Green Buildings	Green Building Strategy	Title 24 Part 11 California Green Building Code Standards	**Consistent.** The State goal is to increase the use of green building practices. The proposed project would implement required green building strategies through existing regulation that requires the proposed project to comply with various CalGreen requirements. The proposed project includes sustainability design features that support the Green Building Strategy.
Industry	Industrial Emissions	2010 CARB Mandatory	**Not applicable.** The proposed project does not include industrial land uses.

Table 4.6-5: Project Consistency with Applicable CARB Scoping Plan Measures

Scoping Plan Sector	Scoping Plan Measure	Implementing Regulations	Project Consistency
		Reporting Regulation	
Recycling and Waste Management	Recycling and Waste	Title 24 Part 11 California Green Building Code Standards AB 341 Statewide 75 Percent Diversion Goal	**Consistent.** The proposed project would not conflict with implementation of these measures. The proposed project is required to achieve the recycling mandates via compliance with the CALGreen code. The City has consistently achieved its State recycling mandates.
Forests	Sustainable Forests	Cap and Trade Offset Projects	**Not applicable.** The proposed project site is in an area designated for urban uses. No forested lands exist on site.
High Global Warming Potential	High Global Warming Potential Gases	CARB Refrigerant Management Program CCR 95380	**Not applicable**. The regulations are applicable to refrigerants used by large air conditioning systems and large commercial and industrial refrigerators and cold storage system. The proposed Costco building would have large freezers, HVAC and refrigeration systems. The new equipment would be compliant with current building codes and efficiency standards and would be inspected as part of the building permit process. Additionally, the equipment in the new Costco building would be more efficient compared to the equipment in the existing Costco building.
Agriculture	Agriculture	Cap and Trade Offset Projects for Livestock and Rice Cultivation	**Not applicable**. The proposed project site is designated for urban development. No grazing, feedlot, or other agricultural activities that generate manure occur currently exist on-site or are proposed to be implemented by the proposed project.

Source: California Air Resources Board (CARB), *California's 2017 Climate Change Scoping Plan*, November 2017 and CARB, *Climate Change Scoping Plan*, December 2008.

As demonstrated in the table above, the project would not conflict with the CARB Scoping Plan. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Impacts would be less than significant.

PLAN BAY AREA 2040

Plan Bay Area sets forth regional transportation policy and provides capital program planning for all regional, State, and Federally funded projects. It should be noted that Plan Bay Area neither funds specific transportation projects nor changes local land use policies. Local land use authority is maintained by individual jurisdictions. Plan Bay Area does set a roadmap for future transportation investments and identifies what it would take to accommodate expected growth. In addition, Plan Bay Area provides strategic investment recommendations to improve regional transportation system performance over the next 25 years. Plan Bay Area includes employment and household projections for the region. The MTC

forecasted that, between 2010 and 2040, the San Francisco Bay Area will see increases in the number of jobs, population, and households.

The project is located in an area that is planned for development as contemplated in the City's General Plan and is consistent with the Retail/Entertainment and Mix of Housing Types/Medium Density land use designations. As discussed in the Population and Housing section of this EIR, (Section 4.12), the project represents a 0.43 percent increase in the City's 2018 population and would be well within the range of population growth forecasted by ABAG, which is 131,800 by 2040.

The proposed project would be consistent with the overall goals of Plan Bay Area 2040 to provide housing, healthy and safe communities, increase economic vitality, preserve open space, and climate protection with an overall goal to reduce VMT. In addition, the project is an infill development as it is located in a developed area of the City and surrounded by existing development. The project also would include retail services adjacent to existing and proposed residential development.

The Vallejo General Plan includes policies that facilitate implementation of the goals of Plan Bay Area and would reduce GHG emissions from transportation sources. As shown in *Table 4.6-6: Project Consistency with Vallejo General Plan Policies Relative to Plan Bay Area*, the proposed project is consistent with the applicable General Plan Policies that would implement Plan Bay Area goals.

Table 4.6-6: Project Consistency with Vallejo General Plan Policies Relative to Plan Bay Area

General Plan Policy	Project Consistency
Policy MTC-1.1: *Regional Transit Connections*. Enhance regional transit service for residents, employees, and visitors	**Consistent**. The project is an infill development that would locate residents and retail services adjacent to existing uses. Additionally, the project would include a new SolTrans bus pull-out per MM TR-4. MM GHG-3 would also implement a Transportation Demand Management (TDM) program for residential and non-residential uses.
Policy MTC-1.2: *Transit Ridership*. Increase regional transit and ferry ridership to and from Vallejo, particularly by commuters and visitors.	
Policy MTC-1.3: *First/Last Mile Connections*. Provide enhancements to the local transit network that make it easier and more convenient to use regional transit.	
Policy MTC-2.4: *Citywide Mobility*. Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.	**Consistent**. As noted above, the would include a new bus pull-out per MM TR-4 and a TDM program (MM GHG-3). Additionally, the project would include traffic calming measures, pedestrian connectivity features, and internal trails to complement the transportation network (refer to MM GHG-4 through GHG-6).
Policy MTC-2.7: *Complete Streets*. Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.	
Policy MTC-2.8: *Transportation Demand Management*. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation.	**Consistent**. As noted above, MM GHG-3 would include a TDM program to decrease the dependence on single-occupant vehicles. MM TR-4 also requires a new SolTrans bus pull-out.
Policy MTC-2.9: *Local Transit*. Encourage increased local transit ridership to work, school, shopping, and recreation.	

Table 4.6-6: Project Consistency with Vallejo General Plan Policies Relative to Plan Bay Area

General Plan Policy	Project Consistency
Policy MTC-2.12: *Resource Efficiency*. Facilitate use of emerging vehicle technology to help reduce vehicle miles traveled and greenhouse gas emissions.	**Consistent**. As noted above, the TDM program (MM GHG-3) would include measures that facilitate the use of emerging vehicle technology. Further, the project is also required to provide electric vehicle charging stations.
Policy MTC-3.1: *Coordinated Transportation Planning*. Ensure that improvements to the transportation network support a land use pattern that connects the community and facilitates travel among Vallejo's neighborhoods.	**Consistent**. The project includes traffic calming measures, pedestrian connectivity features, and internal trails to connect the community to the surrounding uses.
Policy MTC-3.2: *Local Transit*. Encourage improvements in citywide transit service that directly connect major destinations in Vallejo, including commercial districts, job centers, and projected growth areas.	**Consistent**. As noted above, MM GHG-3 would include a TDM program to encourage the use of citywide transit and MM TRA-4 requires a new SolTrans bus pull-out.
Policy MTC-3.4: *Walking, Biking, and Rolling*. Expand the local bicycle and trail network to provide safe, healthy, attractive options for non-motorized travel among destinations in Vallejo, including for wheelchair users.	**Consistent**. As noted above, the TDM program, traffic calming measures, pedestrian connectivity features, and internal trails would expand the trail network and provide non-motorized transportation options.
Policy CP-1.6: *Active Transportation Network*. Promote the health benefits of walking and bicycling by providing a convenient and safe network of bicycle paths and routes, sidewalks, pedestrian paths, and trails, including connections with major destinations such as civic facilities, educational institutions, employment centers, shopping, and recreation areas.	

As noted above, the proposed project would develop the project site with uses consistent with the General Plan. The proposed project would be consistent with the overall goals of Plan Bay Area 2040 in concentrating new development in locations where there is existing infrastructure as the proposed project would redevelop the project site to provide a mix of land uses. Additionally, the project includes numerous design features and mitigation measures to reduce VMT. The project proposes commercial and residential land uses (with open space) adjacent to existing residential and commercial uses and within three miles to downtown Vallejo. The proposed project also incorporates sidewalks, paseos, and a trail designed to promote a pedestrian- and bicycle-friendly environment; to encourage alternative transportation between the commercial and residential project elements; and, improve access to the proposed open space. Therefore, the proposed project would be consistent with the Plan Bay Area goals of providing housing, healthy and safe communities, and climate protection and would not conflict with the land use concept plan in Plan Bay Area 2040. Impacts would be less than significant.

Therefore, implementation of the project, including Mitigation Measures GHG-1 through GHG-12 listed in the previous section, would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and this impact would be less than significant. In summary, the proposed project, an infill and mixed-use project within a currently developed area would not conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions.

4.6.5 CONCLUSION

As described above, with the implementation of mitigation, the proposed project would not exceed BAAQMD efficiency metric of 4.6 MT CO_2e/year/SP and the substantial progress efficiency metrics of 4.05 $MTCO_2e$/year/SP and 2.76 $MTCO_2e$/year/SP for 2023 and 2030, respectively. Additionally, the project would be consistent with the City of Vallejo's CAP, CARB Scoping Plan, and MTC Plan Bay Area. Therefore, project-related operational GHG emission impacts would be less than significant.

4.6.6 CUMULATIVE IMPACTS

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. By definition, considering findings by the IPCC and State of California, cumulative GHG emissions are significant and unavoidable. As discussed above, the State has implemented a vast array of regulations, policies, and programs to reduce the State's contribution to global GHG emissions.

Project emissions would not exceed the BAAQMD thresholds with the implementation of Mitigation Measures GHG-1 through GHG-12. Therefore, the project's impacts do not represent a cumulatively considerable contribution toward global GHG emissions. Similarly, all future development with the potential to generate GHG emissions would be required to demonstrate compliance with applicable federal and State regulatory requirements, including General Plan goals and policies of the affected jurisdiction, intended to reduce and/or avoid potential adverse environmental effects. The proposed project would be consistent with the goals and policies in the CARB Scoping Plan, Plan Bay Area, and the Vallejo Climate Action Plan. As such, the cumulative impacts to GHG emissions would be mitigated on a project-by-project level, and in accordance with the established regulatory framework, through the established regulatory review process.

4.6.7 REFERENCES

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U.S. EPA, *Overview of Greenhouse Gases*, 2018.

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4.7 HAZARDS AND HAZARDOUS MATERIALS

This section of the Environmental Impact Report (EIR) describes effects of hazards and hazardous materials that would result from implementation of the proposed project. Information used to prepare this section came from the resources listed below and is provided in Appendix G to this EIR.

- Propel Vallejo General Plan 2040 and Sonoma Boulevard Specific Plan, 2016.
- ENGEO Incorporated, Cooke Property Vallejo, California Phase I Environmental Site Assessment, November 15, 2016.

4.7.1 ENVIRONMENTAL SETTING

This section presents information on hazards and hazardous materials conditions on the project site. The current condition was used as the baseline against which to compare potential impacts associated with implementation of the project.

The 2016 Phase I Environmental Site Assessment (ESA) was conducted in accordance with (1) the United States Environmental Protection Agency (U.S. EPA) Standards and Practices for All Appropriate Inquiries ((AAI), 40 CFR Part 312) and (2) guidelines established by the American Society for Testing and Materials (ASTM) in the *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process / Designation E 1527-13* (ASTM Standard Practice E 1527-13). ASTM Standard Practice E 1527-13 defines a Recognized Environmental Condition (REC) as the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. No RECs were identified for the project site.

An updated regulatory database search of the Department of Toxic Substances Control (DTSC)'s Envirostor website (http://www.envirostor.dtsc.ca.gov/public/) and the State Water Resources Control Board's Geotracker website (http://geotracker.waterboards.ca.gov/) were performed to identify hazardous material regulated facilities on or in the vicinity of the project site. This section of the EIR incorporates the information contained within the 2016 Phase I ESA and the results of the regulatory database searches performed in January 2019.

PRESENT AND PAST ON-SITE AND OFF-SITE USES

The project site is an existing vacant, undeveloped property. There are no buildings or structures on the site. Based on review of historical aerial photographs and topographic maps, the project site was previously used as agricultural and grazing land since at least 1937.

The Solano County Fairgrounds were developed northwest of the project site as early as 1952. Residences were developed west of the project site as early as 1968. Parcels to the south and east of the project site were developed as residential and commercial uses as early as 1982.

Site Observations

During the site visit for the Phase I ESA, the project site was undeveloped land. No wells or drums were found within the project site during the site visit.

- **Chemical Storage and Use.** No hazardous materials or petroleum products were observed on the project site during the 2016 Phase I ESA. Similarly, no above-ground storage tanks or evidence of existing underground storage tanks were observed during the site visit.
- **Odors.** No odors indicative of hazardous materials or petroleum material impacts were detected at the time of the site visit.
- **Pits, Pools, Lagoons.** No pits, ponds or lagoons were observed within the project site at the time of the site visit.
- **Polychlorinated Biphenyls**. No polychlorinated biphenyls (PCB)-containing materials, including transformers, were observed within the project site during the site visit.
- **Asbestos and Lead-Based Paint.** An asbestos and lead-based paint survey was not conducted as part of the 2016 Phase I ESA. However, there are no structures on the project site. Therefore, asbestos-containing materials and lead-based paint materials do not occur.

Indoor Air Quality

An evaluation of indoor air quality, mold, or radon was conducted as a part of the Phase I ESA. According to the Phase I ESA, the California Department of Health Services has conducted studies of radon risks throughout the State, sorted by zip code. Results of the studies indicate that 3 tests were conducted within the property zip code, with no tests exceeding the current Cal EPA action level of 4 picocuries per liter.

In accordance with ASTM E2600-10 (Tier 1) (*Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*), there are no potential petroleum hydrocarbon sources for vapor intrusion within 1/10 mile of the project site or volatile organic compound (VOCs) sources within 1/3 mile of the project site.

Toxic Air Contaminants are discussed in Section 4.2.3 of Chapter 4.2: Air Quality. Impacts were determined to be less than significant.

Wildland Fire Hazards

Wildfires are large-scale brush and grass fires in undeveloped areas. Wildfires are often caused by human activities, such as equipment use and smoking, and can result in loss of valuable wildlife habitat, soil erosion, and damage to life and property. The level of wildland fire risk is determined by several factors, including:

- Frequency of critical fire weather;
- Percentage of slope;
- Existing fuel (vegetation, ground cover, building materials);

- Adequacy of access to fire suppression services; and
- Water supply and water pressure.

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped the relative wildfire risk in areas of large population by intersecting residential housing density with proximate fire threat according to three risk levels, namely Moderate, High, and Very High. The City of Vallejo is categorized as a Local Responsibility Area (LRA) by CAL FIRE; therefore, the City is not categorized as a Fire Hazard Severity Zone (FHSZ). [1]

City of Vallejo Emergency Operation Plan

The purpose of the City of Vallejo Emergency Operation Plan (EOP) is to provide a process for emergency management and response to extraordinary emergency situations associated with natural, technological and human-caused emergencies or disasters within the City. The EOP is developed in accordance with the principles of the Governor's Office of Emergency Services (Cal OES) Standardized Emergency Management Systems (SEMS). The EOP identifies the City's emergency planning, organization, and response policies and procedures and incorporates a standardized structure in order to integrate the elements and functions of multiple agencies in the event of an emergency. The EOP identifies City actions in conjunction with a broad range of contingencies, spanning from relatively minor incidents to extraordinary events and large-scale disasters, from preparation through recovery. Departmental responsibilities and Standard Operating Procedures (SOPs) are identified as well as mechanisms for priority setting, interagency cooperation, and the efficient flow of resources and information.

Environmental Records Review

As part of the Phase I ESA, a review of federal, State, and local regulatory agency databases provided by Environmental Data Resources (EDR) was conducted to evaluate the likelihood of contamination incidents at and near the project site. The database sources and the search distances are in general accordance with the requirements of ASTM E 1527-13.

The project site is not on the federal, State, or local ASTM Standard or supplemental sources or databases. The Phase I ESA identified 14 nearby facilities on the database within the ASTM Standard minimum search radii. These nearby facilities are listed below:

- Avery Green Motors at 80 Admiral Callaghan Lane
- Oil Changer Inc. #624 at 794 Admiral Callaghan Lane
- Valero Gas & Food at 501 Fairgrounds Drive
- Safeway Store #989 at 774 Admiral Callaghan Lane
- Vallejo Corners Dry Cleaners at 950 Admiral Callaghan Lane

[1] California, State of, Department of Forestry and Fire Protection. Solano County Draft Fire Hazard Severity Zones in LRA. 2007. Available at: http://frap.fire.ca.gov/webdata/maps/solano/fhszl06_1_map.48.pdf. Accessed January 29, 2019

- Redwood Cleaners is located at 784 Admiral Callaghan Lane
- Target Store #331 at 950 Admiral Callaghan Lane
- Shell Service Station #126 at 708 Admiral Callaghan Lane
- Tell Rental Inc. at 711 Admiral Callaghan Lane
- Vallejo Toyota at 1001 Admiral Callaghan Lane
- Taylor Classic Motors at 101 Admiral Callaghan Lane
- Tosco – Facility #6209 at 223 Fairground Drive
- Chevron Station at 200 Fairground Drive
- Solano County Fairground at 900 Fairground Drive

Based on the distances to the identified database sites, regional topographic gradient, and the EDR findings, it is unlikely that these 14 facilities would pose an environmental risk to the proposed project. There were no additional facilities identified in the regulatory database search performed in January 2019 other than those addressed in the 2016 Phase I ESA.

4.7.2 REGULATORY SETTING

The management of hazardous materials and hazardous wastes is regulated at the federal, State, and local levels, including, among others, through programs administered by the U.S. EPA; agencies within the California Environmental Protection Agency (CalEPA), such as the Department of Toxic Substances Control (DTSC); federal and State occupational safety agencies; and the Solano County Environmental Health Division. Regulations pertaining to flood hazards are discussed in Chapter 4.8, Hydrology and Water Quality) and regulations for geologic and soil-related hazards are discussed in Chapter 4.5, Geology and Soils.

At the federal level, the U.S. EPA is the principal regulatory agency, while at the State level, DTSC is the primary agency governing the storage, transportation, and disposal of hazardous wastes. The San Francisco RWQCB has jurisdiction over discharges into waters of the State. The Federal Occupational Safety and Health Administration (OSHA) and the State Cal/OSHA regulate many aspects of worker safety.

FEDERAL

Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act of 1976 and Resource Conservation and Recovery Act (RCRA) established a program administered by the U.S. EPA that regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the “cradle to grave” system of regulating hazardous wastes, meaning that all hazardous wastes are tracked and strictly regulated from generation to disposal.

Hazardous waste generators are required to report use or transport of hazardous wastes to the U.S. EPA. Generators range from small producers such as dry cleaners and automobile repair facilities to larger producers such as hospitals and manufacturing operations.

Comprehensive Environmental Response, Compensation, and Liability Act/ Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (U.S. Code Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also enables the revision of the National Contingency Plan (NCP). The NCP (Title 40, Code of Federal Regulation [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986. There are no Superfund sites within or near the project site.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and the National Priorities List

The U.S. EPA also maintains the Comprehensive Environmental Response Compensation (CERCLIS) and Liability Information System list. This list contains sites that are either proposed to be or on the National Priorities List (NPL), as well as sites that are in the screening and assessment phase for possible inclusion on the NPL. The NPL is a list of the worst hazardous waste sites that have been identified by Superfund. There are no NPL sites on the project site, listed NPL sites within one mile of the project site, or delisted NPL sites within 0.5 miles of the project site (ENGEO, 2016). According to the U.S. EPA website tracking NPL sites there are no NPL sites within the City of Vallejo (EPA, 2019).[2]

Emergency Planning and Community Right-to-Know Act

The federal Emergency Planning and Community Right-To-Know Act (EPCRA) was enacted to inform communities and residents of chemical hazards in their area. Businesses are required to report the locations and quantities of chemicals stored on-site to both State and local agencies. EPCRA requires the U.S. EPA to maintain and publish a digital database list of toxic chemical releases and other waste management activities reported by certain industry groups and federal facilities. This database, known as the Toxic Release Inventory, gives the community information needed to hold companies accountable for their chemical management.

[2] United States Environmental Protection Agency (U.S. EPA), 2019. National Priorities List (NPL) Sites- by State. Available: https://www.epa.gov/superfund/national-priorities-list-npl-sites-state#CA Accessed: July 23, 2019.

Hazardous Materials Transportation Act

The U.S. Department of Transportation (DOT) receives authority to regulate the transportation of hazardous materials from the Hazardous Materials Transportation Act, as amended and codified (49 U.S.C. 5101 et seq.). The DOT is the primary regulatory authority for the interstate transport of hazardous materials and establishes regulations for safe handling procedures (i.e., packaging, marking, labeling, and routing).

In California, Section 31303 of the California Vehicle Code states that any hazardous material being moved from one location to another must use the route with the least travel time. In practice this regulation pertains to major roads and highways, although secondary roads are permitted to be used for local delivery. This results in I-80 being used to transport hazardous materials; however, local roadways including Admiral Callaghan Lane and Turner Parkway could be used. These policies are enforced by both the California Highway Patrol and Caltrans.

Clean Water Act/SPCC Rule

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq., formerly the Federal Water Pollution Control Act of 1972), was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The proposed project is within the jurisdiction of the San Francisco Bay RWQCB.

Section 402 of the Clean Water Act authorizes the California SWRCB to issue NPDES General Construction Storm Water Permit (Water Quality Order 99-08-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation; and
- Perform inspections of all BMPs.

NPDES regulations are administered by the RWQCB. Projects that disturb one or more acres are required to obtain NPDES coverage under the General Construction Permit.

As part of the CWA, the U.S. EPA oversees and enforces the Oil Pollution Prevention regulation contained in Title 40 of the CFR, Part 112 (Title 40 CFR, Part 112), which is often referred to as the "SPCC rule" because the regulations describe the requirements for facilities to prepare, amend, and implement Spill Prevention and Countermeasures (SPCC) Plans. A facility is subject to SPCC regulations if a single oil (or gasoline, or diesel fuel) storage tank has a capacity greater than 660 gallons, the total above ground oil storage capacity exceeds 1,320 gallons, or the underground oil storage capacity exceeds 42,000 gallons, and if, due to its location, the facility could reasonably be expected to discharge oil into or upon the "Navigable Waters" of the United States.

Occupational Safety and Health Administration (OSHA)

Congress passed the Occupational and Safety Health Act (OSHA) to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. To establish standards for workplace health and safety, OSHA also created the National Institute for Occupational Safety and Health as the research institution for the Occupational Safety and Health Administration. The Administration is a division of the U.S. Department of Labor that oversees the administration of OSHA and enforces standards in all states. OSHA standards are listed in Title 29 CFR Part 1910.

OSHA's Hazardous Waste Operations and Emergency Response Standard applies to five groups of employers and their employees. This includes any employees who are exposed or potentially exposed to hazardous substances (including hazardous waste) and who are engaged in clean-up operations; corrective actions; voluntary clean-up operations; operations involving hazardous wastes at treatment, storage, and disposal facilities; and emergency response operations.

STATE

California Environmental Protection Agency (CalEPA)

CalEPA has jurisdiction over hazardous materials and wastes at the State level. DTSC is the department of CalEPA responsible for implementing and enforcing California's own hazardous waste laws, which are known collectively as the Hazardous Waste Control Law. DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). Although similar to RCRA, the California Hazardous Waste Control Law and its associated regulations define hazardous waste more broadly and regulate a larger number of chemicals. Hazardous wastes regulated by California but not by the U.S. EPA are called "non-RCRA hazardous wastes." 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 (SWRCB) as having underground storage tank leaks and 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.

Enforcement of directives from DTSC is handled at the local level, in this case the Solano County Department of Resource Management, Environmental Health Division. The Regional Water Quality Control Board also has the authority to implement regulations regarding the management of soil and groundwater investigation.

California Department of Forestry and Fire Protection (CAL FIRE)

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire threat potential throughout California. CAL FIRE ranks fire threats based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat.

California Fire Code

California Code of Regulations, Title 24, also known as the California Building Standards Code, contains the California Fire Code (CFC), included as Title 24, Part 9. The CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The California Health and Safety Code, Division 20, Chapter 6.95, known as the Hazardous Materials Release Response Plans and Inventory Act or the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Businesses must submit this information to the County Environmental Health Division. The Environmental Health Division verifies the information and provides it to agencies responsible for protection of public health and safety and the environment. Business Plans are required to include emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material, including, but not limited to, all of the following:

- Immediate notification to the administering agency and to the appropriate local emergency rescue personnel.
- Procedures for the mitigation of a release or threatened release to minimize any potential harm or damage to persons, property, or the environment.
- Evacuation plans and procedures, including immediate notice, for the business site.

Business Plans are also required to include training for all new employees, and annual training, including refresher courses, for all employees in safety procedures in the event of a release or threatened release of a hazardous material.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The Act is implemented by regulations contained in Title 26 of the CCR, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

California Vehicle Code

Section 353 of the California Vehicle Code (CVC) and Title 49, Code of Federal Regulations (CFR), Section 171.8, define a hazardous material as a substance or material which is capable of posing an unreasonable risk to health, safety, and property when transported in a vehicle. Additionally, hazardous substances, marine pollutants, and elevated temperature materials are also hazardous materials. Hazardous materials can be liquids, solids, or gases. Some examples are explosives, gasoline, hydrochloric acid, propane, and acetylene.

The rules for transporting hazardous materials are outlined in Title 49, CFR. These regulations apply to the transportation of HM in both intrastate and interstate commerce. State laws and regulations reference or adopt many of these federal regulations and are applicable, with some exceptions, to all persons transporting hazardous materials on public roads. This includes transportation for commercial purposes, transportation by state or local governments, and private individuals. Federal hazardous materials regulations are contained in Title 49, CFR, Parts 171-180; and state hazardous materials regulations are contained in Title 13, California Code of Regulations, Sections 1160-1167 (CHP, 2019).

California Department of Transportation and California Highway Patrol

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Department of Transportation (Caltrans) and the California Highway Patrol (CHP). Caltrans manages more than 50,000 miles of California's highway and freeway lanes, provides intercity rail services, permits more than 400 public-use airports and special-use hospital heliports, and works with local agencies. Caltrans is also the first responder for hazardous material spills and releases on highway and freeway lanes and intercity rail services.

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations designed to prevent leakage and spills in transit and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and

shipping documentation are all part of the CHP's responsibility, and it conducts regular inspections of licensed transporters to ensure regulatory compliance.

In addition, the State of California regulates the transportation of hazardous waste originating or passing through the state. Common carriers are licensed by the CHP pursuant to the California Vehicle Code, Section 32000. This section requires licensing for every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) required the administrative consolidation of six hazardous materials and waste programs (Program Elements) under one agency, a Certified Unified Program Agency (CUPA). The Program Elements consolidated under the Unified Program are Hazardous Waste Generator and On-site Hazardous Waste Treatment Programs (a.k.a. Tiered Permitting); Aboveground Petroleum Storage Tank SPCC; Hazardous Materials Release Response Plans and Inventory Program (a.k.a. Hazardous Materials Disclosure or "Community-Right-To-Know"); California Accidental Release Prevention Program (Cal ARP); Underground Storage Tank (UST) Program; and Uniform Fire Code Plans and Inventory Requirements.

The Unified Program is intended to provide relief to businesses complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA.

The Solano County Department of Environmental Management (SCDEM) is the CUPA for all cities and unincorporated area within the County, which includes this project site. The SCDEM issues permits to and conducts inspections of businesses that use, storage, or handle quantities of hazardous materials and/or waste greater than or equal to 55 gallons, 500 pounds, or 200 cubic feet of a compressed gas at any time. The SCDEM also implements the hazardous Material Management Plans (Business Plans) that include an inventory of hazardous materials used, handled, or stored at any business in the County. In addition, regulated activities (e.g., businesses using hazardous materials) are managed by the SCDEM in accordance with applicable regulations such as Hazardous Materials Release Response Plans and Inventories (Business Plans), the California Accidental Release Prevention Program, and the California Uniform Fire Code: Hazardous material Management Plan and Hazardous Material Inventory Statements.

Department of Toxic Substance Control (DTSC)

DTSC is a department of Cal EPA 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. DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California Health and Safety Code (primarily Division 20, Chapters 6.5 through 10.6, and Title 22, Division 4.5). 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 SWRCB as having UST leaks and 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.

California Office of Emergency Services (OES)

To protect the public health and safety and the environment, the California OES is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed of (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies. The information must be included in these institutions' business plans to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment.

These regulations are covered under Chapter 6.95 of the California Health and Safety Code Article 1 – Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2 – Hazardous Materials Management (Sections 25531 to 25543.3). CCR Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4 – Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for Hazardous Materials Business Plans (HMBP). These plans shall include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the State. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following: 500 pounds of a solid substance, 55 gallons of a liquid, 200 cubic feet of compressed gas, a hazardous compressed gas in any amount, or hazardous waste in any quantity.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker

exposure to listed hazardous substances and notify workers of exposure (8 CCR §§337-340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

In addition, Cal/OSHA regulates medical/infectious waste, including management of sharps, requirements for containers that hold or store medical/infectious waste, labeling of medical/infectious waste bags/containers, and employee training.

California Department of Public Health

California's medical waste disposal regulations are overseen by the California Department of Public Health, Environmental Management Branch. The Medical Waste Management Program within the Environmental Management Branch regulates the generation, handling, storage, treatment, and disposal of medical waste. The Medical Waste Management Program also implements the large quantity generator inspector inspection program. A large quantity generator is a medical waste generator that generates more than 200 pounds of medical waste per month in any month of a 12-month period. A small quantity generator is a medical waste generator that generates less than 200 pounds per month of medical waste. Small quantity generators are subject to all of the requirements under Chapter 4 of the Medical Waste Management Act, Health and Safety Code section 117915 through 117946. Medical waste must be picked up by a registered medical waste hauler or if appropriate sent for treatment through a mail-back program.

Solano County and City of Vallejo Local Hazard Mitigation Plans

As required by FEMA and California Governor's Office of Emergency Services, Solano County and the City of Vallejo have prepared Local Hazard Mitigation Plans (LHMPs). The purpose of the LHMPs is to assess risk to natural hazards, implement actions to reduce losses, and maintain eligibility for federal mitigation funds in accordance with the Disaster Mitigation Act of 2000. The Solano County LHMP was prepared in 2012 and is currently in the process of being revised. The City of Vallejo's LHMP was prepared in 2010 by VSFCD and also is currently in the process of being revised. In addition to the LHMPs, both Solano County and the City of Vallejo have developed Emergency Operations Plans (EOPs), which describe the emergency response organizational structure and response actions in the event of natural or man-made disasters.

REGIONAL AND LOCAL

Propel Vallejo General Plan 2040 and Sonoma Boulevard Specific Plan

Project relevant General Plan policies and actions for hazards and hazardous materials are addressed below.

Policy CP-2.3:	*Fire Prevention and Response Services*. Ensure the provision of fire prevention and emergency response services that minimize fire risks and protect life and property.
Action CP-2.3B	Expand training programs for local residents and business owners.

Action CP-2.3E	Work with property owners and public agencies to ensure that plant growth is managed to minimize fire danger.
Policy MTC-2.3:	*Emergency Response Routes*. Ensure adequate emergency vehicle access in all areas of Vallejo.
Action MTC-2.3A	Develop and adopt a map of emergency response routes that considers alternative options based on the potential for traffic congestion at peak commute times.
Action NBE-5.1D	Collaborate with the Greater Vallejo recreation District, Solano Land Trust, and other public agencies to ensure that open spaces are maintained so that ground fuels do not promote the spread of wildfire.
Action NBE-5.1F	Work with local gas, electric, cable, water, sewer, and other utility providers to help and ensure their ability to function (or be quickly restored) following an outage.
Action NBE-5.2A	Continue to provide Community Emergency Response Team (CERT) training to residents and business community members.
Action NBE-5.3B	Continue to require development to comply with building and safety codes and continue to route plans and drawings to all relevant City departments for review.
Policy NBE-5.4:	*Project Location and Design*. Prohibit development in any area where it is determined that the potential risk from natural hazards cannot be mitigated to acceptable levels.
Action NBE-5.4A	Continue to require geotechnical studies for land use proposals to determine engineering measures that may be necessary to adequately mitigate any seismic, flooding, sea-level rise, landslide, erosion, or related risk.
Action NBE-5.4B	Continue to require drainage and erosion control measures for landslide-prone or geologically hazardous hillside areas to minimize risks to downhill areas.
Action NBE-5.4C	Continue to use the development review process to ensure that development is planned and constructed to resist the encroachment of uncontrolled fire.
Action NBE-5.4E	Work with property owners to facilitate the retrofitting of existing structures to reduce the potential for damage during earthquakes.

Policy NBE-5.5:	*Hazard Awareness*. Promote public awareness of hazards and resources available to help property and business owners improve safety and prepare for emergencies.
Action NBE-5.5A	Continue to partner with neighborhood and community organizations to conduct emergency preparedness exercises.
Action NBE-5.5B	Update "high fire hazard severity zone" maps as necessary and provide landowners with information on minimum defensible space requirements for development in affected areas.
Action NBE-5.10A	Continue to require remediation of hazardous material releases from previous land uses prior to the initiation of any redevelopment activities.
Policy NBE-5.11:	*Risk Reduction*. Reduce the risk of hazardous materials accidents, spills, and vapor releases, and minimize the effects of such incidents if they occur.
Action NBE-5.11A	Continue to require the preparation of Hazardous Materials Business Plans for new uses that will handle hazardous materials, including inventory of materials by type, quantities, and conditions of storage and transportation, assessment of potential hazards associated with the materials, and steps to be taken to minimize risks and in the event of a spill.
Action NBE-5.11B	Continue to require that businesses using hazardous materials maintain safe distances from sensitive uses, such as homes and schools.
Action NBE-5.11D	Continue to require compliance with all hazardous waste transport standards established by State and federal agencies.
Action NBE-5.11E	Continue to require that all facilities where hazardous materials are used, handled, or stored are designed and constructed to minimize the possibility of environmental contamination and off-site impacts.
Action NBE-5.11F	Collaborate with county, State, and federal agencies to ensure that facilities where hazardous materials are used, handled, or stored are regularly inspected and that applicable regulations are enforced.
Policy NBE-5.12:	*Public Awareness*. Ensure that residents and businesses can obtain up-to-date information about hazardous materials handling, storage, and regulations in the community.

Action NBE-5.12A:	Publicize household hazardous waste collection events, and provide residents with information on safe disposal procedures for household waste such as paint, motor oil, and batteries.
Action NBE-5.12B	Enforce community disclosure (Right to Know) laws that inform property owners of the presence of hazardous materials nearby.
Action NBE-5.12C	Work with rail and waterborne cargo transporters and the California Public Utilities Commission (CPUC) to ensure safe conditions for the loading, unloading, and transport of hazardous materials through Vallejo.

City of Vallejo Municipal Code

Chapter 7.66 (Hazardous Materials Disclosure) of the City of Vallejo Municipal Code requires that all businesses disclose the presence of hazardous materials handled, stored, used or disposed at the location of the business to the City Fire Chief. This allows the firefighters responding to fires or other emergencies in structures that store hazardous materials to be prepared and respond appropriately to protect their lives and the lives of those in the community. In addition, Section 7.40.150 – of the City of Vallejo Municipal Code defines hazardous materials and references CERCLA, RCRA, Clean Water Act, health and safety codes, and 49 USC Section 1802 et seq of the Hazardous Materials Transportation Act HMTA, which is discussed under Federal Regulations above. As discussed in that section, the U.S. DOT is the primary regulatory authority for the interstate transport of hazardous materials and establishes regulations for safe handling procedures (i.e., packaging, marking, labeling, and routing). In addition, Section 31303 of the California Vehicle Code related to transportation of hazardous materials would be applicable.

4.7.3 STANDARDS OF SIGNIFICANCE

The following significance criteria for hazards and hazardous materials were derived from the Environmental Checklist in the State CEQA Guidelines Appendix G. The project would result in a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- 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.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

4.7.4 PROJECT IMPACTS AND MITIGATION

IMPACT HAZ-1	***WOULD THE PROJECT CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH THE ROUTINE TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The types of uses and facilities allowed within the project site may generate, store, use, distribute, or dispose of hazardous materials such as heavy metals, household chemicals, petroleum, oils, solvents, paints, pesticides, and fertilizers. *Table 4.7-1: Hazardous Material Usage Within the Project Site*, summarizes typical hazardous material types by land use category. The proposed Costco store will include 30 fueling dispensers that will be supplied by underground storage tanks. The proposed project would not create a significant impact through the transport, use, or disposal of hazardous materials since all uses and facilities are required to comply with all applicable federal, State, and regional regulations which are intended to avoid impacts to the public or environment. If during the formal design review process the City determines that a prospective user may generate inordinate quantities or unusual hazardous waste material, the proposed project may be subject to further review prior to approval.

Table 4.7-1: Hazardous Material Usage Within the Project Site

Land Use	Hazardous Materials
Single Family Residential Units	Heavy metals (e.g. ,electronic components), household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, and solvents.
Commercial – retail and gas station	Aerosols, cleaners, heavy metals, fuels, heating oils, household chemicals, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers and solvents.
Open Space	None anticipated

The transportation, use, and disposal of these materials would be subject to local, state, and federal laws, as well as Vallejo General Plan 2040 Nature and Built Environment Goals and Policies intended to minimize the risk of exposure to hazardous materials. The proposed project is not anticipated to create a significant impact related to the transport, use, or disposal of the fuels. The dispensers would comply with all state

requirements regarding spill prevention and all nozzles would have a vapor recovery systems. All fuel would be transported in accordance with Section 353 of the California Vehicle Code (CVC), in Title 13, California Code of Regulations, Sections 1160-1167 and Title 49, Code of Federal Regulations (CFR), Parts 171-180. These sections set for requirements that define a hazardous material and the mechanisms to help ensure safe transport that must be employed. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. As discussed above, the use of these hazardous materials would be incidental to the operation of the commercial and residential uses and would be similar to uses found in most commercial and residential areas with the exception of the gas station.

The gas station is designed with controls such as vapor locks and double-walled underground tanks to minimize and avoid potential hazards associated with the release of hazardous materials. The gas station operated by Costco will incorporate the design measures discussed below under Impact HAZ–2. As such, the risks associated with the use of these materials would be similarly small. While the proposed project would involve the transportation, use, and disposal of some hazardous materials (mostly related to fuel transport for the proposed gas station), compliance with local, state, and federal regulations and County policies would ensure that the proposed project would result in less than significant impacts and no mitigation is required.

IMPACT HAZ-2	***WOULD THE PROJECT CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT THROUGH REASONABLY FORESEEABLE UPSET AND ACCIDENT CONDITIONS INVOLVING THE RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The 2016 Phase I ESA investigation included a review of local, State, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources, a reconnaissance of the project site to review use and current conditions and to check for the storage, use, production or disposal of hazardous or potentially hazardous materials, and interviews with persons and agencies knowledgeable about current and past site use. The reconnaissance and records research did not find documentation or physical evidence of soil or groundwater impairments associated with the past and present use of the project site.

A review of regulatory databases maintained by County, State, and federal agencies found no documentation of hazardous materials violations or discharge on the project site. A review of regulatory agency records and available databases did not identify any documented soil or groundwater contamination associated with abutting properties that would be expected to impact the project site. The Phase I ESA did not identify any RECs associated with the project site.

Although no hazardous materials are known to occur within the project site, the proposed project does include a Costco gas station that would include 30 fueling dispensers. The dispensers would be supplied by underground storage tanks and would require refilling with diesel fuel and gasoline to ensure

continued supplies are available to Costco customers. There is the potential that some fuel may spill during normal operation of the gas station and there is a small potential that a structural failure of the USTs or connecting plumbing could weaken and leak into surrounding soils. A release of diesel or gasoline into the environment would be considered a significant impact and mitigation is required. In addition to the operation safeguards described in Chapter 3.0, Project Description that will be included as conditions of approval, the project will be required to implement Mitigation Measure HAZ-1 which requires specific design requirements for the gas station equipment and safety features. The mitigation measure also specific measures for storm drainage to prevent untreated surface water runoff from the gas station area from entering adjacent environmentally sensitive areas such as the perennial stream located in the southwest corner of the site.

Mitigation Measure:

MM HAZ-1: **Gas Station Design Requirements.** Prior to the issuance of building permits for the Costco gas station, the project applicant shall to the satisfaction of the Planning & Development Services Director or designee, demonstrate that the following measures have been incorporated into the applicable plans and project designs to the satisfaction of the Planning & Development Services Director or their designee. All design features requiring verification of installation shall be verified and approved by the appropriate City representative prior to initiation of fueling station operations.

1. The tank and piping monitoring system shall be designed to meet the federal underground storage tank leak detection standards of 95 percent probability of detection and 5 percent probability of false alarm. California State Water Resources Control Board also certifies the system under LG-113.
2. The project shall be designed to utilize durable petroleum-resistant sealant joint sealers to seal the concrete control joints to prevent petroleum products from entering the underlying soil at the concrete joints.
3. The storm drainage system for the fueling facility area shall be designed in accordance with State of California Best Management Practices for water quality treatment standards. Stormwater from the fueling area will be isolated and will be directed away from the perennial stream (located in the southeastern corner of the project site) to a catch basin and processed through an oil/water separator prior to discharge to the storm drain system or bioretention basin.
4. The underground tank and piping control units shall be housed inside the controller enclosure. The enclosure shall contain the power console, the dispenser interface unit, the submersible pump variable speed controllers, and the monitoring system console. An air conditioner mounted on the side of the enclosure shall have a preset thermostat to maintain a safe operating temperature.
5. The underground storage tanks and all containment sumps, including the dispenser sumps shall be double-walled fiberglass for its corrosion resistance and plasticity. The

double-walled storage tank system shall include a hydrostatic interstitial space sensor that monitors the primary and secondary tank walls. An interstitial sensor shall be installed to immediately shut down the product delivery system and activate a visual/audible alarm if a tank wall is compromised, the.

6. The underground storage tanks shall be secured in place with anchoring straps (tie-downs) connected to concrete hold down deadmen. The entire tank excavation hole shall be backfilled with pea gravel and capped with an 8-inch-thick reinforced concrete slab (overburden). The tie-downs, together with the overburden, shall be designed to overcome any possible buoyancy factors and resist buckling under hydrostatic pressures.
7. All product, vapor and vent piping shall be non-corrosive and provide three levels of protection. All product piping shall be monitored with pressure line leak detection. All piping shall be double-walled to provide secondary containment. All fiberglass piping shall be additionally monitored under vacuum per California 2481 regulations such that if a breach is detected in the vacuum, the product delivery system will shut down and system will sound audible alarm.
8. All piping connections to the tanks and dispensers shall be flexible to prevent rupture from any form of ground movement.
9. The project shall be designed such that all piping slopes to the sumps at the underground storage tanks. If a piping leak occurs, the gasoline shall flow through the secondary pipe to the sump, where a sensor is triggered to immediately shut down the system and activate an audible/visual alarm.
10. All tanks and dispensers shall be equipped with latest Phase I and Phase II Enhanced Vapor Recovery (EVR) vapor recovery air pollution control equipment technology per the California Air Resources Board regulations and associated Executive Orders.
11. Emergency shutoff switches shall be installed next to the controller enclosure and in locations near the dispensers, as dictated by the fire code.
12. The UST monitoring system incorporates automatic shutoffs. If gasoline is detected in the sump at the fuel dispenser, the dispenser shuts down automatically and an alarm is sounded. If a problem is detected with a tank, the tank is automatically shut down and an alarm is sounded.
13. Each fuel dispenser includes several safety devices. Specifically, each dispenser sump is equipped with an automatic shutoff valve to protect against vehicle impact.
14. Closed-circuit television monitor cameras shall be aimed to show all fueling positions, the tank slab, and equipment enclosures. Equipment enclosures shall be mounted on canopy columns adjacent to the fuel islands. A split-screen monitor shall be located in the Costco warehouse to allow for full-time monitoring of the fueling operation. All images shall be recorded by the camera system.

15. A monitoring system to detect leaks from the tank and piping system that is programmed to activate visual/audible alarms in the event of an alarm condition shall be installed. One visual/audible alarm shall be located on the outside of the controller enclosure and a second visual/audible alarm shall be located in the Costco warehouse entry/exit area. The monitoring system shall be designed so that if power is lost to the monitoring console the facility is shut down and will not operate.
16. An independent security company shall monitor the Costco Wholesale warehouse alarm system. The alarm system shall acknowledge an alarm condition at the fueling facility and notify Costco management staff of an alarm condition should it occur after operating hours.

The proposed project also would be subject to state and local regulations related to OES requirements under Chapter 6.95 of the California Health and Safety Code Article 1 – Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2 – Hazardous Materials Management (Sections 25531 to 25543.3). CCR Title 19, Public Safety, Division 2, Office of Emergency Services, Chapter 4 – Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) which establishes minimum statewide standards for Hazardous Materials Business Plans (HMBP). In accordance with requirements, these plans are required to include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. In addition, the proposed project would be required to comply with OSHA standards are listed in Title 29 CFR Part 1910. Conformance to these regulations and implementation of Costco's Operational Safeguards as conditions of project approval and Design Features listed Mitigation Measure HAZ-1 above, would be required for the life of the project and would reduce impacts from accident or upset conditions to less than significant.

IMPACT HAZ-3	***WOULD THE PROJECT EMIT HAZARDOUS EMISSIONS OR HANDLE HAZARDOUS OR ACUTELY HAZARDOUS MATERIALS, SUBSTANCES, OR WASTE WITHIN ONE-QUARTER MILE OF AN EXISTING OR PROPOSED SCHOOL?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The nearest schools to the project site are Cooper Elementary School approximately 0.6 miles to the west, and Joseph H. Wardlaw Elementary School located approximately 0.8 miles to the southeast. Jesse Bethel High School, the nearest high school is approximately 0.9 mile southeast of the project site. Hogan Middle School, the nearest middle school, is approximately 1.7 miles southeast of the project site. The project does not propose any industrial uses which could generate hazardous emissions or involve the handling of hazardous materials, substances, or waste in significant quantities that would have an impact to surrounding schools. The types of hazardous materials that would be routinely handled (e.g., household cleaners, paints, pesticides, petroleum, oil, lubricants, thinners, fertilizers, and solvents) are similar to those that typically occur in residential and commercial land uses. Fuel for the proposed gas station would

be transported to the site. Delivery access to the site from surrounding freeways would be similar to the current access routes for the existing Costco gas station located just north of the project site. Transporting fuel to the proposed project site would not result in the delivery of fuel any closer to schools than under the existing conditions. An existing pre-school is located less than 0.25 mile from the project site, however the proposed project would not transport fuels any closer than the existing gas station located approximately 700 feet to the west of the existing pre-school. The access routes from the nearest I-80 freeway on-ramps and off-ramps are at Redwood Parkway and Columbus Parkway. Deliveries would then use Admiral Callaghan Lane to access the project site. As discussed in impact HAZ-2, above, all fuel would be transported in accordance with Section 353 of the California Vehicle Code (CVC), in Title 13, California Code of Regulations, Sections 1160-1167 and Title 49, Code of Federal Regulations (CFR), Parts 171-180. These sections set for requirements that define a hazardous material and the mechanisms to help ensure safe transport that must be employed. Compliance with these local, state, and federal regulations as well as County policies would ensure that the proposed project would result in less than significant impacts in this regard and no mitigation is required.

IMPACT HAZ-4	***WOULD THE PROJECT BE LOCATED ON A SITE WHICH IS INCLUDED ON A LIST OF HAZARDOUS MATERIALS SITES COMPILED PURSUANT TO GOVERNMENT CODE SECTION 65962.5 AND, AS A RESULT, WOULD IT CREATE A SIGNIFICANT HAZARD TO THE PUBLIC OR THE ENVIRONMENT?*** ***(NO IMPACT)***

The project is not included on a hazardous site list compiled pursuant to California Government Code Section 65962.5.[3] According to the Phase I ESA, there were no RECs (as defined by ASTM Practice E 1527 13) identified in association with the project site. No impact would occur.

IMPACT HAZ-5	***FOR A PROJECT LOCATED WITHIN AN AIRPORT LAND USE PLAN OR, WHERE SUCH A PLAN HAS NOT BEEN ADOPTED, WITHIN TWO MILES OF A PUBLIC AIRPORT OR PUBLIC USE AIRPORT, WOULD THE PROJECT RESULT IN A SAFETY HAZARD OR EXCESSIVE NOISE FOR PEOPLE RESIDING OR WORKING IN THE PROJECT AREA?*** ***(NO IMPACT)***

There are no private or public airport facilities near the project site. The nearest airport to the site is the Napa County Airport, located approximately six miles to the northwest. No impact would occur.

[3] California, State of, Department of Toxic Substances Control, DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List). Available at: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm. Accessed January 29, 2019.

IMPACT HAZ-6	***WOULD THE PROJECT IMPAIR IMPLEMENTATION OF OR PHYSICALLY INTERFERE WITH AN ADOPTED EMERGENCY RESPONSE PLAN OR EMERGENCY EVACUATION PLAN?*** ***(NO IMPACT)***

The project would not impair or physically interfere with an adopted emergency response or evacuation plan. The City's General Plan Policy CP-2.3 and associated actions support the Fire Department in terms of ensuring that fire prevention and emergency response services are adequate to minimize fire risks and protect life and property.

The City of Vallejo Emergency Operation Plan (EOP) was prepared by the City to guide the integration and coordination within other governmental agencies that are required during an emergency to serve the existing and future public safety needs in the City. The EOP identifies evacuation routes, emergency facilities, and City personnel, and describes the overall responsibilities of federal, State, regional, Operational Area, and City entities. No revisions to the adopted EOP would be required as a result of the proposed project. Primary access to all major roads would be maintained during construction and operation of the proposed project. No impacts would occur.

IMPACT HAZ-7	***WOULD THE PROJECT EXPOSE PEOPLE OR STRUCTURES, EITHER DIRECTLY OR INDIRECTLY, TO A SIGNIFICANT RISK OF LOSS, INJURY OR DEATH INVOLVING WILDLAND FIRES?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The project site is not within a Fire Hazard Severity Zone (FHSZ) designated by CAL FIRE. The project site is in a developed area that is not adjacent to any wildland areas. The nearest Vallejo Local Responsibility Area with a high fire hazard is approximately 0.5 miles to the north at Columbus Parkway. The nearest State Responsibility area with high fire hazard risk area is approximately 1.75 miles to the north, just outside the Vallejo city limits.[4] It should be noted that nuisance fires have occurred on the project site as a result of trespassing, encampments, and other illegal activities occurring on the project site. The nuisance fires as a result of these illegal activities are not related to wildfire threats and would be substantially reduced once the site is developed.

Under State and local law, all new construction in a very high FHSZ are required to be compliant with construction regulations (Chapter 7A) of the California Building Code, including requirements for buildings in the course of construction. Although the project site is not located in an FHSZ, the City would review all building plans for conformity with State and local statutes, ordinances, and regulations relating to the prevention of fire, the storage of hazardous materials, and the protection of life and property against fire,

[4] Vallejo General Plan 2040, Map NBE-4: Wildfire Risk Areas, Page 4-28.

explosion, and exposure to hazardous materials. Adherence to regulations already in place through the development application and review process at the City would preclude potential impacts.

4.7.5 CONCLUSION

The 2016 Phase I ESA and updated regulatory database search (January 2019) did not identify any hazardous material concerns for the project site. In addition, the proposed uses are not anticipated to generate or store hazardous materials in significant quantities. However, per Mitigation Measure HAZ-1, a facility that stores or uses a regulated substance, which exceeds the threshold for that substance specified by Health and Safety Code Section 25532(l), would be required to prepare and implement a RMP.

4.7.6 CUMULATIVE IMPACTS

Most hazards and hazardous materials impacts from development are site-specific and if properly designed would not result in additive worsening of the environment or public health and safety. Cumulative development would be subject to site-specific hazards and/or hazardous materials constraints; pursuant to federal, State, and local regulations.

The incremental effects of the project related to hazards and hazardous materials, if any, are anticipated to be minimal, and any effects would be site-specific. Therefore, the project would not result in incremental effects to hazards or hazardous materials that could be compounded or increased when considered together with similar effects from other past, present, and reasonably foreseeable probable future projects. The project would not result in cumulatively considerable impacts to or from hazards or hazardous materials.

4.7.7 REFERENCES

Propel Vallejo General Plan 2040 and Sonoma Boulevard Specific Plan, 2016.

ENGEO Incorporated, Cooke Property Vallejo, California Phase I Environmental Site Assessment, November 15, 2016.

United States Environmental Protection Agency (U.S. EPA), 2019. National Priorities List (NPL) Sites- by State. Available: https://www.epa.gov/superfund/national-priorities-list-npl-sites-state#CA Accessed: July 23, 2019.

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4.8 HYDROLOGY AND WATER QUALITY

This section of the Environmental Impact Report (EIR) describes the existing setting of the proposed project site as it relates to hydrology and water quality; identifies associated regulatory conditions and requirements; presents the criteria used to evaluate potential impacts on hydrology and water quality, and identifies mitigation measures to reduce or avoid each significant impact. This following analysis of the potential impacts to hydrology and water quality is derived primarily from the listed sources. The reports are summarized in the following discussion and the stormwater studies are included as Appendix H to this EIR.

- Propel Vallejo 2040 General Plan.
- City of Vallejo Code of Ordinances.
- Stormwater Control Plan for Fairview at Northgate Commercial Project.
- Stormwater Control Plan for Fairview at Northgate Residential Project.

The project includes a 0.25-acre water quality treatment basin, approximately 16 other C3 compliant water quality features within the residential area, and approximately 20 water quality features in the parking medians and landscaped areas of the commercial area to comply with the California Regional Water Quality Control Board (RWQCB) Municipal Regional Permit (MRP) and associated C3 requirements. The project would include appropriate source controls, to manage trash, sediment, and metal capture, and to reduce total maximum daily loads (TMDL), unwanted discharges, and to prevent increases in runoff flows. The water quality basin would be located on the northern portion of the project site between the open space and residential area just south of Turner Parkway. The water quality basin would be designed to manage storm flows from both the commercial and residential components of the proposed project and treat run-off before being released downstream. The final location and design of the C3 source control storm water treatment measures would be determined based on the final project design and detailed in a storm water drainage design. Similar to the open space, the water quality basin would be managed by a homeowner's association (HOA). The bioretention facilities on the commercial and residential sites would be managed and maintained by the HOA and commercial property owners.

4.8.1 ENVIRONMENTAL SETTING

The 51.3-acre project site is vacant, undeveloped property with low-lying vegetation and minimal tree canopy cover. It is southeast of the intersection of Turner Parkway and Admiral Callaghan Lane. Elevations for the existing site range from approximately 89 ft to 124 feet above mean sea level, and surface water generally flows to the northwest towards a natural drainage swale which conveys flows towards Turner Parkway. The majority of the site (over 44 acres) is covered in non-native annual grassland with some elements of mixed woodland and coyote brush scrub intermixed. A seasonal wetland traverses the site flowing from south to north and ultimately drains to two existing culverts that convey water off the property underneath Turner Parkway. The culverts are approximately 315 feet east of the intersection

of Turner Parkway at Admiral Callaghan Lane. A perennial stream traverses the southwestern corner of the property and surface water flows on and off the property through existing underground culverts.

The City of Vallejo is bordered by the City of American Canyon and unincorporated Napa County to the north, the City of Benicia and unincorporated Solano County to the east, the Carquinez Strait to the south, and the Napa River and San Pablo Bay to the west. Adjacent to the City and to the west is the San Pablo Bay National Wildlife Refuge. The Solano County Land Trust's Lynch Canyon Open Space is approximately one mile north of the City. Vallejo is along the east margin of San Pablo Bay, a northeastern lobe of San Francisco Bay. The environment along Mare Island and parts of the east margin of the Napa River includes gently sloping terrain in the central part of the City (especially the area adjacent to I-80 north of Curtola Parkway); hillier terrain that dominates the east-central and northeast parts of the City and include the East Bay Hills and Briones Hills to the southwest; the Vaca Mountains and Napa Valley to the north; and, the Diablo Ranges to the southeast. Elevations range from near sea level on the shores of the Carquinez Strait to nearly 1,000 feet above mean sea level along the crest of Sulphur Springs Mountain in the northeast part of the City.

WATERSHEDS

The City of Vallejo lies within two watersheds: San Pablo Bay Watershed and Suisun Bay Watershed. The majority of Vallejo is within San Pablo Bay Watershed. A small portion of the City east of Rollingwood Drive (in the southeast portion of the City) and east of Columbus Parkway (in the northeast portion of the City) is within the Suisun Bay Watershed.

The San Pablo Bay Watershed is approximately 900 square miles and is the drainage area of the major creeks and streams that flow into San Pablo Bay. The watershed is part of the San Francisco Bay-Delta Estuary, which drains more than 40 percent of California's surface area. The San Pablo Bay Watershed is among the richest ecosystems in the West and has the largest untouched expanse of tidal wetlands in California. It is one of three critical stopover sites for migratory shorebirds navigating the Pacific Flyway and is an essential nursery for salmon, sturgeon, and lampreys. The watershed is under increased development pressure from urban and agricultural uses, which has led to the development of a watershed restoration and management plan headed by the U.S. Army Corps of Engineers (Corps).

The Suisun Bay Watershed is approximately 660 square miles. Suisun Bay is a shallow tidal estuary that lies at the confluence of the Sacramento and San Joaquin Rivers, forming the entrance to the Sacramento-San Joaquin River Delta. Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America and includes 52,000 acres of managed wetlands, 27,700 acres of upland grasses, 6,300 acres of tidal wetlands, and 30,000 acres of bays and sloughs. It encompasses more than ten percent of California's remaining natural wetlands and also serves as the resting grounds and feeding grounds for waterfowl migrating on the Pacific Flyway. Suisun Marsh also supports 80 percent of the State's commercial salmon fishery by providing important tidal rearing areas for juvenile fish.

In 2014, the Suisun Marsh Management Plan was completed, which was a joint effort between the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NOAA Fisheries), U.S. Bureau of

Reclamation, California Department of Fish and Wildlife (CDFW), California Department of Water Resources, Delta Stewardship Council, and the Suisun Resource Conservation District. The Suisun Marsh Management Plan Project will be completed over a 30-year period and is intended to restore 5,000 to 7,000 acres of tidal marsh; enhance more than 40,000 acres of managed wetlands; maintain the heritage of waterfowl hunting; improve water quality for fish and wildlife habitat; and, provide other recreational opportunities.

DRAINAGE AND FLOOD CONTROL

There are several water features within or adjacent to Vallejo, including the Napa River, Austin Creek, Blue Rock Springs Creek, Chabot Creek, Rindler Creek, and Sulphur Springs Creek. There also are several lakes and reservoirs within the City limits. Lake Chabot is owned and operated by the City of Vallejo and was built in 1870 to supply water to Vallejo residents. It is a 47-foot-high earthen dam with a capacity of 504 acre-feet and a reservoir area of 61 acres. Other City-owned and operated lakes and reservoirs in the City are Summit Reservoir, Swanzy Reservoir, and Fleming Hill No. 2 Reservoir. Lake Dalwigk is owned and operated by the Vallejo Sanitation and Flood Control District (VSFCD) as a flood control basin to help alleviate flooding in the surrounding neighborhoods. Collected water is drained as needed into the Mare Island Strait through a pump station. The VSFCD recently completed a project to remove tule grass, create a low flow channel, regrade and deepen the basin, and create a low-level outlet to enhance its capacity as a flood control basin. Lake Dalwigk also serves as a valuable marsh habitat for birds, amphibians, and other wildlife.

The City and the VSFCD are jointly responsible for flood control planning, and the VSFCD provides storm water and flood control protection services for Vallejo. The VSFCD operates and maintains over 250 miles of storm drains, more than 10,000 catch basins, and 9 storm water pump stations in the City. The VSFCD also protects land and residents from flooding damage through its storm drain system. Several of the storm drain systems and basins drain into Lake Dalwigk. VSFCD's Storm Drain Master Plan (1987; updated in 1992 and 2002) included computer modeling of 11 drainage areas within VSFCD's jurisdiction, GPS field surveys and mapping of over 6,000 storm drain facilities, evaluation of existing flooding problems, and estimating the construction and cost of alternative solutions. Given the nearly built-out nature of the City, the 2002 Storm Drain Master Plan did not identify any new flooding problems and VSFCD has completed the majority of the storm drain improvement projects identified in the 2002 Master Plan. In addition, the City of Vallejo has restrictions on building within the 100-year floodplain, as cited in the Municipal Code Chapter 7.98, Flood Management Regulations.

GROUNDWATER

Portions of western and central Vallejo are within the Napa-Sonoma Valley Groundwater Basin and more specifically within the Napa-Sonoma Lowlands Subbasin. The subbasin occupies a lowland area immediately north of San Pablo Bay and is bordered by the Mayacamas Mountains to the north, Sonoma and Napa Valleys to the northeast and northwest, and tidal marshlands at or below sea level to the south.

The San Francisco RWQCB Basin Plan lists beneficial uses for this groundwater basin as municipal/domestic water supply and agricultural water supply and potential uses as industrial process water supply and industrial service water supply. However, local groundwater is not used for water supply by the City of Vallejo, and the City has no intention to seek or investigate groundwater supply.

Shallow groundwater in Vallejo varies in depth depending on location and typically ranges from 5 to 28 f*eet* below ground surface (bgs). Groundwater dewatering operations associated with excavation activities may be required in some areas of the City.

4.8.2 REGULATORY SETTING

FEDERAL

Clean Water Act

The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the Waters of the U.S. The CWA establishes the basic structure for regulating discharges of pollutants into the "Waters of the U.S." and has given the U.S. Environmental Protection Agency (U.S. EPA) the authority to implement pollution control programs. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402), which is addressed later in this section.

Clean Water Act Section 404

Section 404 of the CWA (33 U.S.C. 1251 et seq.) requires a permit from the Corps for the discharge of dredged or fill material into "Waters of the U.S.," which include rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). The limits of non-tidal waters extend to the Ordinary High Water Mark (OHWM) or to the limit of adjacent wetlands. The U.S. EPA also has authority over wetlands and may veto a Corps permit under CWA Section 404(c).

Clean Water Act Section 303(d)

Section 303(d) of the CWA (CWA, 33 USC 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to U.S. EPA for review and approval. An affected waterbody, and associated pollutant or stressor, is then prioritized in a list of impaired waterbodies known as the 303(d) List. The CWA further requires the development of a TMDL for each listing.

National Pollutant Discharge Elimination System

The NPDES permit program was established by the CWA to regulate municipal and industrial discharges to surface "Waters of the U.S.," including discharges from municipal separate storm sewer systems (MS4s). Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source storm water runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

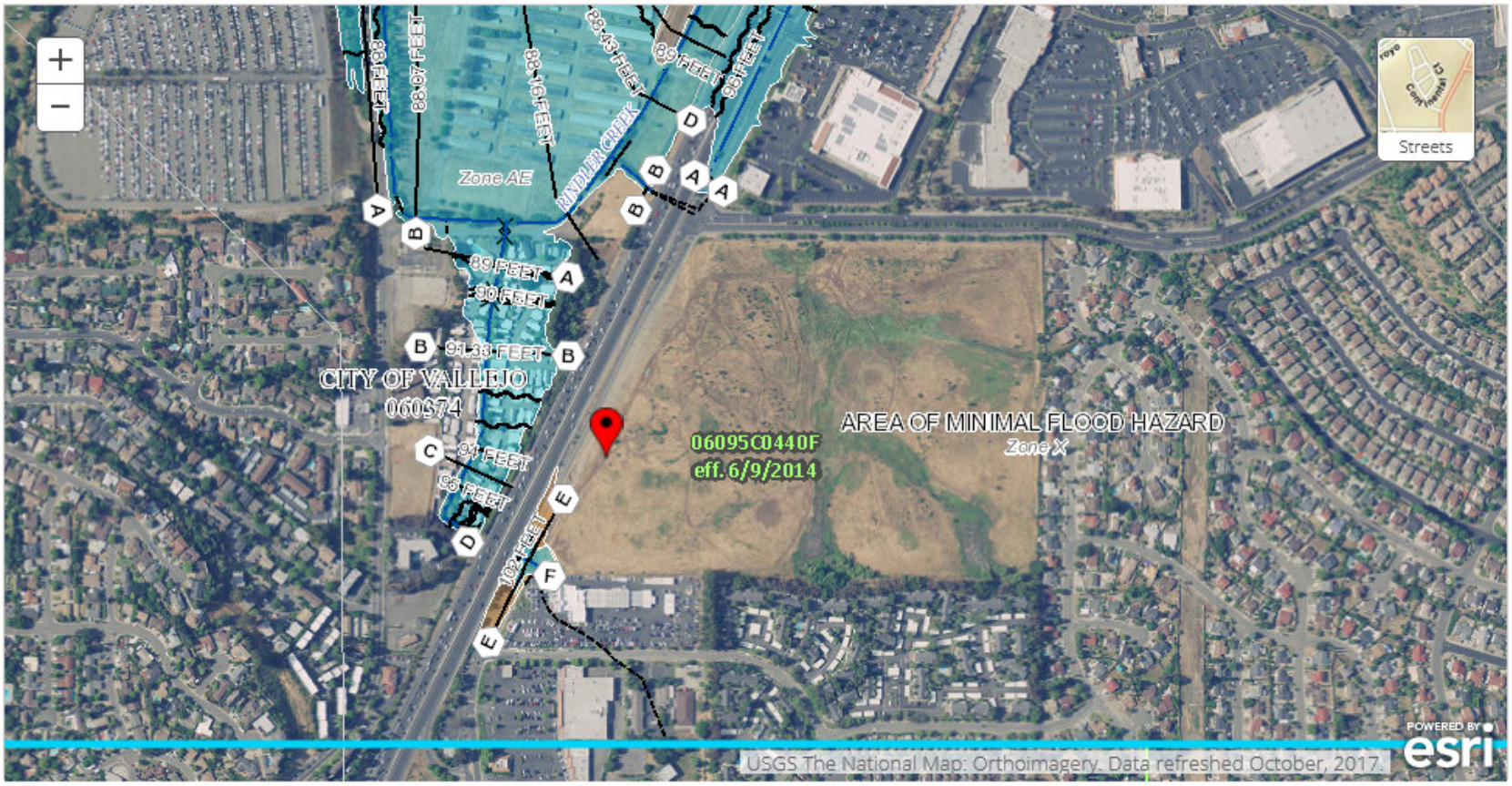
Under the NPDES program, all facilities that discharge pollutants into "Waters of the U.S." are required to obtain an NPDES permit. Requirements for storm water discharges are also regulated under this program. In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. Vallejo lies within the jurisdiction of the San Francisco RWQCB (Region 2) and is subject to the waste discharge requirements of the Municipal Regional Stormwater Permit (MRP; Order No. R2-2015-0049) and NPDES Permit No. CAS612008, which was issued on November 19, 2015 and effective January 1, 2016 (RWQCB, 2018). The City of Vallejo and the VSFCD are permittees under the MRP, as well as the cities of Fairfield and Suisun City and other cities and towns in Alameda, Contra Costa, Santa Clara, and San Mateo counties.

Under Provision C3 of the MRP, the co-permittees use their planning authorities to include appropriate source control, site design, and storm water treatment measures in new development and redevelopment projects to address both soluble and insoluble storm water runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low impact development (LID)[1] techniques.

Federal Emergency Management Agency (FEMA)

The Federal Emergency Management Agency's (FEMA) primary mission is to reduce the loss of life and property and protect the nation from all hazards, including flooding. FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding in relation to a Special Flood Hazard Area (SFHA). These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA. FEMA's minimum level of flood protection for new development is the 100-year flood event, also described as a flood that has a 1-in-100 chance of occurring in any given year. FEMA also maps the 500-year flood zones, which means that in any given year, the risk of flooding in the designated area is 0.2 percent. However, mandatory flood insurance is not required for buildings or homes within the 500-year floodplain. **Figure 4.8-1: FEMA Map**, shows these areas.

[1] LIDs are systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat (EPA, 2019).



PIN
- Approximate location based on user input and does not represent an authoritative property location

MAP PANELS
- Selected FloodMap Boundary
- Digital Data Available
- No Digital Data Available
- Unmapped

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D
- Otherwise Protected Area
- Coastal Barrier Resource System Area

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth
- Regulatory Floodway Zone AE, AO, AH, VE, AR

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

FIGURE 4.8-1: FEMA Map
Fairview at Northgate Project

Kimley»Horn

Additionally, FEMA has developed requirements and procedures for evaluating earthen levee systems and mapping the areas affected by those systems. Levee systems are evaluated for their ability to provide protection from 100-year flood events and the results of this evaluation are documented in the FEMA Levee Inventory System. Levee systems must meet minimum freeboard standards and must be maintained according to an officially adopted maintenance plan. Other FEMA levee system evaluation criteria include structural design and interior drainage.

FEMA FIRM panels for the City were updated on June 9, 2014 on FIRM map 06095C0440F. This depicts the vast majority of the project site, approximately 50.8 acres, in a Zone X, which is defined as an outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood. Approximately 0.5 acres at the southwest corner of the project site is shown on the FEMA FIRM map as being in zone AE or other areas of flood hazard. These zones are defined as an areas subject to inundation by the 1-percent-annual-chance flood, or an area with 0.2% annual chance flood hazard, areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile (FEMA, 2014).

Levee Inventory System. Levee systems must meet minimum freeboard standards and must be maintained according to an officially adopted maintenance plan. Other FEMA levee system evaluation criteria include structural design and interior drainage.

FEMA FIRM panels for the City were updated on June 9, 2014 on FIRM map 06095C0440F. This depicts the vast majority of the project site, approximately 50.8 acres, in a Zone X, which is defined as an outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood. Approximately 0.5 acres at the southwest corner of the project site is shown on the FEMA FIRM map as being in zone AE or other areas of flood hazard. These zones are defined as an areas subject to inundation by the 1-percent-annual-chance flood, or an area with 0.2% annual chance flood hazard, areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile (FEMA, 2014).

STATE

Sustainable Groundwater Management Act

Section 10720.1 of the Sustainable Groundwater Management Act (SGMA), effective January 1, 2015, established a framework of priorities and requirements to facilitate sustainable groundwater management throughout California. The legislative intent of the SGMA is for groundwater to be managed in California's groundwater basins by local public agencies and newly-formed Groundwater Sustainability Agencies (GSAs).

Specifically, the SGMA establishes a definition of “sustainable groundwater management,” requires that a Groundwater Sustainability Plan be adopted for the most important groundwater basins in California, establishes a timetable for adoption of Groundwater Sustainability Plans, empowers local agencies to manage basins sustainably, establishes basic requirements for Groundwater Sustainability Plans, and provides for a limited State role.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) regulates water quality through the Porter-Cologne Water Quality Act of 1969, which contains a complete framework for the regulation of waste discharges to both surface waters and groundwater of the State. On the regional level, the proposed project falls under the jurisdiction of the Central Valley RWQCB, which is responsible for the implementation of State and federal water quality protection statutes, regulations, and guidelines.

California Water Code Sections 13050-13260

California Water Code Section 13050(e) defines "Waters of the State" as "any surface water or groundwater, including saline waters, within the boundaries of the state." California Water Code Section 13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the "Waters of the State," other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB.

State Water Resources Control Board General Construction Permit

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Section 402 of the CWA authorizes the California State Water Resources Control Board (SWRCB) to issue NPDES General Construction Storm Water Permit referred to as the "General Construction Permit."

Construction activities that disturb one or more acres of land that could impact hydrologic resources must comply with the requirements of the SWRCB General Construction Permit (Order 2009-0009-DWQ), as amended by Order 2010-0014-DWQ and Order 2012-006-DWQ. Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are submitted electronically to the SWRCB via the Storm Water Multiple Application and Report Tracking System (SMARTS) website.

Construction activities can comply with and be covered under the General Construction Permit provided they:

- Develop and implement an SWPPP which specifies best management practices (BMPs)[2] that will prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation; and

[2] A BMP is a practice, or combination of practices, that is determined to be an effective and practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (NCForestservice.gov, 2019).

- Perform inspections of all BMPs.

The SWPPP 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 sediment monitoring plan if the construction site discharges directly to a water body listed on the 303(d) list for sediment. Increased compliance tasks under the adopted Construction General Permit include project risk evaluation, effluent monitoring, receiving water monitoring, electronic data submission of the SWPPP and all other permit registration documents, and a Rain Event Action Plan, which must be designed to protect all exposed portions of a project site within 48 hours prior to any likely precipitation event. The General Construction Permit also requires applicants to comply with post-construction runoff reduction requirements.

REGIONAL AND LOCAL

San Francisco Bay Regional Water Quality Control Board

Regional authority for planning, permitting, and enforcement in California is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. As previously stated, the City of Vallejo is within the jurisdiction of the San Francisco Bay RWQCB (Region 2).

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation of the Water Quality Control Plan for San Francisco Bay Basin (Basin Plan). The Basin Plan was updated in March 2015. This Basin Plan designates beneficial uses of the State waters within Region 2; describes the water quality that must be maintained to support such uses; and, provides programs, projects, and other actions necessary to achieve the standards established in the Basin Plan. The Water Quality Control Policy for the Enclosed Bays and Estuaries of California, as adopted by the SWRCB in 1995, also provides water quality principles and guidelines to prevent water quality degradation and protect the beneficial uses of waters of enclosed bays and estuaries.

Municipal storm water discharges in the City of Vallejo are regulated under the San Francisco Bay RWQCB's recently revised MRP, NPDES Permit Order No. R2-2015-0049, adopted November 19, 2015.

Provision C3 of the MRP addresses post-construction storm water requirements for new development and redevelopment projects that create and/or replace 10,000 sf or more of impervious area or special land use categories (i.e., auto service facilities, gasoline stations, restaurants, and uncovered parking lots) that create and/or replace 5,000 sf of impervious surfaces. Provision C3 of the MRP also mandates that new development projects implement the following measures:

- Incorporate site design, source control, and storm water treatment measures into the project design.
- Minimize the discharge of pollutants in storm water runoff and non-storm water discharge.
- Prevent increases in runoff flows as compared to pre-development conditions.

- LID methods are the primary mechanisms for implementing such controls. Additionally, projects within the City that drain to a natural water body must also construct and maintain hydrograph modification measures to ensure that estimated post-project runoff peaks and durations do not exceed estimated pre-project peaks and duration.

The 2015 MRP requires any regulated project to treat 100 percent of the calculated runoff (based on the sizing criteria described in the C3 provisions of the MRP) with LID treatment measures that include harvesting and reuse, infiltration, evapotranspiration, or biotreatment/bioretention. Projects that create or replace 2,500 sf or more but less than 10,000 sf, of impervious surface must implement site design measures to reduce storm water runoff. Project applicants must also prepare an Operation and Maintenance Plan to maintain the storm water treatment measures and execute agreements that these treatment measures will be maintained in perpetuity.

Bay Protection and Toxic Cleanup Program

In 1989, the California legislature established the Bay Protection and Toxic Cleanup Program with the goal of protecting present and future beneficial uses of the Bay and estuarine waters of California. In addition, the program was tasked with identifying toxic hot spots (i.e., localized areas with elevated concentrations of pollutants) and developing prevention and control strategies to remediate the toxic hot spots. As part of this program, in 1993, the San Francisco Bay RWQCB initiated the Regional Monitoring Program (RMP) that includes water quality and sediment monitoring near Vallejo. The RMP is a collaborative effort between the San Francisco Estuary Institute, RWQCB, and the regulated discharger communities. The purpose of the program is to assess regional water quality conditions, characterize patterns and trends of contaminant concentrations and distribution in the water column, and identify general sources of contamination in San Francisco Bay. The program has established a database of water quality and sediment quality in the Bay, particularly with respect to trace elements and organic contaminants.

Vallejo Sanitation and Flood Control District (VSFCD)

The VSFCD is an independent special district that was formed in 1952 to collect and treat wastewater and provide storm water and flood control services to the Vallejo community. To meet the demands on the wastewater treatment plant and storm drain system associated with City growth, the VSFCD imposes sewer and storm drain user fees. The District Code includes provisions for the storm drainage system under Title 6, which includes storm drain system collection fees (Chapter 6.04), storm drain system user fees (Chapter 6.08), and storm water management and discharge control (Chapter 6.12).

The VSFCD also has storm drain design standards and policies that apply to new development and redevelopment projects that connect to the existing storm drain system. Hydrologic design must be in accordance with the Solano County Water Agency Hydrology Manual, with a 15-year level of protection for drainage areas less than 640 acres and a 100-year level of protection for areas greater than 640 acres. A higher level of protection may be required at the VSFCD's discretion. A connection permit issued by the VSFCD with hydraulic calculations to verify the capacity of the receiving storm drain system is also required.

Propel Vallejo 2040 General Plan (VGP)

Project relevant General Plan policies for hydrology and water quality are addressed in this section.

Action CP-1.15A	Require new development to incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City of Vallejo Municipal Ordinance.
Action CP-1.15B	Encourage new development to incorporate low impact development (LID) strategies, such as rain gardens, filter strips, swales, and other natural drainage strategies, to the greatest extent feasible, in order to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, reduce localized flooding, and reduce pollutants close to their source.
Action CP-1.15D	Require new development to connect to the Vallejo Sanitation and Flood Control District sewer system for treatment of wastewater rather than septic systems, which are not allowed.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code contains the following directives pertaining to hydrology and water quality issues:

- ***Chapter 7.98 - Flood Management Regulations.*** This floodplain management ordinance is designed to protect human life and health, minimize expenditures for costly flood control projects, minimize the need for rescue and relief efforts, business interruptions, and damage to public facilities and utilities. The ordinance also requires property owners that construct new or substantially improved buildings within the 100-year floodplain to obtain a development permit and elevate or flood-proof the lowest floor of the structure so that it is above the base flood elevation. This ordinance complies with the National Flood Insurance Program's goals to protect life and property.
- ***Chapter 11.52 - Water Wells.*** This regulation requires a permit to be obtained from the Board of Health prior to using a groundwater well for drinking purposes.
- ***Chapter 11.53 - Well Regulation and Monitoring.*** This regulation authorizes the Solano County Department of Environmental Management, Division of Environmental Health to regulate the construction, destruction, or inactivation of water, cathodic protection, and monitoring wells.
- ***Chapter 12.40 - Excavation, Grading, and Filling.*** This regulation requires permit applications to include erosion control measures and submit erosion control plans, if the project comprises 50 acres or 200 lots, whichever is less. Drainage areas must be identified and estimated; runoff amounts must be estimated, and sediment basins are required for large developments. Erosion control measures must be implemented during the rainy season (October 15 through April 15).

- ***Chapter 15.06.250 - Grading and Erosion Control.*** This regulation requires subdividers to provide on-site grading and other improvements necessary to properly control erosion and prevent sedimentation or damage to off-site properties, as specified in the final grading plan.
- ***Chapter 12.41 - Stormwater Management and Discharge Control.*** This regulation is intended to protect and enhance the water quality within the City of Vallejo's watercourses, water bodies, and wetlands and carry out the conditions specified in the MRP that requires appropriate source control measures, site design measures, and storm water treatment measures for new development and redevelopment projects within the City.
- ***Chapter 16.71 - Water Efficient Landscaping Requirements.*** This regulation meets the requirements of the State's Model Water Efficient Landscape Ordinance (MWELO) and requires submittal of a landscape documentation package for new or rehabilitated landscapes ranging in size from 1,500 to 5,000 sf (depending on the project). The landscape documentation package must include a water-efficient landscape worksheet, soil management report, landscape design plan, irrigation design plan, and a grading design plan with the goal of minimizing water irrigation rates and maximizing water irrigation efficiency.

4.8.3 STANDARDS OF SIGNIFICANCE

The following significance criteria for hydrology and water quality were derived from the Environmental Checklist in the State CEQA Guidelines, Appendix G. An impact of the project would be considered significant and would require mitigation if it would meet one of the following criteria.

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - i. Result in substantial erosion or siltation on- or off-site.
    - ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.
    - iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

4.8.4 PROJECT IMPACTS AND MITIGATION

IMPACT HYD-1	***WOULD THE PROJECT VIOLATE ANY WATER QUALITY STANDARDS OR WASTE DISCHARGE REQUIREMENTS OR OTHERWISE SUBSTANTIALLY DEGRADE SURFACE OR GROUND WATER QUALITY?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

SHORT-TERM CONSTRUCTION IMPACTS

Demolition and construction activities associated with the project would include grading, excavation, and other earthmoving activities that have the potential to cause substantial erosion on the project site. If erosion is not prevented or contained during construction, sediments and particulates, along with other contaminants found on the project site, could be conveyed off-site and into downstream waters, resulting in water quality degradation and the subsequent violation of water quality standards.

Because the proposed project would disturb more than one acre of land, the project would be required to comply with the requirements of the NPDES General Permit, which helps control water pollution by regulating point source and non-point sources that discharge pollutants into receiving waters[3]. As discussed previously, Vallejo lies within the jurisdiction of the San Francisco RWQCB (Region 2) and is subject to the waste discharge requirements of the Municipal Regional Stormwater Permit and NPDES Permit.

The proposed project would also be required to obtain a General Construction Permit. The General Construction Permit requires implementation of an SWPPP, which would include BMPs designed to protect the quality of storm water runoff. Construction BMPs may include, but are not limited to, stabilization of construction entrances, straw wattles on embankments, and sediment filters on existing inlets. The SWPPP would also contain a site map(s) showing the construction perimeter, existing and proposed buildings, storm water collection and discharge points, general pre- and post-construction topography, drainage patterns across the site, and adjacent roadways; a visual monitoring program; a chemical monitoring program for “non-visible” pollutants, should the BMPs fail; and a sediment monitoring plan, should the site discharge directly into a water body listed on the 303(d) list for sediment.

The SWPPP would also contain a summary of the structural and nonstructural BMPs to be implemented during the post-construction period, pursuant to the nonpoint source practices and procedures as required by the City’s Public Works Department. Once grading begins, the SWPPP must be kept on-site and updated as needed while construction progresses.

[3] Surface water quality is affected by point source and non-point source pollutants. Point source pollutants are those emitted at a specific point, such as a pipe, while non-point source pollutants are typically generated by surface runoff from diffuse sources, such as streets, paved areas, and landscaped areas.

Preparation, implementation, and participation with both the NPDES General Permit and the General Construction Permit, including the SWPPP and BMPs, would reduce project demolition and construction effects on water quality to acceptable levels. As a result, short-term construction impacts associated with water quality standards and wastewater discharge requirements would be less than significant.

LONG-TERM OPERATIONAL IMPACTS

The proposed residential development on the east side of the project site would use a drainage system to collect rainwater and the existing intermittent flows from the east and convey flows to a bioretention basin within the linear park site in the northwestern part of the neighborhood. The bioretention basin would treat the surface water through infiltration in compliance with C3 requirements. During peak storm events the basin would retain the surface water to allow sediments and other pollutants to settle before the water is released into an outfall (with an energy dissipater) prior to ultimately reaching the central drainage channel. For aesthetic purposes, suitable deciduous trees and ground plantings would be placed within each basin facility area. The park site basin facility is proposed to have gentle side-slopes and a shallow depth as a safety feature for park visitors.

About 40 percent of the residential site would have pervious landscape areas. A large portion of runoff from residences would drain via surface flow to lawns and vegetation prior to flowing to the streets and storm drains routed to the designated storm water treatment facility. The residential portion of the project would implement "Integrated Management Practices" to treat a total drainage area of 1,037,167 sf (23.8-acres) with an impervious ratio of 58.8 percent. Two bioretention treatment facilities at the northwest corner of the site would provide a combined treatment area of 42,640 sf (0.98 acre). The bioretention facilities would be designed to meet both treatment and flow-control requirements. **Figure 4.8-2: Residential Storm Water Control Plan**, shows the impervious and pervious areas, as well as the bioretention areas.

Admiral Callaghan Lane will be widened along the commercial frontage and would span a small portion of Blue Rock Springs on the southwest corner of the site. Approximately 18.5% percent of the commercial site would be pervious landscape. The proposed commercial area would implement "Integrated Management Practices" to treat a total drainage area of 946,593 sf (21.7-acre) with an impervious ratio of approximately 81.5%. A total of twenty bioretention treatment facilities, located throughout the site, provide a total treatment area of 42,245 sf. The bioretention facilities are designed to meet both treatment and flow-control requirements.

The majority of storm water runoff, specifically the commercial parking lots, would surface flow directly into storm bioretention facilities. **Figure 4.8-3: Commercial Storm Water Control Plan**, shows the impervious and pervious areas, as well as the bioretention areas. The proposed project also includes permanent and operational BMPs to control and treat stormwater after project construction is complete. *Table 4.8-1: Source Control BMPS*, summarizes these measures.

Table 4.8-1: Source Control BMPS

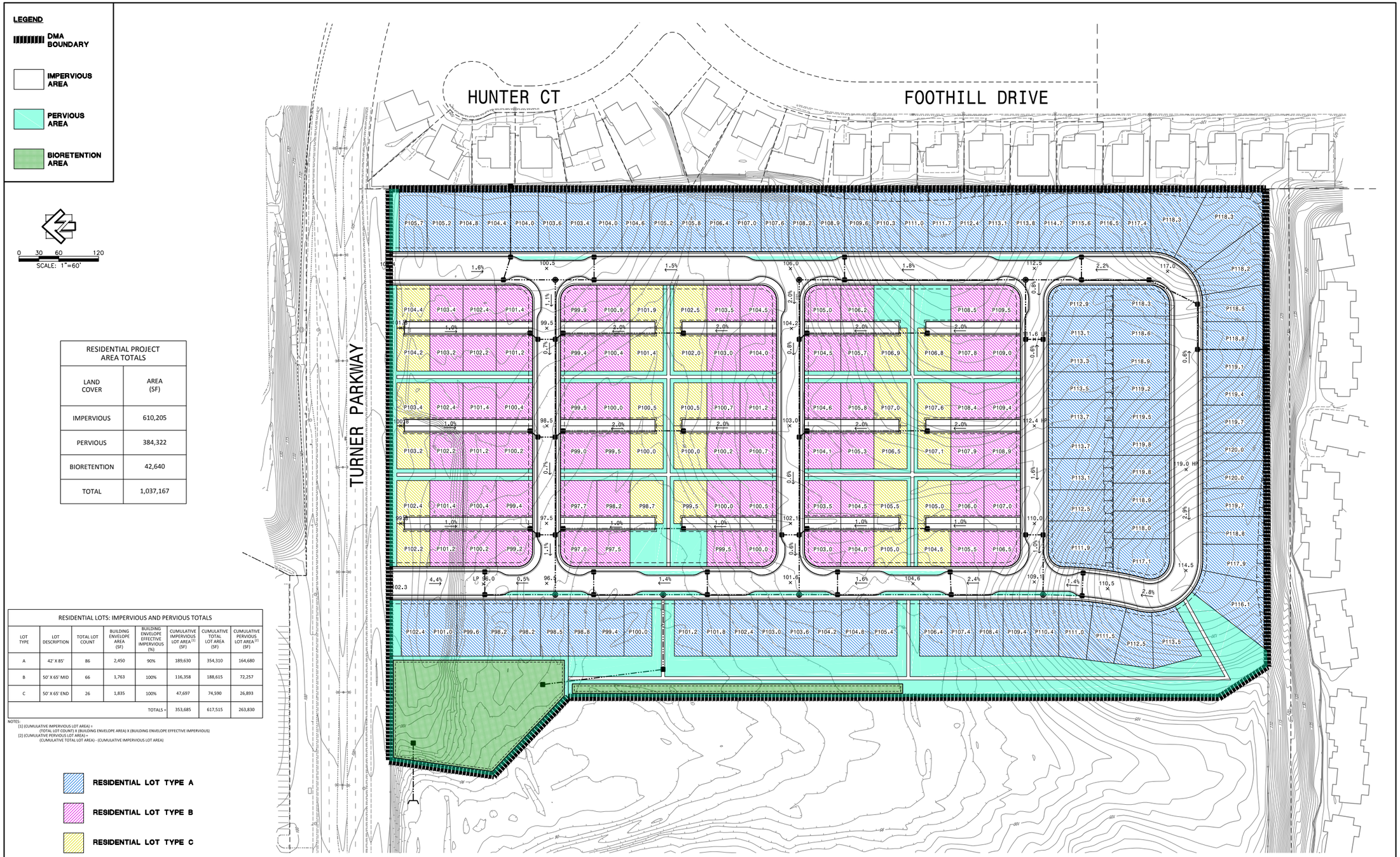
Potential Pollutant Source	Permanent Source Control BMP	Operational Source Control BMP
Onsite Storm Drain Inlet	Inlets that are accessible from driveways/walkaways will be marked with "No Dumping Drains to Bay" or a similar message.	Inlet markings will be inspected annually and replaced or, repainted as needed. Stormwater pollution prevention information will be provided to new site owners, lessees, or operators.
Interior Floor Drains	Interior floor drains will be plumbed to sanitary sewer.	Drains will be inspected and maintained annually to prevent blockages and overflow.
Landscape/Outdoor Pesticide Use	Native trees, shrubs, and ground cover will be preserved to the maximum extent possible. Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution. When feasible, pest-resistant plants will be selected, especially for locations adjacent to hardscape. Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	Owners, lessees, or operators will receive Integrated Pest Management (IMP) information. All open space landscaping is to be maintained by a professional landscaping contractor utilizing integrated pest management methods. Pesticides will only be applied by appropriately licensed contractors.
Sidewalks and Parking Lots	Water runoff will be collected via storm drain pipes to bioretention areas for treatment.	Regular street sweeping to control pollutants. Overflow storm drain inlets will be checked regularly to clear debris.
Pools, Spas, Ponds, Decorative Fountains, and Other Water Features	Pools will be plumbed to the sanitary sewer per local municipality requirements.	Educate residents about the "Fountain and Pool Maintenance" guidelines of the CASQA Stormwater Quality Handbook.
Refuse Areas	In the commercial area, trash and recycling facilities will be enclosed with roof and wall. The facilities will also be screened to limit the access from the public and will include a sign stating, "Do Not Dump Hazardous Materials Here" or a similar message.	Receptacles will be inspected annually and replaced to prevent leakage. Spills will be cleaned up immediately.
Vehicle/Equipment Repair and Maintenance	In the commercial area, maintenance and repairs will only take place at designated areas away from storm drain conveyance facilities. Leaks of machinery fluids will be prevented thru; routinely inspections. Drip pans will be employed, and fluids will be properly disposed. EVAC equipment will be used to capture oils and retain for site removal.	No cars will be maintained, cleaned, or fueled onsite, except in designated areas where wash water is contained and treated. No vehicle fluids, hazardous materials, or rinse water from parts cleaning will be disposed down storm drains.

Fuel Dispensing Areas	In the commercial area, fuel areas will have an impermeable ground surface and would be covered with a roof reducing water runoff from near the fuel islands. Surface water runoff will be directed to an oil and water separator catchment basin before being conveyed to the storm drain or bioretention basin.	Fueling area will be routinely inspected and maintained through a dry sweep.*
Fire Sprinkler Test Water	In the commercial area, fire sprinkler test valves will be equipped with a means to divert test water to the sanitary sewer.	Inform owners, lessees, or operators to review CASQA fact sheet regarding hard metal accumulation and the BOD problem associated with sprinkler water.
* Costco policy is to have a Costco Gasoline Program trained employee and supervisor at the site during all hours of operation. Employees regularly inspect the fuel islands during operating hours and are trained to identify needed maintenance requirements. Employees check for leaking hoses, malfunctioning nozzles, fuel spills, and physical damage to the dispensers and controller enclosure. Training also includes methods to properly clean spills and emergency response procedures. During non-operating hours, the power to the dispensers is turned off and each nozzle pad is locked. Should the system require attention beyond what the trained site person could handle, the local authorized and certified service contractor would be contacted and dispatched to repair the equipment.[4]		

Through planning and design, newly installed storm water drainage facilities would comply with the requirements of the MRP and all other applicable requirements and standards. As a result, the proposed project would ensure that storm water flows and associated sediments, particulates, and contaminants contained within the runoff would be collected and treated at the project site before water would be discharged to the existing municipal storm drain system.

To ensure that the new storm water drainage improvements are planned and designed to satisfy the San Francisco RWQCB's MRP requirements, and all other applicable requirements and standards, implementation of Mitigation Measure HYD-1, MM HYD-2, and MM HYD-3 would be required. With implementation of these measures, construction and operational impacts associated with water quality standards and wastewater discharge requirements would be less than significant.

[4] Costco Wholesale, Vallejo California Fueling Facility, 2019.



RESIDENTIAL PROJECT AREA TOTALS	
LAND COVER	AREA (SF)
IMPERVIOUS	610,205
PERVIOUS	384,322
BIORETENTION	42,640
TOTAL	1,037,167

RESIDENTIAL LOTS: IMPERVIOUS AND PERVIOUS TOTALS

LOT TYPE	LOT DESCRIPTION	TOTAL LOT COUNT	BUILDING ENVELOPE AREA (SF)	BUILDING ENVELOPE EFFECTIVE IMPERVIOUS (%)	CUMULATIVE IMPERVIOUS LOT AREA [1] (SF)	CUMULATIVE TOTAL LOT AREA (SF)	CUMULATIVE PERVIOUS LOT AREA [2] (SF)
A	42' X 85'	86	2,450	90%	189,630	354,310	164,680
B	50' X 65' MID	66	1,763	100%	116,358	188,615	72,257
C	50' X 65' END	26	1,835	100%	47,697	74,590	26,893
				TOTALS =	353,685	617,515	263,830

NOTES:
[1] (CUMULATIVE IMPERVIOUS LOT AREA) = (TOTAL LOT COUNT) X (BUILDING ENVELOPE AREA) X (BUILDING ENVELOPE EFFECTIVE IMPERVIOUS)
[2] (CUMULATIVE PERVIOUS LOT AREA) = (CUMULATIVE TOTAL LOT AREA) - (CUMULATIVE IMPERVIOUS LOT AREA)

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STORMWATER CONTROL PLAN REPORT
FAIRVIEW AT NORTHGATE
RESIDENTIAL PROJECT
CITY OF VALLEJO CALIFORNIA

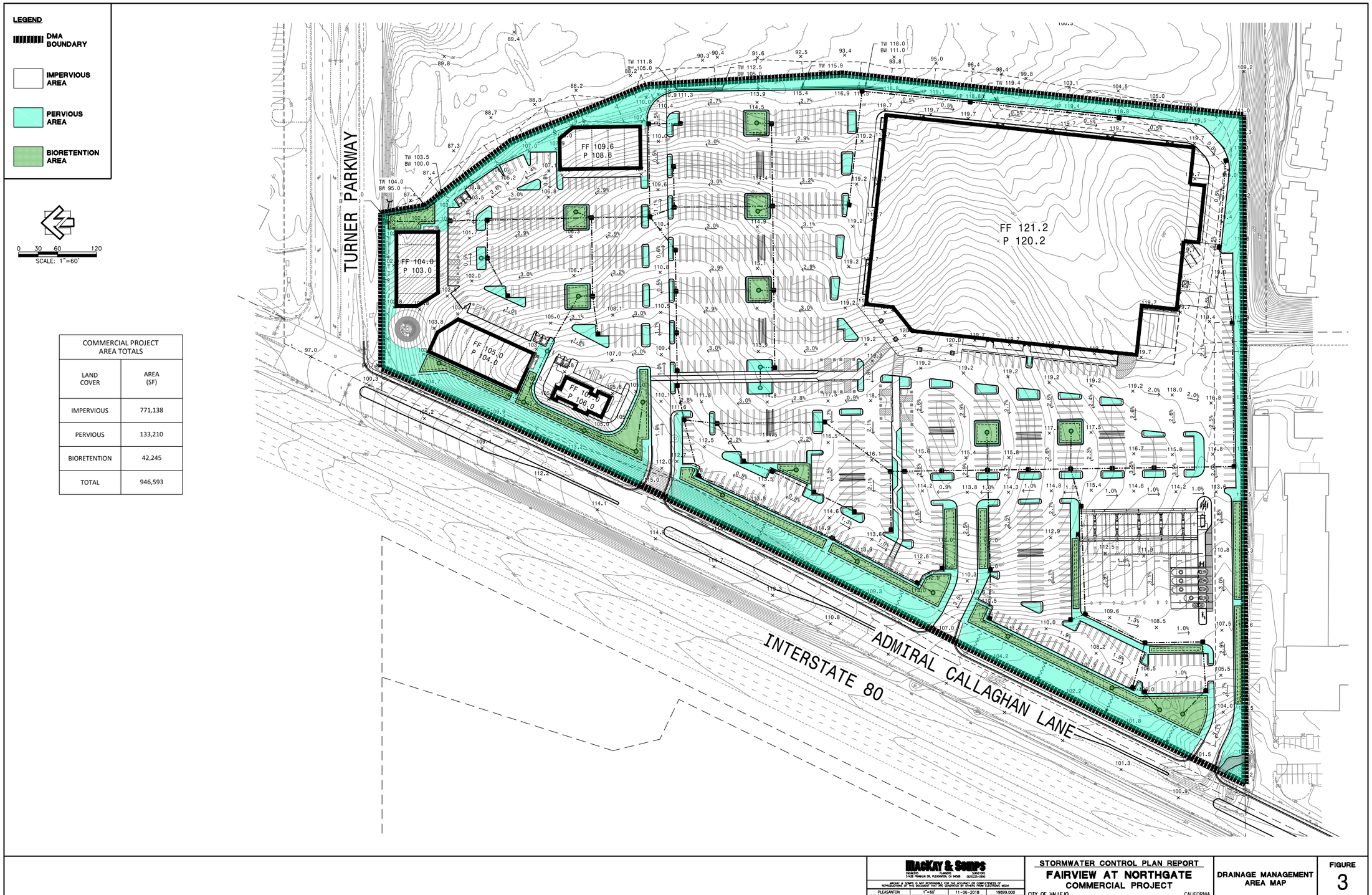
DRAINAGE MANAGEMENT AREA MAP

FIGURE 3

11-06-2018 8:12am Kenny Hyman P:\19899\PLN\EXH-P\C.3 STORMWATER CONTROL\SWCP-FIGURE 3. DRAINAGE MANAGEMENT AREA MAP RESIDENTIAL PROJECT.DWG

FIGURE 4.8-2: Residential Stormwater Control Plan
Fairview at Northgate Project

Kimley»Horn



COMMERCIAL PROJECT AREA TOTALS	
LAND COVER	AREA (SF)
IMPERVIOUS	771,138
PERVIOUS	133,210
BIORETENTION	42,245
TOTAL	946,593

FIGURE 4.8-3: Commerical Stormwater Control Plan
Fairview at Northgate Project

Kimley»Horn

Mitigation Measures:

MM HYD-1: **Construction Water Quality Plan.** Prior to issuance of any grading permit, the applicant shall submit to the satisfaction of the Public Works Director, a Storm Water Pollution Prevention Plan (SWPPP) that satisfies the requirements of the National Pollutant Discharge Elimination System (NPDES) and State General Permit for construction. The SWPPP shall incorporate Best Management Practices (BMPs) to control runoff and sedimentation.

The SWPPP shall identify specific types and sources of storm water pollutants, determine the location and nature of potential impacts, and specify appropriate control measures to eliminate any potentially significant impacts on receiving water quality from storm water runoff. The SWPPP shall comply with the most current standards established by the San Francisco RWQCB. The BMPs shall be selected from a menu according to site requirements and shall be subject to approval by the Public Works Director and San Francisco RWQCB.

Additionally, the project applicant shall provide the Public Works Director, evidence of a Waste Discharged Identification (WDID) number generated from the State Regional Water Quality Control Board's Stormwater Multiple Application & Reports Tracking System (SMARTS). This serves as the Regional Water Quality Control Board approval or permit under the National Pollutant Discharge Elimination System (NPDES) construction stormwater quality permit.

MM HYD-2: **Stormwater Quality Control Plan.** Prior to issuance of a grading permit or approval of improvement plans, the project applicant shall submit to the satisfaction of the Public Works Director, a final Storm Water Quality Plan (SWQP), either within the Final Drainage Plan or as a separate document that identifies how the proposed project will meet the City's MS4 permit obligations. Site design measures, source control measures, and Low Impact Development (LID) standards, as necessary, shall be incorporated into the design and shown on the grading or improvement plans. In addition, per the MS4 permit, projects creating and/or replacing one acre or more of impervious surface (excepting projects that do not increase impervious surface area over the pre-project condition) are also required to demonstrate hydromodification management of stormwater such that post-project runoff is maintained to equal or below pre-project flow rates for the 2 year, 24-hour storm event, generally by way of infiltration, rooftop and impervious area disconnection, bioretention, and other LID measures that result in post-project flows that mimic pre-project conditions. For the commercial area, specific source control measures for trash storage areas and the gas station shall be identified in the SWCP.

MM HYD-3: **Final Drainage Plan.** Prior to the issuance of grading and construction permits, the City of Vallejo shall review and approve a Final Drainage Plan prepared by the project applicant to demonstrate the ability of the planned on-site storm water drainage facilities to adequately collect on-site storm water flows in accordance with all applicable standards and requirements. The final drainage plan shall demonstrate that the new storm water

drainage facilities can satisfy the Regional Water Quality Control Board's Municipal Regional Permit (MRP) requirements by: Minimizing impervious surfaces, as feasible, and directing flows to Integrated Management Practices (IMPs); Integrating appropriately sized IMPs to ensure post-development flows do not exceed pre-development flows; and Incorporating bio-retention in combination with site planning, minimizing impervious areas, and dispersion of runoff to meet Low Impact Development (LID) requirements.

IMPACT HYD-2	***WOULD THE PROJECT SUBSTANTIALLY DECREASE GROUNDWATER SUPPLIES OR INTERFERE SUBSTANTIALLY WITH GROUNDWATER RECHARGE SUCH THAT THE PROJECT MAY IMPEDE SUSTAINABLE GROUNDWATER MANAGEMENT OF THE BASIN?*** ***(LESS THAN SIGNIFICANT)***

As previously discussed, local groundwater is not used for the City's water supply and the City has no intention to seek or investigate groundwater supply. Therefore, the project would not result in groundwater overdraft, substantial local groundwater level drawdown, or substantially redirect storm water such that natural basin recharge would be precluded.

The proposed project would result in the creation of impermeable surfaces on the project site totaling approximately 1,381,327 sf. Pervious surfaces would include approximately 602,433 sf for an approximate 30% impervious ratio. Within the pervious area, the proposed project includes bioretention treatment facilities also known as LIDs. LIDs are systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater in order to protect water quality and associated aquatic habitat. The needed sizing of the treatment facilities is calculated by determining the number of required sf of Integrated Management Practices (IMP). IMPs are designed to maximize stormwater infiltration and consist of layers of permeable materials including layers of gravel, soils, Class 2 permeable materials meeting Caltrans specification 68-2.02F(3), sand and compost mixes as structural features including perforated piping and drains to facilitate infiltration. In addition to the IMPs that are implemented through the installation of LIDs, approximately 5.7-acre open space in the central corridor, other basins and greenspace and 0.25-acre water quality treatment basin.

Both the residential and commercial components of the proposed project were evaluated to determine the sf of IMPs that each should contain. This was calculated based on the amount of pervious surfaces that would be needed to facilitate the infiltration of the approximate 22.5 inches of mean annual precipitation (MAP) at the project site. Based on the IMP calculation the commercial project portion of the site would require total bioretention facility area of approximately 38,845 sf and the residential component would require approximately 39,513 sf. The commercial component includes 42,640 sf (an excess of 3,795 sf) and the residential component includes 42,245 sf, (an excess of 3,900 sf). The inclusion of these design features to the proposed project would help ensure that the increase of impervious surfaces does not substantially reduce the potential for water to infiltrate and deplete ground water recharge. Impacts in this regard would be less than significant and no mitigation is required.

IMPACT HYD-3	***WOULD THE PROJECT SUBSTANTIALLY ALTER THE EXISTING DRAINAGE PATTERN OF THE SITE OR AREA, INCLUDING THROUGH THE ALTERATION OF THE COURSE OF A STREAM OR RIVER OR THROUGH THE ADDITION OF IMPERVIOUS SURFACES, IN A MANNER WHICH WOULD RESULT IN SUBSTANTIAL EROSION OR SILTATION ON- OR OFF-SITE?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

The project site is not connected to a natural watercourse and the existing drainage features, including the seasonal wetland, are fed by urban run-off and stormwater flowing onto the project site from the existing developed areas to the south and southeast. Once on-site, the water flows in a northwesterly direction and feeds the approximate 5.7-acre drainage corridor (seasonal wetland) within the central project area. On-site water flows trend to the northeast then west along Turner Parkway before discharging via a culvert into Blue Rock Springs Creek west of I-80. The site-drainage from the proposed residential uses has been designed to generally mimic the existing watercourse and direction flow paths of the existing site condition.

The southwesterly side of the project site is bounded by a perennial stream, Blue Rock Springs Creek. The creek traverses the very southwestern corner of the property (a distance of approximately 90 feet) and surface water flows on and off the property through existing underground culverts. Runoff from rainfall events would flow southerly toward the creek. The proposed project; however, includes both pervious and bioretention areas within this portion of the project site. In addition, the entire southerly side of the commercial area is bounded by both bioretention and pervious areas. These areas have been designed to provide adequate drainage capacity and infiltration as well as curb and gutters along the project driveways to prevent water runoff from entering the creek and minimize potential for erosion and sedimentation.

Development of the proposed project would include site preparation activities such as grading, excavation, and other earthmoving activities. The proposed project would include a new storm water drainage system that would contain and collect storm water flows before runoff (including the soils, sediments, and particulates contained within) leave the project site. As required by the San Francisco RWQCB, the new storm water drainage facilities would be planned and designed to satisfy the MRP standards, and all other applicable standards and requirements, which include ensuring that post-development flows do not exceed pre-development flows. By maintaining storm water flows at or below pre-development levels, the new storm water drainage system would reduce the potential for both on-site and off-site erosion.

Ground disturbing activities, including grading, would occur on approximately 44.5 acres of the 51.3-acre project site. Some off-site but adjacent construction may be needed to tie into existing utilities. These improvements and other temporary disturbance areas would likely occur only in Admiral Callaghan Lane and Turner Parkway. The site preparation and grading phase of the proposed project is expected to

include construction equipment such as graders, scrapers, compactors, and water trucks. Approximately 165,000 cubic yards of earthwork would occur and are expected to balance on site.

The project site is not connected to an off-site natural watercourse and the existing on-site drainage features, including the seasonal wetlands, are fed by urban run-off and stormwater flowing onto the project site from the existing developed areas to the south and southeast. Once on-site, the water flows in a northwesterly direction and feeds the approximate 5.7-acre drainage corridor within the project area. The site also receives some on-site flows from run-off from the residential area to the east that flow west over the project site. The existing on-site water flows trend to the northeast then west along Turner Parkway before discharging via a culvert into Blue Rock Springs Creek west of I-80. The proposed site-drainage from the proposed residential uses has been designed to generally mimic the existing watercourse and direction of flow. Much of the existing central drainage and seasonal wetland area would be preserved as part of the project design and the overall drainage pattern would remain. The residential areas would generally drain to the west and northwest and flow into the proposed bioretention basin within the linear park adjacent to Turner Parkway. Water would then maintain its northerly flow and discharge from the site at the culvert under Turner Parkway to maintain the existing flow paths.

The existing drainage from the site where the commercial site is proposed is strongly influenced by the two small hills in the northerly and southerly portions of this area. Water generally flows from the crown of the hills in a westerly direction toward Admiral Callaghan Lane or easterly toward the central drainage feature. Adjacent to the project site Admiral Callaghan Lane has a highpoint near the middle of the western project boundary. Some of the westerly flows from the project site currently flow to the unvegetated shoulder of Admiral Callaghan Lane. Existing stormwater infrastructure is lacking, and the water tends to pond creating muddy puddles, or flow southerly or northerly depending on the direction of the slope. Water flow in this area is overland and not conducted by any stormwater system.

The proposed drainage of the site would maintain the existing northerly and southerly flows along Admiral Callaghan and would be constructed with newly installed bioretention areas adjacent to the roadway. The proposed drainage system addresses the existing deficient drainage conditions along Admiral Callaghan. The new drainage system(s) include, water storage, infiltration points, and a water treatment system with permeable treatment media prior to being conducted off-site. Similar to the existing drainage patterns, flows would be dictated by the direction of the slope. As the crown of Admiral Callaghan Lane would remain, flows would be similar. Northerly flows would be directed towards Turner Parkway, and southerly flows and drainage from the southern portion of the commercial area would flow to bioretention areas along the perimeter of the site. The driveway areas around the proposed gas station include curbs and gutters to prevent surface water from flowing into Blue Rock Creek. The surface water is directed to bioretention areas for treatment.

Flows from the central portion of the commercial area would generally flow northerly with some easterly flows. Surface water would flow into bioretention areas as well as pervious landscaped areas along the margins of this area. Most flows would ultimately be conducted to the northerly project boundary with Turner Parkway, similar to the existing flow regime, and then be conducted off-site via a culvert to Blue

Rock Springs Creek. To further ensure that graded areas do not interfere with existing drainage areas, and to ensure that new storm water drainage improvements are planned and designed to satisfy the San Francisco RWQCB's MRP requirements and all other applicable standards and requirements, the project would be required to comply with MM HYD-1 (Compliance with NPDES General Construction Activities Storm Water Permit Requirements), MM HYD-2 (NOI and SWPPP Submission), and MM HYD-3 (Final Drainage Plan). With implementation of these mitigation measures, impacts associated with the altering of existing drainage patterns and erosion would be less than significant.

IMPACT HYD-4	***WOULD THE PROJECT SUBSTANTIALLY ALTER THE EXISTING DRAINAGE PATTERN OF THE SITE OR AREA, INCLUDING THROUGH THE ALTERATION OF THE COURSE OF A STREAM OR RIVER OR THROUGH THE ADDITION OF IMPERVIOUS SURFACES, IN A MANNER WHICH WOULD SUBSTANTIALLY INCREASE THE RATE OR AMOUNT OF SURFACE RUNOFF IN A MANNER WHICH WOULD RESULT IN FLOODING ON- OR OFF-SITE?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

As discussed previously, grading and construction for both the residential and commercial sites would generally mimic the watercourse paths of the existing site condition. The rate and amount of surface runoff is determined by multiple factors, including the following: amount and intensity of precipitation; amount of other imported water that enters a watershed; and amount of precipitation and imported water that infiltrates to the groundwater. Infiltration is determined by several factors, including soil type, antecedent soil moisture, rainfall intensity, the amount of impervious surfaces within a watershed, and topography. In addition, the rate of surface runoff is largely determined by topography and the intensity of rainfall over a given period of time.

The proposed project would result in the impervious surfaces being constructed on the project site. The residential component includes an area of approximately 1,037,167 sf, of which approximately 609,854 or 58% would be impervious and 427,313 sf would be pervious. The commercial component includes a total of 946,593 sf, of which approximately 771,473 sf or 81.5% is impervious and 175,120 would be pervious. In addition to the open space and landscaped areas that increase pervious surfaces, the commercial component of the proposed project includes approximately 42,640 sf of IMP area and the residential area would have approximately 42,245 sf of IMPs. These areas are constructed with LIDs and contain soils and other materials to facilitate infiltration of surface water runoff.

The project would not alter precipitation amounts or intensities, nor would it require any additional water to be imported into the project site. However, construction would require earth-disturbing activities which may affect site-specific infiltration and permeability during construction (temporary) and operation (permanent). Based on preliminary design estimates, post-construction storm water flows for a 100-year storm event at the project site would be 36.5 cubic feet per second, compared to 39.5 cubic feet per second under existing conditions. *Table 4.8-2: Storm Water Flows for a 100-Year Storm Event*, summarizes the water flows that would result from implementation of the proposed project.

Table 4.8-2: Storm Water Flows for a 100-Year Storm Event

Pre-Development Peak Flow Summary				
Storm Event	Drainage Area LC 13-1	Drainage Area LC 13-2	Drainage Area LC 13-3	Total
100-year	28.1cfs	3.0 cfs	8.4 cfs	39.5 cfs
Post-Development Peak Flow Summary				
Storm Event	Drainage Area LC 13-1	Drainage Area LC 13-2	Drainage Area LC 13-3	Total
100-year	28.1 cfs	0	8.4 cfs	36.5 cfs

Source: MacKay & Somps, 2018.

The proposed project's new storm water system would contain and collect storm water flows in the project site, before runoff is allowed to drain off-site. As mandated by the San Francisco RWQCB, new storm water facilities would be planned and designed to satisfy its MRP requirements, which includes ensuring that post-development flows do not exceed pre-development flows. To ensure that the new storm water drainage improvements are planned and designed to satisfy the San Francisco RWQCB's MRP requirements, incorporation of MM HYD-3 would be required. With implementation of HYD-3 and maintaining storm water flows at or below pre-development levels, impacts would be less than significant.

IMPACT HYD-5	***WOULD THE PROJECT SUBSTANTIALLY ALTER THE EXISTING DRAINAGE PATTERN OF THE SITE OR AREA, INCLUDING THROUGH THE ALTERATION OF THE COURSE OF A STREAM OR RIVER OR THROUGH THE ADDITION OF IMPERVIOUS SURFACES, IN A MANNER WHICH WOULD 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?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

SHORT-TERM CONSTRUCTION IMPACTS

The proposed project must comply with the requirements of the NPDES General Permit, which helps control water pollution by regulating point and non-point sources that discharge pollutants into receiving waters.

The proposed project would also be required to obtain a General Construction Permit. The General Construction Permit requires implementation of an SWPPP, which would include BMPs designed to protect the quality of storm water runoff. Preparation, implementation, and participation with both the NPDES General Permit and the General Construction Permit, including the SWPPP and BMPs, would reduce the potential for storm water flows, and any potential contaminants contained within those flows, to be conveyed off-site during construction of the proposed project. As a result, short-term construction-related impacts associated with creating or contributing to runoff and additional sources of polluted runoff would be less than significant with the incorporation of MM HYD-3.

LONG-TERM OPERATIONAL IMPACTS

As mandated by the San Francisco RWQCB, the proposed project's new storm water drainage system facilities have been planned and designed to satisfy the RWQCB's MRP requirements (as well as all other applicable standards and requirements) by:

- Minimizing impervious surfaces as feasible and directing flows to IMPs.
- Integrating appropriately sized IMPs to ensure post-development flows do not exceed pre-development flows.
- Incorporating bio-retention in combination with site planning, minimizing impervious areas, and dispersion of runoff to meet LID requirements.

To ensure that the new storm water drainage improvements are planned and designed to satisfy the San Francisco RWQCB's MRP requirements, and all other applicable standards and requirements, incorporation of MM HYD-3 would be required. With implementation of HYD-3, impacts associated with the altering of drainage patterns and flooding would be less than significant.

IMPACT HYD-6	***WOULD THE PROJECT SUBSTANTIALLY ALTER THE EXISTING DRAINAGE PATTERN OF THE SITE OR AREA, INCLUDING THROUGH THE ALTERATION OF THE COURSE OF A STREAM OR RIVER OR THROUGH THE ADDITION OF IMPERVIOUS SURFACES, IN A MANNER WHICH WOULD IMPEDE OR REDIRECT FLOOD FLOWS?*** ***(NO IMPACT)***

The majority of the project site is located outside of an identified Flood Hazard Area (either a 1 percent or 0.2 percent annual chance for flooding), according to the FIRM (Map Number ID: 06095C0607F) prepared by FEMA. A portion of the southwest portion of the project site is located within Zone AE, which is described by FEMA as an area subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. While the proposed project would include numerous buildings and facilities, none of the proposed improvements associated with the project would be in the 1% flood zone. As a result, no impacts would occur.

IMPACT HYD-7	***IN FLOOD HAZARD, TSUNAMI, OR SEICHE ZONES, WOULD THE PROJECT RISK RELEASE OF POLLUTANTS DUE TO PROJECT INUNDATION?*** ***(LESS THAN SIGNIFICANT IMPACT)***

As discussed above, the majority of the project site is located outside of an identified Flood Hazard Area (either a one percent or 0.2 percent annual chance for flooding), and there are no levees or dams on the project site.

Parts of the City are located within the inundation areas of four dams: Lake Chabot, Summit Reservoir, Swanzy Reservoir, and Fleming Hill No. 2 Reservoir. All of these dams and reservoirs are classified as a high hazard dams because their failure could result in a significant loss of life and/or property damage. However, the California Division of Safety of Dams inspects each dam on an annual basis to ensure the dam is safe, performing as intended, and not developing problems.

The project is proximate to four dam inundation areas, and is approximately one mile southeast of the Lake Chabot Dam. However, as shown in the General Plan, the project site is not located within a dam inundation area. The project site is not located adjacent to any confined water body and would not be affected by seiche. The proposed project is not located adjacent to steep hillsides and would not be susceptible to mudflow. Lastly, according to the California Emergency Management Agency (CAL EMA) Tsunami Inundation Map for Emergency Planning, the project site is not in a tsunami inundation area (CAL EMA, 2009). Therefore, impacts associated with the failure of a levee, dam, seiche, tsunami, or mudflow at the project site would be less than significant.

IMPACT HYD-8	***WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF A WATER QUALITY CONTROL PLAN OR SUSTAINABLE GROUNDWATER MANAGEMENT PLAN?*** ***(LESS THAN SIGNIFICANT IMPACT)***

As discussed above, the project would comply with the Water Quality Control Plan for San Francisco Bay Basin and the C3 provisions of the MRP, and therefore, would not conflict with or obstruct implementation of a water quality control plan. In addition, the City of Vallejo does not use groundwater and does not seek or intend to investigate groundwater as a source of water for the City. The proposed drainage plan would generally mimic the existing site conditions. The proposed project would Incorporate bio-retention, disperse runoff to meet LID requirements, and minimize impervious areas. Surface runoff would be conducted to the bioretention treatment facilities at the northwest corner of the site. The bioretention facilities would be designed to meet both treatment and flow-control requirement and would support groundwater recharge. Impact HYD-1 and HYD-4, above provides further detail on the potential impacts and design measures that would be included to the project to protect groundwater and groundwater recharge. Therefore, the proposed project would not obstruct a water quality control plan or sustainable groundwater management plan. Impacts in this regard would be less than significant.

4.8.5 CONCLUSION

Drainage improvements planned for the project would be designed to satisfy the San Francisco RWQCB's MRP requirements, and all other applicable requirements and standards. Implementation of Mitigation Measure HYD-1 would be required to ensure that long-term operational impacts associated with water quality standards and wastewater discharge requirements would be less than significant. The City does not use groundwater; thus, the project would not result in impacts to local groundwater. To ensure that the project do not interfere with existing drainage areas, and to ensure that new storm water drainage

improvements are planned and designed to satisfy the San Francisco RWQCB's MRP requirements and all other applicable standards and requirements, MMs HYD-1, HYD-2, and HYD-3 would be required to ensure that impacts associated with the alteration of existing drainage patterns and erosion would be less than significant. Implementation of MM HYD-3 would also ensure that impacts associated with the altering of drainage patterns would be less than significant. The project site is not located within a dam inundation area, is not susceptible to seiches, and is not in a tsunami inundation area. The project site is not susceptible to mudflow and therefore would not result in impacts associated with the failure of a levee, dam, seiche, tsunami, or mudflow. Furthermore, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan would be less than significant.

4.8.6 CUMULATIVE IMPACTS

Cumulative impacts to hydrology and water quality could occur as new development, redevelopment, and existing uses are ongoing within the watershed. Because parts of the watershed are already urbanized, growth is anticipated to consist of a mix of redevelopment as well as new development and consist of a mix of uses (residential, commercials, industrial, etc.). New development and redevelopment projects would result in some increases in impervious surfaces, and thus could generate increased runoff from the affected project sites. Future developments in the watershed would be required to comply with the SWRCB and San Francisco Bay RWQCB. Depending on the size of future projects, they would be required to obtain and comply with all required water quality permits and the Water Quality Control Plan, as needed and prepare and implement SWPPPS, implement BMPs, including LID BMPs to minimize runoff, erosion, and storm water pollution, comply with the MRP and associated C3 requirements. As part of these requirements, projects would be required to implement and maintain source controls, and treatment measures to minimize polluted discharge and prevent increases in runoff flows that could substantially decrease water quality. Conformance to these measures would minimize runoff from those sites and reduce contamination of runoff with pollutants. Therefore, related projects are not expected to cause substantial increases in storm water pollution. With compliance with State and local mandates, cumulative impacts would be less than significant, and project impacts would not be cumulatively considerable.

4.8.7 REFERENCES

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4.9 LAND USE

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting for land use and planning on the proposed project site. It also describes the impacts on land use and planning that would result from implementation of the proposed project, including an evaluation of consistency with relevant plans and programs that have jurisdiction within the project area and on the project site. The evaluation includes a discussion of the proposed project compatibility with surrounding land uses, and provides mitigation measures that would reduce these impacts, as appropriate. The following analysis of the potential conflicts to land use is derived primarily from the listed sources. Where additional information has been used to evaluate the potential impacts, that information has been referenced.

- Propel Vallejo 2040 General Plan.
- Propel Vallejo 2040 General Plan EIR.
- City of Vallejo Code of Ordinances.

4.9.1 ENVIRONMENTAL SETTING

The proposed project is in the City of Vallejo, which is within the western portion of Solano County. Vallejo is the largest city in Solano County and the tenth-largest in the Bay Area. The County is bordered by Napa County to the west and north, Yolo County to the north and east, Sacramento County to the east and Contra Costa to the south (see **Figure 3-1: Regional Map** and **Figure 3-2: Vicinity Map**). Encompassing an area of approximately 50 square miles, the City is characterized by its boundary with San Pablo Bay and the Napa/Sonoma Marshes, the latter which is a northern reach of the San Francisco Bay. To the south the City is bordered by the Carquinez Strait, and to the northeast by unincorporated Solano County open space.

The developable areas of the City area largely urbanized but are predominantly residential in character. The following identifies the characterization of land uses in the City:

- Single-family and multi-family development: approximately 40 percent of the total land area
- Commercial uses, including shopping centers, retail stores, hotels, and gas stations: approximately 8 percent of the total land area
- Industrial and manufacturing uses, concentrated primarily on Mare Island: approximately 5 percent of the total land area
- Vacant and undeveloped land: approximately 6 percent of the total land area
- Wetlands, parks, and natural open space: approximately 41 percent of the total land area.

The approximately 51.3-acre project site is bordered by Turner Parkway to the north; existing commercial uses including an auto dealership and residential development to the south, existing single-family residential uses to the east, and Admiral Callaghan Lane and the I-80 freeway on the west. *Table 3-1: Surrounding Land Uses,* in Chapter 3, Project Description, provides a brief description of the surrounding uses, land use designations in the Propel Vallejo General Plan 2040 (General Plan) and zoning designations in the Municipal Code. A more detailed description of these land uses follows Table 3-1.

ON-SITE LAND USES

The approximately 51.3-acre project site is undeveloped, vacant land. The site is square-shaped on the north, east, and southern boundaries, with the western side angled to the southwest following the alignment of the undeveloped City right-of-way adjacent to Admiral Callaghan Lane. More than 44 acres of the site is covered in non-native annual grassland with some elements of mixed woodland and coyote brush scrub intermixed. The project site contains a small reach of Blue Rock Springs Creek, a perennial stream, which runs east to west in the southwestern corner of the site. A seasonal wetland is in the central portion of the project site. Water is conveyed onto the and off the property through existing underground culverts that ultimately drain off the site through two existing culverts under Turner Parkway approximately 315 feet east of the Turner Parkway at Admiral Callaghan Lane intersection. An existing Pacific Gas and Electric (PG&E) gas pipeline and 15-foot easement traverses the western portion of the project site. An existing Vallejo Sanitation and Flood Control District (VSFCD) sewer main in a 15-foot easement traverses the central portion of the property.

4.9.2 REGULATORY SETTING

The following provides an overview of the regulatory and policy documents that are applicable to the proposed project.

FEDERAL

There are no federal regulations related specifically to land use issues. Certain federal regulations that are applicable to the proposed project, such as for Air Quality and Biological Resources, are discussed in the respective Chapters of the EIR.

STATE

California Environmental Quality Act

CEQA establishes that a significant effect on the environment involves an adverse change to the physical environment. Pursuant to the State CEQA Guidelines, a project's impact related to land use planning is evaluated in terms of physically dividing an established community, compatibility with existing land uses and consistency with local plans and other local land use controls (i.e., general plans, zoning codes, specific plans, etc.) such that if conflicts do exist, would the conflict result in a significant environmental impact. This is discussed in additional detail in the methodology and impacts section below.

Subdivision Map Act

Land division are regulated in California through the Subdivision Map Act [Government Code (GC) §66410 et seq.]. A land division occurs when a recorded single parcel or group of contiguous parcels are separated into smaller individual lots. The lots are then recorded on a subdivision map. Per State law, regulation and control of the design and improvement of subdivisions are vested in the legislative bodies of local agencies. Under the Subdivision Map Act, each local agency becomes responsible for the regulation and control of the initial design and improvement as adopted by local ordinance. In addition, the Subdivision Map Act requires that the local ordinance provides for proper grading and erosion control, including the prevention of sedimentation or damage to offsite property (GC, 1974).

California Government Code Section 65860

California Government Code Section 65860 requires zoning to be consistent with an agencies' general plan. Consistency with the general plan is possible only if the local government, in this case the City of Vallejo, has (i) officially adopted a general plan, and (ii) the land uses authorized in the City's Municipal Code must then be compatible with the objectives, policies, general land uses, and programs specified in the General Plan. Both the Propel Vallejo General Plan 2040, adopted in 2017, and the land uses authorized in the Municipal Code are discussed in detail in the Local regulatory setting below.

REGIONAL

The proposed project is subject to several regional planning documents and programs that have varying degrees of regulation overuse of developments within the City and the project site. Regionally, the proposed project is subject to the policies and guidance of, Plan Bay Area, Sustainable Communities Strategy, the Regional Housing Needs Allocation, Metropolitan Transportation Commission, and the Association of Bay Area Council of Governments and are discussed in additional detail below.

Association of Bay Area Governments (ABAG) Projections 2013

The Association of Bay Area Governments (ABAG) is the comprehensive planning agency and Council of Governments for the San Francisco Bay region, inclusive of 9 counties – Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma – and 101 cities and towns including Vallejo. ABAG is responsible for the Regional Housing Needs Allocation (RHNA) which is addressed below. ABAG produces growth forecasts on 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 forecast to make project funding and regulatory decisions. The BAAQMD and MTC are discussed in Chapters 4.2 Air Quality, and 4.15 Transportation.

Regional Housing Needs Allocation (RHNA)

Housing Element law requires local jurisdictions to plan for and allow for the construction of a share of the region's projected housing needs, referred to as the RHNA. State law mandates that each jurisdiction provide sufficient land to accommodate a variety of housing opportunities for all economic segments of

the community to meet or exceed the RHNA. As the regional planning agency for the Bay Area, ABAG calculates the RHNA for individual jurisdictions including Vallejo.

The City of Vallejo has been assigned approximately 20 percent (or 1,362 dwelling units) of the total RNHA for Solano County (6,977 dwelling units). The City's RHNA assignment for the Above Moderate Income category is 690 dwelling units. Through calendar year 2018, the City has produced 146 units (10.7 percent) toward its total RHNA of 1,362 units. All of these units are in the Above Moderate Income category, which accounts for 690 units of the total RHNA.

Plan Bay Area, Sustainable Communities Strategy

Consistent with Senate Bill (SB) 375, the Bay Area must develop a Sustainable Communities Strategy that strives to reach the greenhouse gas (GHG) reduction target established by the California Air Resources Board (CARB). SB 375 also requires the region to plan for housing 100 percent of its projected population at all income levels. Plan Bay Area is the region's first regional transportation plan subject to SB 375. The MTC and the ABAG jointly prepared Plan Bay Area (PBA) in response to this requirement; the PBA serves as the long-term Regional Transportation Plan (RTP) for the San Francisco Bay Area as well as the region's Sustainable Communities Strategy (SCS). The PBA was written, in part, to respond to the region's projected population, which is expected to grow to more than 9 million people by 2040. It focuses on accommodating projected growth while fostering an innovative, prosperous and competitive economy; preserving a healthy and safe environment; and allowing all Bay Area residents to share the benefits of vibrant, sustainable communities connected by an efficient and well-maintained transportation network.

LOCAL

Locally, Vallejo has authority over deciding the land use of the project site. The City adopted planning documents including the General Plan, Vallejo Zoning Ordinance, 2015-2023 Housing Element, regulate land use within and around the proposed project site. Several land use plans, policies, and regulations apply to the project site. Consistent with CEQA, not every policy that could apply to the project is included here. Rather, the focus of this analysis is on potential conflicts with policies that were adopted for the purpose of avoiding or mitigating an environmental effect.

Propel Vallejo General Plan 2040

California Government Code Section 65300 requires every city and county in California to adopt a comprehensive, long-term General Plan for the physical development of the jurisdiction. A General Plan should consist of an integrated and internally consistent set of goals and policies grouped by topic into a set of elements and guided by a jurisdiction-wide vision. State law requires that a General Plan address seven elements or topics (land use, circulation, housing, conservation, open space, noise, and safety), but allows some discretion on the arrangement and content. Vallejo's General Plan includes three additional elements: Healthy Community; Arts, Culture, Historic Preservation; and Economic Development. The Propel Vallejo General Plan 2040 is the City's primary land use regulatory tool and describes the means necessary to achieve the community's vision for the future. In May 2015, the City adopted the 2015-2023 Housing Element Update to cover the eight-year planning period from January 2015 through January

2023. The purpose of the Housing Element is to establish a comprehensive, long-term plan to address housing needs in the City of Vallejo. State law stipulates that the Housing Element include certain items, such as a Housing Needs Assessment; goals, policies, and objectives; and implementation programs to work toward achieving those goals. The Housing Element recognizes the importance of the RHNA and mirrors those goals. General Plan goals, policies, and action items related to land use that would be applicable to the proposed project include the following:

- **Policy CP-1.6**: Active Transportation Network. Promote the health benefits of walking and bicycling by providing a convenient and safe network of bicycle paths and routes, sidewalks, pedestrian paths, and trails, including connections with major destinations such as civic facilities, educational institutions, employment centers, shopping, and recreation areas.
- **Action CP-1.6D**: Develop guidelines for public and private projects that promote safe, convenient, and attractive bike and pedestrian facilities, including amenities to enhance bike and pedestrian activity, such as bicycle racks, lockers, street trees, public art, and street furniture.
- **Action CP-1.7C**: Support efforts by stewardship agencies to preserve wetland and open space areas.
- **Policy CP-4.3**: Informed Discussion. Provide decision-makers, project applicants, and residents with information about planning policies and regulations as well as advance notice of upcoming changes, projects or issues.
- **Goal MTC-3** – Interconnected Community. Improve connections within and between Vallejo's neighborhoods for all travel modes.
- **Policy MTC-1.6**: Public Access. Promote public access to open space and trails.
- **Policy MTC-3.4**: Walking, Biking, and Rolling. Expand the local bicycle and trail network to provide safe, healthy, attractive options for non-motorized travel among destinations in Vallejo, including for wheelchair users.
- **Policy MTC-3.7**: Shared Streets. Facilitate access to and through the District by alternatives to the automobile.
- **Policy NBE-2.5**: Regional Retail and Entertainment. Support a thriving mix of regional retail and entertainment uses near Interstate 80.
- **Policy NBE-2.8**: Infill Development. Promote infill development that targets vacant and underutilized sites for community-desired and enhancing uses that is compatible with surrounding uses.
- **Policy NBE-3.14**: Neighborhood Corridors. Connect the community with mixed-use corridors that function as neighborhood main streets for adjacent residential areas.
- **Policy EET-3.4**: Commercial and Neighborhood Corridors. Enhance commercial corridors to create a vibrant mix of places to live, work, shop, and play.

- **Policy EET-4.2**: Responsible Development. Favor residential, commercial, and industrial development that can mitigate or avoid environmental impacts.
- **Action EET-4.2A**: Continue to incorporate sustainable design elements such as solar panels and water-efficient landscaping into the construction of City-owned and operated facilities.
- **Action EET-4.2B**: Consider adopting thresholds of significance for environmental review of proposed developments under the California Environmental Quality Act.

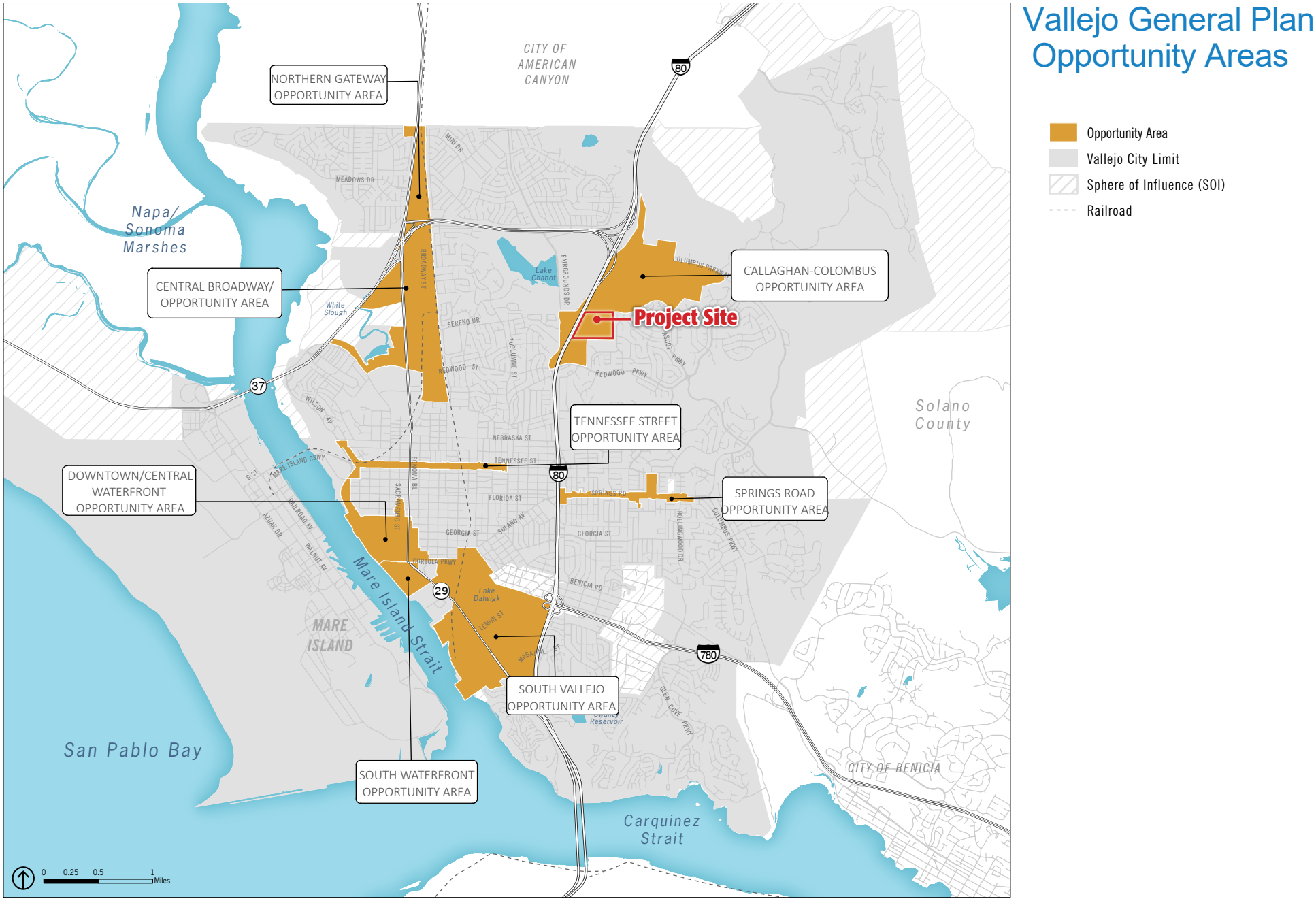
During the General Plan planning process, key opportunity areas were identified where development could expeditiously produce a significant positive impact on quality of life. The areas are generally in locations that have not had the benefit of previously detailed planning efforts or are locations where additional attention was needed to refine and update the community's vision. The General Plan does not lay out specific plans for these areas, but the key opportunity areas are identified as locations where development could expeditiously produce a significant positive impact on quality of life. Through a series of community workshops and online activities held in February and March of 2015, the community at large was invited to help develop a vision for each area and for the entire City with a vision for 2040. There are seven Opportunity Areas within the City. The project site is within the Callaghan-Columbus Opportunity Area. The Callaghan-Columbus Opportunity Area is generally bordered by Columbus Parkway on the north, North Ascot Parkway, Turner Parkway, and Foothill Drive on the east, Redwood Parkway on the south, and Admiral Callaghan Land and I-80, on the west. **Figure 4.9-1: Callaghan-Columbus Opportunity Area**, shows the site in relation to the opportunity area.

The project site has a General Plan land use designation of Retail/Entertainment on the western portion of the property; the Mix of Housing Types designation is on the central portion of the project site currently occupied by the wetland area and on the eastern portion of the property. The proposed project is consistent with the existing General Plan land use designations for the project site. The proposed project is consistent with the General Plan goals and policies for new development at this location. **Figure 4.9-2: General Plan Land Use Designations**, identifies the existing land use designations for the project site**.** The proposed land uses are consistent with the General Plan land use designations.

Retail/Entertainment (RE)

The RE designation provides for general retail, services, and entertainment for local residents as well as consumers and visitors from the wider region. Permitted land uses include shopping centers, auto sales, amusement parks, hotels, restaurants, service stations, marine-related operations, offices, general retail, personal and business services, and similar commercial uses. The maximum permitted Floor Area Ratio (FAR)[1] in the RE Designation is 1.5.

[1] The ratio is determined by dividing the total or gross floor area of the building by the gross area of the lot.

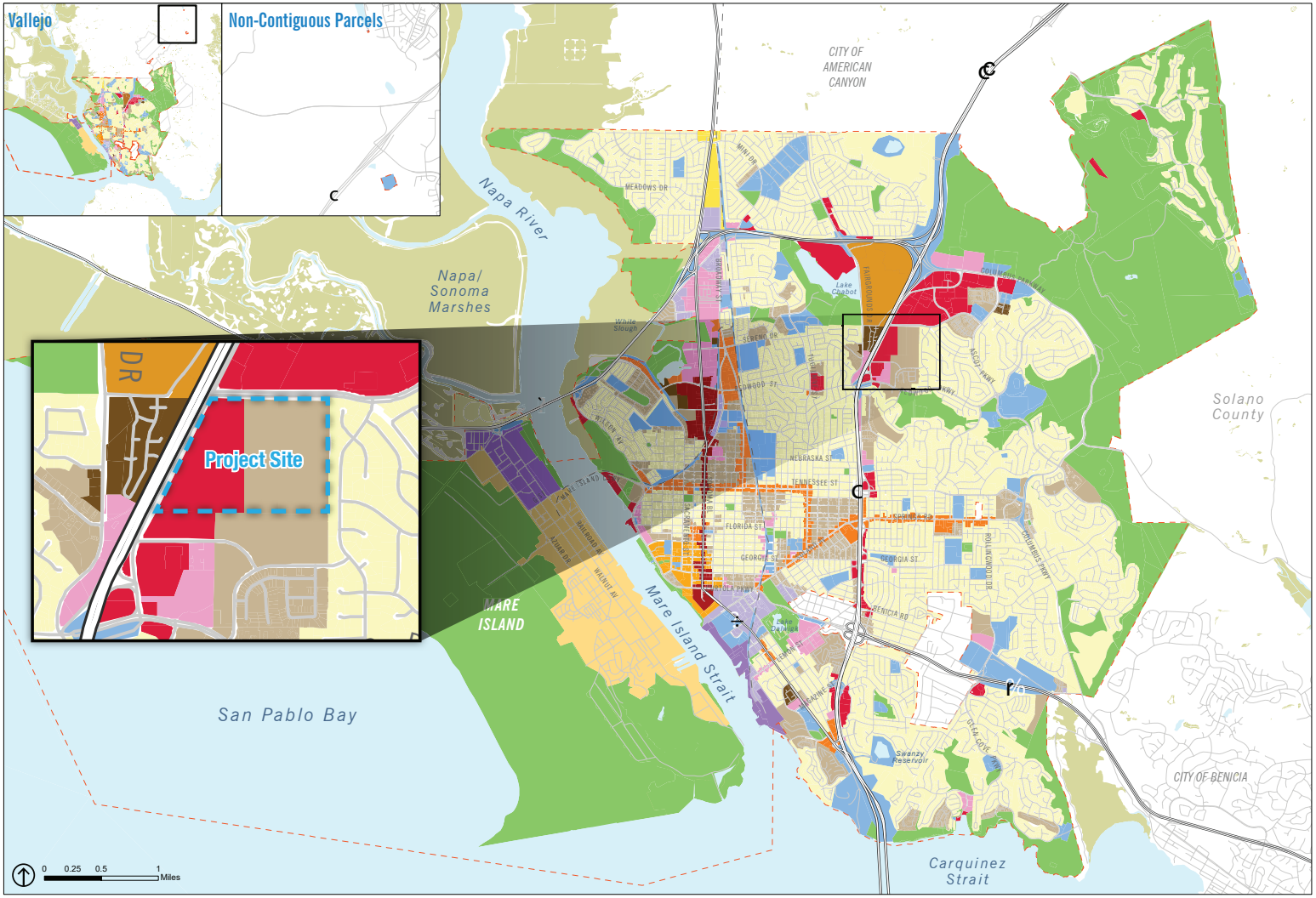


Source: City of Vallejo General Plan 2040, 2017: Map PF-4; ABAG, 2016; PlaceWorks, 2016.

FIGURE 4.9-1: Callaghan Columbus Opportunity Area
Fairview at Northgate Project

Not to scale

Kimley»Horn



Vallejo General Plan Land Use Map

Residential
- Primarily Single Family
- Mix of Housing Types
- Primarily Multi-Family

Mixed Use
- District - Downtown/Waterfront
- District - Mare Island
- District - Solano360
- District - North Gateway
- Central Corridor
- Neighborhood Corridor

Business and Industry
- Retail/Entertainment
- Business/Limited Residential
- Business/Light Industrial
- Industrial

Community
- Parks, Recreation and Open Space
- Public Facilities and Institutions

- Wetland
- Railroad
- Vallejo City Limit
- Sphere of Influence (SOI)

8/29/2017

Source: City of Vallejo Propel Vallejo General Plan 2040, 2017: Map PF-g

FIGURE 4-9.2: General Plan Land Use Designations
Fairview at Northgate Project

Not to scale

Kimley»Horn

Mix of Housing Types/Medium Density (R-MH)

The R-MH designation applies to residential neighborhoods largely characterized either by 1) single-family homes but with a mix of other housing types, including duplexes, triplexes, fourplexes, some smaller-scale apartment buildings and small commercial spaces; or 2) primarily single-use, multi-family developments with common outdoor spaces. The residential neighborhoods with single-family and other housing types are typically located in the central and more historic parts of Vallejo. Dwellings typically have front and rear yards, as well as side setbacks. Zero side lots (zero lot lines) may be appropriate where they can be visually integrated into the existing neighborhood context. Permitted land uses include single-family homes; in some instances, duplexes, triplexes, fourplexes, smaller-scale apartment buildings, and small commercial spaces; and public facilities such as schools, religious institutions, parks, and other community facilities appropriate within a residential neighborhood. For primarily single-use, multi-family development, the R-MH designation applies to residential areas primarily characterized by parcels and buildings containing multiple residences, sometimes on several floors, and, in some instances, small commercial spaces. They are similar in character to those permitted in Primarily Multi-Family (R-MF) but with a lower residential density. The maximum permitted residential density in the R-MH designation is 25 dwelling units per acre (du/ac).

Zoning

The City of Vallejo Zoning Code, referred to as the Municipal Code, is one of the chief tools for implementing the recommendations found in the General Plan. Where the General Plan establishes a broad vision and framework for land uses in the City and provides policies and actions to manage development through 2040, the Municipal Code implements the General Plan with specific standards that regulate development. The City's zoning regulations and subdivision approvals must be consistent with the General Plan. The existing zoning of the project site is Pedestrian Shopping and Service. As a part of the proposed project, the entire project site would be rezoned to Mixed Use Planned Development (MUPD).

The MUPD is a special zoning district. Per Chapter 116.112.010, the purpose of the MUPD is "to create and establish regulations for a mixed-use district, in which residential, commercial and/or industrial uses are developed as an integral unit." Chapter 16.112.010 Title and Purpose defines these elements of the MUPD zone as follows:

As part of the planned development procedure, development standards listed in Section 16.112.030 are required to be met by the project. These standards are evaluated based on the following summarized criteria:

A) Size and location of the site;

B) Circulation patterns;

C) Topography, vegetation, grading;

D) Preservation of natural resources;

E) Surrounding land uses;

F) Mix of uses;

G) Architecture;

H) Public Improvements;

I) Development Intensity;

J) Landscaping; and

K) Intent and purpose of the project and consistency with the General Plan and purpose of the district.

4.9.3 STANDARDS OF SIGNIFICANCE

According to Appendix G of the State CEQA Guidelines, a project would have a significant impact related to land use and planning, if it would:

- Physically divide an established community.
- 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.

4.9.4 PROJECT IMPACTS AND MITIGATION

METHODOLOGY

For the purposes of this analysis, relevant planning documents, particularly the City General Plan and the Zoning Ordinance, were evaluated. The proposed project was qualitatively assessed to determine whether it would conflict with any applicable land use plan, policy, or regulations. If the proposed project was determined to conflict with a relevant plan, a determination was then made as to whether the conflict or inconsistency would result in a significant physical environmental impact that would otherwise be mitigated or avoided without implementation of the proposed project.

IMPACT LU-1	***WOULD THE PROJECT PHYSICALLY DIVIDE AN ESTABLISHED COMMUNITY? (LESS THAN SIGNIFICANT IMPACT)***

The approximately 51.3-acre project site is undeveloped, contains no permanent structures, and would not require removal of any existing residences or businesses. The project site is bordered by Turner Parkway to the north; multi-family condominiums and apartments and an auto dealership to the south; single-family residences to the east; and Admiral Callaghan Lane and I-80 to the west. There is no vehicular or pedestrian access on the property. The project site is fenced and signed with “no trespassing” signs. Along the eastern property line, the site is separated from the adjacent residences by six- to eight-foot-tall wooden fences. To the south, the multi-family residences are approximately 30 feet higher in

elevation than the project site. A chain-linked fence separates the project site from the auto dealership. Between these two areas, PG&E maintains a gated private access road to their easement.

The project proposes 178 single-family residences in the eastern portion of the project site, and a Costco, associated gasoline station and four building pads for community commercial in the western portion of the project site divided by an approximately 5.1-acre open space/wetland. Commercial uses would total 179,688 sf of which 152,138 sf would be for the Costco. The community commercial uses could include a restaurant with a drive-thru, restaurants, health and fitness clubs, medical clinics, pharmacies, salons, laundry, clothing, convenience stores, and other related services.

The proposed project would not introduce any roadways or infrastructure that would bisect or transect the existing land uses. To provide access to the site, the proposed project includes improvements to Admiral Callaghan Lane to accommodate increased vehicle flow and to Turner Parkway. As a part of the widening of Admiral Callaghan Lane along the project frontage, a sidewalk would be provided. Vehicular access to the commercial center would be provided from three driveways from Admiral Callaghan Lane. The residential area on the east would be accessed from two new local roadways from Turner Parkway. The proposed project is designed to encourage pedestrian connectivity within the project area as well as to surrounding locations. The project incorporates numerous sidewalks, paseos, and a trail designed to promote a pedestrian and bicycle-friendly environment, to encourage alternative transportation between the commercial and residential project elements and improve access to the proposed open space.

As noted, the existing property is fenced and there is no legal access to the site. Upon completion, the proposed project would result in new land use on the currently undeveloped site that would increase connectivity by providing new walkways, trails, and access to open space. The proposed project would not physically divide the existing land uses or areas or any other established community. The project site is currently undeveloped and there are no existing uses and the site is not legally accessible to unauthorized persons. The proposed project is surrounded by existing commercial and residential development, but as discussed, the project site is not legally usable in its current state. The proposed project would result in the development of residential and commercial uses with a 5.1-acre open space/wetland in the central portion of the project site between the proposed uses. The proposed project includes new internal roadways and pedestrian connectivity, a pedestrian corridor adjacent to the easterly side of the proposed open space, and a new sidewalk along Turner Parkway. The sidewalk would connect to the residential used to the east and extend westerly to improvements on Admiral Callaghan Drive and the proposed commercial uses. These new land uses that would be available for use by surrounding residents, including roadway improvements and pedestrian improvements and would improve the overall connectivity. Therefore, impacts would be less than significant.

IMPACT LU-2	***WOULD THE PROJECT CAUSE A SIGNIFICANT ENVIRONMENTAL IMPACT DUE TO A CONFLICT WITH ANY LAND USE PLAN, POLICY, OR REGULATION ADOPTED FOR THE PURPOSE OF AVOIDING OR MITIGATING AN ENVIRONMENTAL EFFECT?*** ***(LESS THAN SIGNIFICANT IMPACT)***

GENERAL PLAN CONSISTENCY

CEQA requires that an EIR consider whether a proposed project may conflict with any applicable land use plan, policy, or regulation (including, but not limited to the general plan, specific plan, or zoning ordinance) that was adopted for the purpose of avoiding or mitigating an environmental effect (refer to Appendix G to the State CEQA Guidelines). This environmental determination differs from the larger policy determination of whether a proposed project is consistent with a jurisdiction's general plan. The broader General Plan consistency determination takes into account all evidence in the record concerning the project characteristics, its desirability, as well as its economic, social, and other non-environmental effects. Regarding plan or policy consistency, the proposed project is evaluated in terms of whether the proposed site plan, design features, and/or development at this location would substantially impede implementation of an adopted plan or policy. The mere fact that a project may be inconsistent in some manner with particular policies in a general plan or zoning ordinance does not, per se, amount to a significant environmental effect. In the context of land use and planning, significant impacts occur when a conflict with any applicable land use plan, policy or regulation of an agency with jurisdiction over the project results in an adverse physical environmental impact.

The proposed project was evaluated for consistency with the applicable goals, policies, and action items of the General Plan. It should be noted that a project need not satisfy all directional guidance contained in the General Plan and CEQA does not require a proposed project to be consistent with all guidance but instead requires a discussion of inconsistencies. Nonetheless, the proposed project is found to be substantially consistent with the applicable General Plan guidance. The proposed project promotes a multimodal active and interconnected transportation network and preserves open space and increases walkability and public access on adjacent trails. The proposed project is considered an infill development and adds a regional retail center easily accessible to nearby residents. In addition, the proposed project includes design features and mitigation to reduce environmental impacts, incorporates sustainable development and reduces resource consumption, and appropriately uses the CEQA process to evaluate and reduce impacts. Therefore, the proposed project has been considered against the intent of the City's adoption of the General Plan and has been found to further the objectives, policies, and action items contained in the General Plan.

The commercial component of the proposed project is consistent with the Retail Entertainment (RE) General Plan designation. The proposed project includes the development of a Costco as well as a local commercial area adjacent to Admiral Callaghan Drive and Turner Parkway. Due to the services and products provided by Costco and the neighborhood-oriented commercial, the proposed project is

envisioned to be used by local residents as well as consumers and visitors from a wider regional area. All proposed and anticipated uses would be consistent with the designation that permits services stations, offices, general retail, personal and business services. The area of the proposed commercial uses also would be below the allowable FAR.

The residential component of the proposed project is consistent with the R-MH designation. The residential component of the project includes single-family homes, which are specifically identified as permitted uses. In addition, the residential component would be provided access to the recreational community areas and pedestrian corridor adjacent to open space to the west. The dwellings will typically have both front and rear yards, with a mix of front and read loaded garages off alleyways. Additionally, due to the proximity to the Costco and neighborhood service commercial uses being proposed as part of the project, the residential component would be within immediate proximity and consistent with the allowance for small commercial spaces. Lastly, the project would be under the allowable dwelling units per acre.

Ultimately, land use compatibility is a function of how well a project is integrated with surrounding land uses. Land use compatibility impacts can be measured in terms of specific environmental effects such as noise, air quality, visual resources, and traffic. The land use compatibility analysis is therefore supported by other specific discussions within this EIR. All development proposed in the City are reviewed for consistency with land use controls and development standards during the course of the project review and approval process. Lastly, prior to any construction or development on the project site, the proposed project would require consultation and acquisition of required permits and approvals by responsible and trustee agencies that have jurisdiction over the project site. These agencies and their responsibilities are discussed in the respective chapters of this document.

ZONING CONSISTENCY

The proposed project site is zoned for Pedestrian Shopping and Service but the proposed project includes a change in the zoning to the MUPD. The proposed project includes both residential and commercial uses and is consistent with the intent of this zone. As noted the MUPD is intended to create regulations for a mixed-use district, in which residential, commercial are developed as an integral unit. The proposed project would develop the uses as a linked development, with connectivity throughout the conceptualized design by providing commercial uses in immediate proximity and walking distance to the residential area. The MUPD zoning allows the project to develop a cohesive design that allows for integrating features such as the multi-use path that connects the commercial and residential uses. The zoning allows for the residential area to have site-specific building development standards that allow for common area paseos, pocket parks, and a linear park Further, the MUPD implements the policies of the Vallejo General Plan which call for the establishment of specific areas where flexibility of design and development of diverse land use is appropriate for the benefit of the city as a whole. Consistent with this intent, the proposed project implements and is consistent with the policies of the General Plan as the project would provide a regional benefit with the retention, relocation and expansion of the existing Costco. The MUPD zoning allows the project to develop a cohesive design that allows for integrating features such as the multi-use

path that connects the commercial and residential uses. The zoning allows for the residential area to have site-specific building development standards that allow for common area paseos, pocket parks, and a linear park. In addition, the flexibility for lot sizes and density provided of the MUPD allows the proposed project to preserve a central open space area with wetlands, which also in turn provides a physical and visual buffer between the residential and busier commercial uses. The project also represents an in-fill project on a property which is not being maximized in terms of provision of housing in a market with a shortage of such uses.

The proposed project includes a major CUP as specified in Chapter 16.82 to allow for the Costco, which is considered a superstore. The proposed project has been designed to be sensitive to the existing resources on the project site. The proposed project is responsive to the existing site topography, includes measures to reduce impacts to circulation and traffic, and has an overall intent of reducing potential effects to the surrounding land uses. Overall the project includes a consistent design and intensity that is consistent with the purpose of the general plan and existing MUPD district as it relates to implementation of the General Plan. Finally, prior to final project approval the proposed project would be reviewed by the City and findings would be made as to the overall value of the project in relation to potential effects.

As discussed above, the Zoning Code is meant to implement the designations as listed in the General Plan. The proposed project would be consistent with the MUPD zone as it relates to the General Plan.

Potential impacts on the environment associated with the proposed project are discussed throughout the chapters of this document. Therefore, the proposed project would satisfy the intent of the General Plan by providing consistency between the General Plan and zoning designations. Additionally, issuance of the major CUP is considered consistent with the intent of the Zoning Code and would not result in a conflict with any adopted plan or policy resulting in a significant environmental effect.

REGIONAL HOUSING NEEDS ALLOCATION CONSISTENCY

The proposed project would be consistent with the current RHNA. The proposed project would result in the construction of 178 new above moderate housing units, which accounts for approximately 0.2% of the total allocation of above moderate units for the San Francisco Bay Area, 5.4% for Solano County, and 25.8% for Vallejo. The proposed units represent 13.1 percent of the City's total RHNA across all income categories. There would be no impacts outside of those disclosed in this EIR related to conformance with the RHNA. Impacts in this regard would be less than significant.

4.9.5 CONCLUSION

The proposed project would be located on a project site that is currently vacant and undeveloped. The project site is in an urbanized area adjacent to single-family and multi-family residences, commercial and automotive uses, and roadways and major transportation corridor. The proposed project includes new residential uses, open space, and commercial. The proposed project would include improvements to the circulation system, a new local as well as regional service commercial use, while being sensitively designed and responsive to existing environmental constraints. The central open space would remain visible to

users of the adjacent pedestrian path, and the residential and commercial uses would be linked by an improved sidewalk along Turner Parkway. This also would be beneficial to adjacent existing residential areas and these pathways and access through the project site would link to new proposed commercial center. As such, the proposed project would not physically divide an established community. The proposed project is consistent with the existing General Plan designations and the proposed rezone would provide consistency between the General Plan and zoning designations. The proposed project would produce an additional 178 above-moderate income units, which represents 13 percent of the City's total RHNA and 26 percent of the above-moderate income portion of the City's total RHNA. In addition, housing would be provided in very close proximity to existing and proposed commercial uses. Therefore, potential conflicts with land use policies are considered less than significant.

4.9.6 CUMULATIVE IMPACTS

The geographic scope for cumulative impacts related to land use includes closely related past, present, and reasonably foreseeable future projects located in the surrounding area. Regarding conflicts with any land use plan, policies, or regulations, approval of the proposed project and implementation of the proposed mitigation measures identified in this EIR would ensure that the proposed project complies with applicable goals, policies, and regulations implemented by the City or other applicant agencies with authority over on-site resources, or other land use planning authority. Potential land use impacts are site-specific and require evaluation on a case-by-case basis. This is true with regard to land use compatibility impacts, which are generally a function of the relationship between the interactive effects of a specific development site and those of its immediate environment. Existing as well as future cumulative development within the surrounding area is anticipated to occur in accordance with the City's General Plan and Municipal Code and be evaluated as such the same as the proposed project. Therefore, the proposed project, in conjunction with these other projects, is not anticipated to introduce incompatible uses and substantially conflict with the operation of surrounding land uses.

The proposed project would not physically divide an established community because it does not block access to any existing neighborhoods or existing uses in the vicinity of the project site. The proposed project would provide increased connectivity with pedestrian improvements such as the trail adjacent to the proposed open space area and construction of a sidewalk along the Admiral Callaghan Lane project frontage that would provide direct connectivity with the proposed commercial center as well as to sidewalks north and south of Turner Parkway and on Turner Parkway and pedestrian crosswalk at the western signalized intersection of the residential project. Therefore, the proposed project would not make a cumulative contribution to impacts associated with conflicts with land use planning documents or related policies and regulations. These impacts are less than significant.

4.9.7 REFERENCES

Government Code, 1974 – California Legislative Information. TITLE 7. PLANNING AND LAND USE [65000 - 66499.58]. Available: https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=2.&title=7.&part=&chapter=1.&article=1. Accessed: January 16, 2019.

ABAG and MTC, 2013 - Plan Bay Area, 2013 Strategy for a Sustainable Region. Available: https://www.planbayarea.org/sites/default/files/pdf/final_supplemental_reports/DRAFT_PBA_Public_Outreach_and_Participation_Program_v1-phase_1.pdf. Accessed: January 17, 2019.

4.10 NOISE

This section of the Environmental Impact Report (EIR) provides a discussion of existing noise sources, evaluates potential noise impacts associated with the proposed project, and identifies mitigation measures recommended for potentially significant adverse impacts. Noise data and assumptions that are used for quantifying the proposed project's emissions are based on the following sources. The noise data and calculations are included in Appendix I of this EIR.

- California Department of Transportation.
- Federal Highway Administration.
- Noise Data and Calculation.

4.10.1 BACKGROUND

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

Noise is defined as loud, unexpected, or annoying sound. In acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. Acoustics deals primarily with the propagation and control of sound. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness. *Table 4.10-1: Typical Noise Levels*, provides typical noise levels associated with common activities.

Table 4.10-1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock Band
Jet fly-over at 1,000 feet		
	– 100 –	
Gas lawnmower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**– 70 –**	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	**– 60 –**	
		Large business office
Quiet urban daytime	**– 50 –**	Dishwasher in next room
Quiet urban nighttime	**– 40 –**	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	**– 0 –**	Lowest threshold of human hearing

dBA = A-weighted decibels; mph = miles per hour
Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

NOISE DESCRIPTORS

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The equivalent noise level (L_{eq}) is a measure of the average noise level averaged over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of an average level (L_{eq}) that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in *Table 4.10-2: Definitions of Acoustical Terms.*

Table 4.10-2: Definitions of Acoustical Terms

Term	Definitions
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, Leq	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, Ldn or DNL	A 24-hour average Leq with a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a 5 dBA “weighting” during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

The A weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the

variations must be used. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Type 1 sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-WEIGHTED DECIBELS

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

ADDITION OF DECIBELS

The decibel scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions. Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dB.

SOUND PROPAGATION AND ATTENUATION

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics. No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed

generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

EFFECTS OF NOISE ON PEOPLE

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable

level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.[1]

GROUNDBORNE VIBRATION

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 4.10-3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise-causing induced vibration in exterior doors and windows.

Both construction and operation of development projects can generate ground-borne vibration. However, vibrations associated with construction are the most likely to result in perceptible vibrations to surrounding use. Most development projects do not include sources of vibration which are likely to be perceptible to off-site uses. Construction equipment such as vibratory compactors or rollers, pile drivers,

[1] Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.

and pavement breakers can generate perceptible vibration during construction activities. Heavy trucks can also generate ground-borne vibrations that vary depending on vehicle type, weight, and pavement conditions.

Table 4.10-3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Peak Particle Velocity (in/sec)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006-0.019	64-74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration-sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4-0.6	98-104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: California Department of Transportation, Transportation and Construction-Induced Vibration Guidance Manual, 2004.

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per second (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

4.10.2 EXISTING CONDITIONS

The City of Vallejo is impacted by various noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant sources of noise in most communities. Other sources of noise are the various land uses (i.e., residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise.

NOISE MEASUREMENTS

To determine ambient noise levels in the project area, four 10-minute noise measurements were taken using a 3M SoundPro DL-1 Type I integrating sound level meter between 11:16 a.m. and 12:42 p.m. on December 11, 2018; refer to Appendix H for existing noise measurement data and **Figure 4.10-1: Noise Measurement Locations**. Noise Measurement 1 was taken to represent the ambient noise level east of the project site near the existing single-family residences; Noise Measurement 2 was taken to represent the ambient noise level south of the project site near the existing apartment complex; Noise Measurement 3 was taken to represent the ambient noise level south of the site along Turner Parkway, Admiral Callaghan Lane and I-80; and Noise Measurement 4 represents the existing ambient noise from the existing shopping center southwest of the project site. The primary noise sources during all four measurements was traffic on one of the major roadways and parking lot noises. *Table 4.10-4*: *Noise Measurements*, provides the ambient noise levels measured at these locations.

Table 4.10-4: Noise Measurements

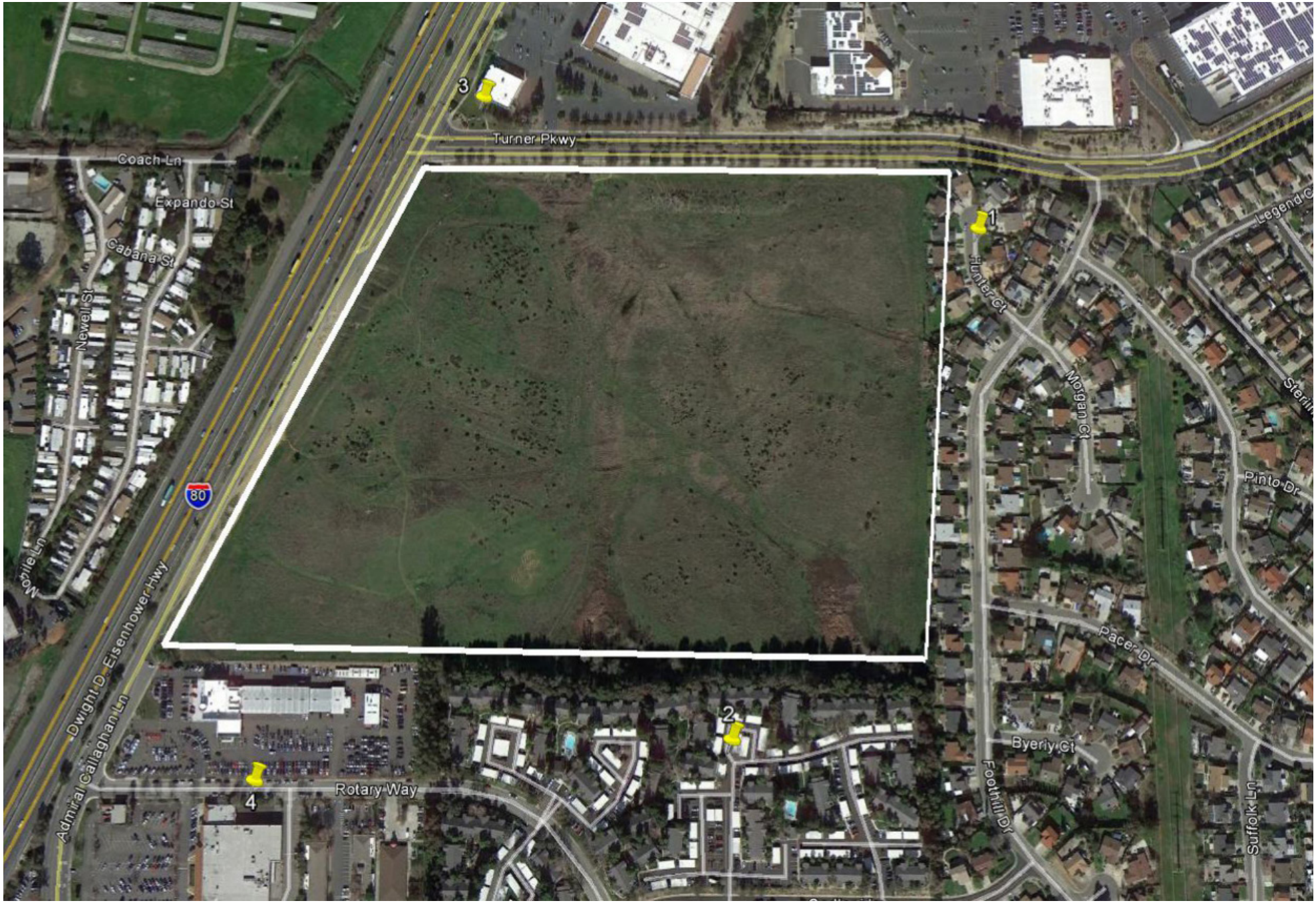
Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Time
1	Hunter Court	55.4	55.3	65.1	11:16 a.m.
2	Sundance Apartment Complex	56.0	55.3	79.8	11:40 a.m.
3	Turner Parkway and Admiral Callaghan Lane	67.3	60.1	75.9	12:20 p.m.
4	Rotary Street near Shopping Center	62.8	55.3	80.2	12:42 p.m.

Source: Noise measurements taken by Kimley-Horn on December 11, 2018.

Existing Mobile Noise

Existing roadway noise levels were calculated for the roadway segments in the project vicinity. This task was accomplished using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and existing traffic volumes from the project Traffic Impact Analysis (Fehr and Peers 2018). The noise prediction model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (also referred to as energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data indicates that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along roadway segments in proximity to the project site are included in Table 4.10-8 in the discussion below, under Impact NOI-1.

The project site is bordered by residential uses to the south and east. The existing mobile noise in the project area is generated along I-80 and Admiral Callaghan Lane which borders the site on the west and Turner Parkway which borders the site on the north.



Source: Kimley-Horn, 2019

FIGURE 4.10-1: Noise Measurement Locations
Fairview at Northgate Project

Not to scale

Kimley»Horn

Existing Stationary Noise

The primary sources of stationary noise in the project vicinity are those associated with the operations of adjacent residential uses to the south and east and commercial uses north of the site. The noise associated with these sources may represent a single-event noise occurrence, short-term noise, or long-term/continuous noise.

Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. As shown in *Table 4.10-5: Sensitive Receptors*, sensitive receptors near the project site include single-family residences adjacent to the eastern boundary, approximately 96 feet from the property line. Multi-family condominiums and apartments are located adjacent to the southeastern boundary and a car dealership is adjacent to the southwestern portion of the site. These distances are from the proposed project site to the sensitive receptor property line. Additionally, the proposed on-site residences would be a sensitive receptor.

Table 4.10-5: Sensitive Receptors

Receptor Type/Description	Distance and Direction from the Project Site[1]
Single-family residences	15 feet east
Multi-family residences	150 feet south
Day Care	450 feet south
Cooper Elementary School	0.6 miles west
Hanns Park	1 mile south
Blue Rock Springs Park	1 mile southeast

[1] Distance calculated from property line of proposed project site and property line of the sensitive receptors

4.10.3 REGULATORY SETTING

FEDERAL

Federal Noise Control Act

In response to the federal Noise Control Act of 1972 (NCA), the U. S. Environmental Protection Agency (U.S. EPA) has identified noise levels requisite to protect public health and welfare against hearing loss, annoyance, and activity interference. The NCA also helps provide a basis for State and local governments' judgments in setting standards. In doing so, the information presented by the U.S. EPA must be used along with other relevant factors. These factors include the balance between costs and benefits

associated with setting standards at particular noise levels, the nature of the existing or projected noise problems in any particular area, and the local aspirations and the means available to control environmental noise.

The NCA also identifies a 24-hour exposure level of 70 dB as the level of environmental noise which would prevent any measurable hearing loss over a lifetime. Likewise, levels of 55 dB outdoors and 45 dB indoors are identified as preventing activity interference and annoyance. These levels of noise are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation, which are part of the daily human condition. The levels are not single event or peak levels. Instead, they represent averages of acoustic energy over periods of time such as 8 or 24 hours and over even longer periods (e.g., years).

STATE

California Government Code

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – California Building Code

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act, find that excessive noise is a serious hazard to public health and welfare, and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. The Act also finds that there is a continuous and increasing bombardment of noise in urban, suburban, and rural areas.

It declares that the State has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians that is free from noise that jeopardizes their health or welfare.

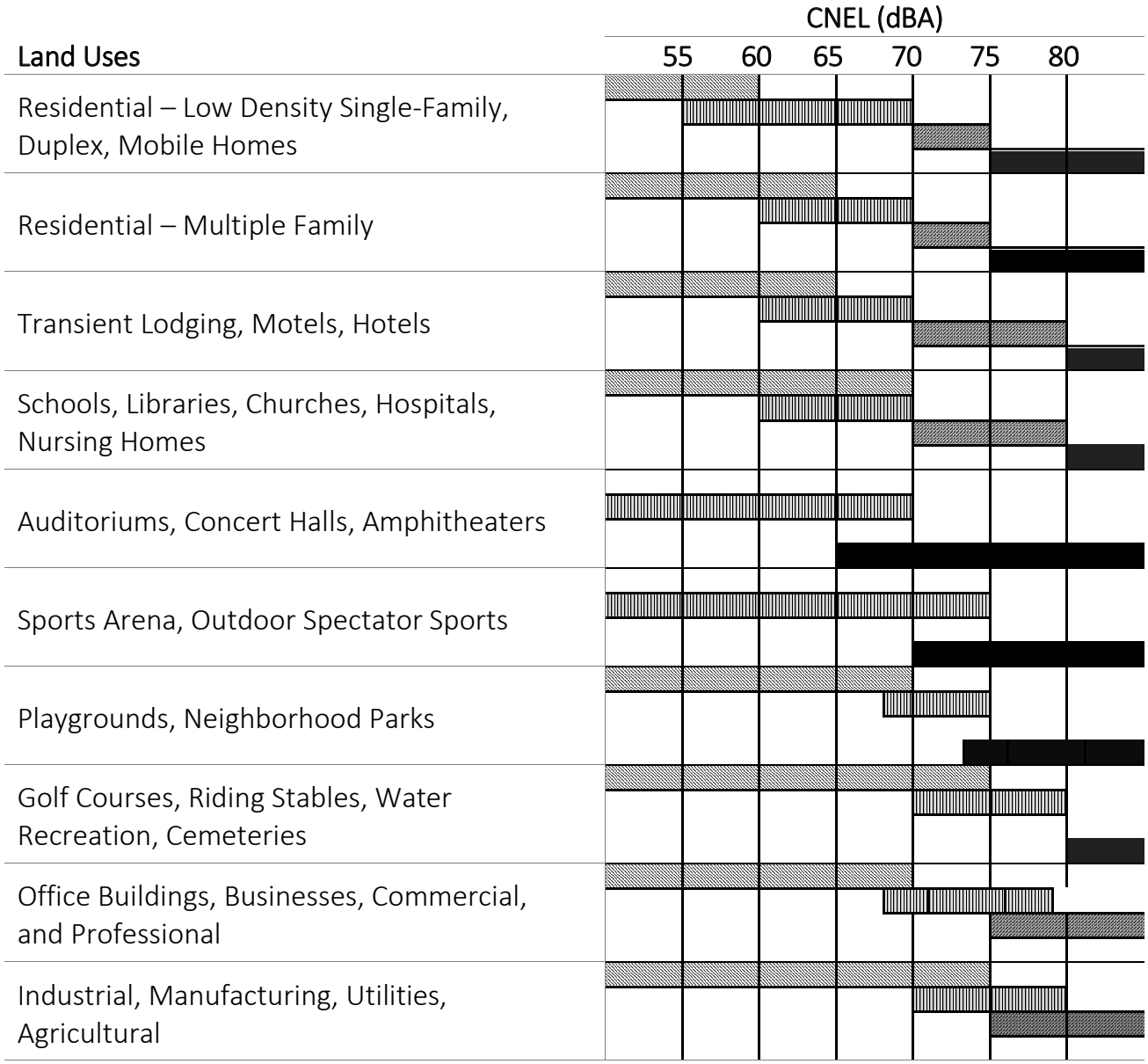
LOCAL

Propel Vallejo General Plan 2040

The City of Vallejo General Plan- Propel Vallejo General Plan 2040 is a roadmap that encompasses the hopes, aspirations, values and dreams of the Vallejo community. The Nature and Built Environment Element of the General Plan covers the State-mandated Noise Element. The City's land use compatibility standards for community noise environments are shown in **Figure 4.10-2: Land Use Compatibility for Community Noise Environments**. The noise policies of the General Plan limit construction, maintenance, and unloading and loading activities from operating in such a manner as to cause noise disturbance across residential real property boundaries except between the hours of 7:00 a.m. and 9:00 p.m. In addition, the City's noise policy limits project-related noise increases to no more than 10 dB in non-residential areas and 5 dB in residential areas where with-project noise level is less than the maximum "normally acceptable level."

The following lists applicable noise goals and targets that apply to the proposed project obtained from the General Plan:

Policy NBE-5.13	Noise Control. Ensure that noise does not affect quality of life in the community.
Action NBE-5.13A	Continue to require that new noise-producing uses are located sufficiently far away from noise-sensitive receptors and/or include adequate noise mitigation, such as screening, barriers, sound enclosures, noise insulation, and/or restrictions on hours of operation.
Action NBE-5.13B	Update City regulations to require that parking, loading, and shipping facilities and all associated mechanical equipment be located and designed to minimize potential noise and vibration impacts on residential neighborhoods.



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 generally be discouraged. If new construction 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 the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Source: Governor's Office of Planning and Research, General Plan Guidelines, November 2003.

FIGURE 4.10-2: Land Use Compatibility for Community Noise Environment
Fairview at Northgate Project

Kimley»Horn

Action NBE-5.13C	Update City regulations to restrict the allowable hours to between 7 AM and 7 PM on weekdays for construction, demolition, maintenance, and loading/unloading activities that may impact noise-sensitive land uses.
Action NBE-5.13D	Require proponents of mixed-use projects to notify potential residents that they may be affected by noise from adjacent/nearby commercial, retail, entertainment, and/or circulation components of the project.
Policy NBE-5.14	Vibration Control. Ensure that vibration does not affect quality of life in the community.
Action NBE-5.14A	Update City regulations to establish quantified vibration level limits similar to commonly used guidelines found in the Federal Transit Administration document "Transit Noise and Vibration Impact Assessment" (2006).
Policy NBE-5.15.	Noise Compatibility Standards. Apply the General Plan noise and land use compatibility standards to all new residential, commercial, and mixed-use development and redevelopment.
Action NBE-5.15A	For new single-family residential projects, use a standard of 60 L_{dn} for exterior noise in private use areas, and require appropriate impact mitigation.
Action NBE-5.15D	Require maximum interior noise levels at 45 L_{dn} in all new residential units, and require appropriate impact mitigation.
Action NBE-5.15E	When approving new development, limit project-related noise increases to the following for permanent stationary and transportation-related noise sources: • No more than 10 dB in non-residential areas; • No more than 5 dB in residential areas where the with-project noise level is less than the maximum "normally acceptable" level in the Noise and Land Use Compatibility figure; and • No more than 3 dB where the with-project noise level exceeds the "normally acceptable" level in Noise and Land Use Compatibility figure.
Action NBE-5.15F	Require acoustical studies with appropriate mitigation measures for projects that are likely to be exposed to noise levels that exceed the 'normally acceptable' standard and for any other projects that are likely to generate noise in excess of these standards.

City of Vallejo Municipal Code

Noise standards applicable to the project are found in Municipal Code (VMC) Chapters 7.84, Regulation of Noise Disturbances, 7.90 (Motor Vehicles Operated on Public and Private Property), 12.40 (Excavations, Grading, and Filling), and 16.72 (Performance Standards Regulations).

Performance Standards

VMC Section 16.72.030 sets noise performance standards per zoning district, shown in *Table 4.10-6: Noise Performance Standards*.

Table 4.10-6: Noise Performance Standards

Zoning	Maximum Noise Level in Decibels
Resource Conservation, Rural Residential, and Medical Districts	55
Low, Medium, and High-Density Residential Districts	60
Professional Offices, Neighborhood, Pedestrian, and Waterfront Shopping and Services Districts	70
Freeway Shopping and Service, Linear Commercial and Intensive Use Districts	75

Source: City of Vallejo Municipal Code Section 16.72.030

VMC Section 16.72.040 provides a correction factor of plus 5 dB to the above sound levels for noise emitted between 7 a.m. and 10 p.m. In addition, VMC Section 16.72.050 provides that certain sounds may exceed the above sound levels, including "[s]ounds from transportation equipment used exclusively in the movement of goods and people to and from a given premises, temporary construction or demolition work" as activities that may exceed the maximum sound levels. Therefore, post-construction delivery, construction and demolition activities are exempt from the maximum sound levels in Section 16.72.030, but not the general prohibition on "loud, unnecessary or unusual noise" in Section 7.84.010 (see below).

Excavations, Grading, and Filling

Per VMC Section 12.40.070, all excavation, grading, and filling, that is conducted in residential zones or within 1,000 feet of any residential occupancy, hotel, motel or hospital shall be limited between the hours of 7:00 a.m. and 6:00 p.m.

Regulation of Noise Disturbances

According to VMC Section 7.84.010, General prohibition – loud, unnecessary or unusual noise, it is unlawful to generate noise disturbances which disturb the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standard which may be considered in determining whether a violation of the provisions of this chapter exist may include, but not be limited to, the following:

- The level of noise;
- Whether the nature of the noise is usual or unusual;

- Whether the origin of the noise is natural or unnatural;
- The level and intensity of the background noise, if any;
- The proximity of the noise to residential sleeping facilities;
- The nature and zoning of the area within which the noise emanates;
- The density of the inhabitation of the area within which the noise emanates;
- The time of the day and night the noise occurs;
- The duration of the noise;
- Whether the noise is recurrent, intermittent, or constant; and
- Whether the noise is produced by a commercial or noncommercial activity.

4.10.4 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

Based upon the criteria derived from Appendix G of the CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

- Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generate of excessive groundborne vibration or groundborne noise levels;
- 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.

METHODOLOGY

Construction

The analysis of noise impacts considers the effects of both temporary construction-related noise and operational noise associated with long-term project-related activities, including, without limitation, project-generated traffic. Predicted construction noise levels were based on typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA). Construction noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise.

Operations

Traffic noise impacts are assessed using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108). Model input data includes without- and with-project average daily traffic volumes on adjacent roadway segments, day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. The roadway speeds are based on the posted speed limits observed during site visits. The model analyzed the noise impacts from the nearby roadways onto the project vicinity, which consists of the area that has the potential of being impacted from the on-site noise sources as well as the project-generated traffic on the nearby roadways. The roadway traffic model input assumptions are provided in Appendix G.

Operational noise issues evaluated in this section include vehicle traffic noise and land use compatibility of potential future uses with the City's Compatibility Guidelines as well as stationary source noise (e.g., mechanical equipment, on-site trucks/loading docks, etc.). Traffic noise modeling was completed using the FHWA RD-77-108 model. Traffic noise level significance is determined by comparing the increase in noise levels (traffic contribution only) to increments recognized by Caltrans as representing a perceptible increase in noise levels.

Operational noise is evaluated based on the standards within VMC Sections 12.40.70 and 16.72.030, and General Plan Police NBE-5.15. A significant noise impact would occur if a project results in an exceedance of the noise level standards or the project will result in an increase in ambient noise levels by more than 3 dB, whichever is greater.

4.10.5 PROJECT IMPACTS AND MITIGATION

IMPACT NOI-1	***WOULD THE PROJECT RESULT IN A GENERATION OF A SUBSTANTIAL TEMPORARY OR PERMANENT INCREASE IN AMBIENT NOISE LEVELS IN THE VICINITY OF THE PROJECT IN EXCESS OF STANDARDS ESTABLISHED IN THE LOCAL GENERAL PLAN OR NOISE ORDINANCE, OR APPLICABLE STANDARDS OF OTHER AGENCIES?*** ***(LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED)***

CONSTRUCTION

There are two types of short-term noise impacts associated with construction, noise generated from equipment and increase in traffic flow on local streets. Construction for the proposed project is expected to last approximately three years.

Equipment Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, and helicopters used to lift and place mechanical heating and cooling units on the roof of the proposed Costco building can reach high levels. Noise levels typically attenuate (or drop off) at a rate of 6 dB per doubling of distance from point sources, such as industrial machinery. During construction, exterior noise levels could affect the residential neighborhoods near the construction site. At the nearest, project construction would occur at adjacent to existing single-family residences. It should be noted that only a limited amount of equipment can operate near a given location at a particular time. Equipment typically used during this stage includes heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, and scrapers. During construction, the equipment typically travels around the project site. From the perspective of a sensitive receptor, the equipment approaches, passes by, and then recedes into the distance. Peak noise levels would thus be periodic, intermittent, and temporary during brief pass-by periods when construction equipment operates at the far extent of the grading limits. Construction activities would occur throughout the project site and would not be concentrated at the point closest to the sensitive receptors.

Grading and excavation phases of project construction tend to be the shortest in duration and create the highest construction noise levels due to the operation of heavy equipment required to complete these activities. It should be noted that only a limited amount of equipment can operate near a given location at a particular time. Equipment typically used during this stage includes heavy-duty trucks, backhoes, bulldozers, excavators, front-end loaders, and scrapers. Operating cycles for these types of construction equipment may involve one or two minutes of full-power operation followed by three to four minutes at lower power settings. Other primary sources of noise would be shorter-duration incidents, such as dropping large pieces of equipment or the hydraulic movement of machinery lifts, which would last less than one minute. According to the applicant, no pile-driving would be required during construction.

Construction activities would include site preparation, grading, building construction, paving, and architectural coating. Such activities would require graders, scrapers, and tractors during site preparation; graders, dozers, and tractors during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, mixers, tractors, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. Typical noise levels associated with individual construction equipment are listed in *Table 4.10-7*: *Typical Construction Noise Levels*.

Per VMC Section 12.40.070, all grading that is conducted in residential zones or within 1,000 feet of any residential occupancy, hotel, motel or hospital shall be limited between the hours of 7:00 a.m. and 6:00 p.m. Sensitive receptors near the project site include: residences approximately 15 feet east of the site

and approximately 150 feet south. These distances are from the proposed project site to the sensitive receptor property line. These sensitive uses may be exposed to elevated noise levels during project construction. However, as noted earlier, VMC Section 16.072.050(C) exempts temporary construction and demolition activities from the maximum sound levels established for residential districts. Nevertheless, construction activities would generally be limited to weekday daytime hours when most people would typically be out of their houses, and grading activities would conform to the time-of-day restrictions of VMC Section 12.040.070. Mitigation Measure NOI-1 is required to ensure that grading noise levels do not exceed the City's standards and that time-of-day restrictions are adhered to. In addition, as a standard condition of approval for all discretionary permits, the City applies the time-of-day restrictions for grading activities to all other construction activities. With Implementation of Mitigation Measure NOI-1, construction noise impacts to nearby receptors would be less than significant. Nevertheless, it should be noted that Chapter 16.072.050(C) of the City's Municipal Code identifies temporary construction activities as those activities that may exceed the maximum sound levels established for residential districts.

As noted above and in Chapter 3.0, the project will also require the use of a helicopter to lift and place large Heating Ventilation, and Air Conditioning Units (HVAC) units on the roof of the Costco building. A crane cannot be used for these units due to their weight and distance from the building perimeter. The helicopter will be used on up to two days for up to eight hours per day. The HVAC units will be delivered to the site by truck and the helicopter will be used only to lift the units to their final positions on the roof of the Costco building. The helicopter will not land on the site, but instead will hover above the site for the duration of its project activities, descending and ascending as necessary to lift each HVAC unit. The type of helicopter used for transferring mechanical requirement to the roof of the Costco building would be a utility or "lift" helicopter such as the Kaman K-Max. While suspending a load and hovering 200 feet above the ground, this helicopter produces a noise level of 92 dBA at 100 feet horizontal feet from the ground location below the hover point.[2]

As with other construction activities, the use of a helicopter is not subject to the City's maximum sound levels pursuant to VMC Section 16.072.050.C. In addition, VMC Section 7.84.010 allows a wide variety of factors to be used in determining whether a noise is "loud, unnecessary or unusual", including but not limited to the level and intensity of background noise, the nature and zoning of the area, the time of day, and whether the noise is produced by commercial or noncommercial activity. The use of a helicopter would also not be considered a violation of VMC Section 7.84.010 given the high level of ambient noise at the site (due to the proximity to Interstate 80), the site's commercial zoning and adjacency to a large commercial area, the daytime hours of the helicopter use, and the fact that this is the conventional method for installation of heavy rooftop equipment on commercial buildings of this size. For these reasons, the use of a helicopter would not have a significant noise impact. However, for the comfort and convenience of nearby residents, Mitigation Measure NOI-1 below includes additional time and day restrictions on the use of the helicopter and requires advance notice to properties within 500 feet of the site.

[2] United States Forest Service, 2008. https://www.fs.fed.us/eng/techdev/IM/sound_measure/helo_results.shtml; Accessed January 13, 2020.

Table 4.10-7: Typical Construction Noise Levels

Equipment	Typical Noise Level (dBA) at 50 Feet from Source		Typical Noise Level (dBA) at 100 Feet from Source[1]	
	L_{max}	L_{eq}	L_{max}	L_{eq}
Air Compressor	80	76	74	70
Backhoe/Front End Loader	80	76	74	70
Compactor (Ground)	80	73	74	67
Concrete Mixer Truck	85	81	79	75
Concrete Mixer (Vibratory)	80	73	74	67
Concrete Pump Truck	82	75	76	69
Concrete Saw	90	83	84	77
Crane	85	77	79	71
Dozer/Grader/Excavator/Scraper	85	81	79	75
Drill Rig Truck	84	77	78	71
Generator	82	79	76	73
Gradall	85	81	79	75
Hydraulic Break Ram	90	80	84	74
Jackhammer	85	78	79	72
Mounted Impact Hammer	90	83	84	77
Pavement Scarifier/Roller	85	78	79	72
Paver	85	82	79	76
Pneumatic Tools	85	82	79	76
Pumps	77	74	71	68
Truck (Dump/Flat Bed)	84	80	78	74

1. Calculated using the inverse square law formula for sound attenuation: $dBA_2 = dBA_1 + 20Log(d_1/d_2)$

Where: dBA_2 = estimated noise level at receptor; dBA_1 = reference noise level; d_1 = reference distance; d_2 = receptor location distance

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

Construction Traffic Noise

Construction noise may be generated by large trucks moving materials to and from the project site. Large trucks would be necessary to deliver building materials as well as remove dump materials. Excavation and cut and fill would be required. Soil hauling would not be required as the earthwork would balance on-site. Soil transported from west to east across the site would either occur within the project site or along Turner Parkway, away from sensitive receptors. Based on the California Emissions Estimator Model (CalEEMod) default assumptions for this project, as analyzed in Chapter 4.2, Air Quality, the project would generate the highest number of construction-related daily trips during the building construction phase (i.e., worker and vendor trips that occur while structures are being erected). The model estimates that the project would generate up to 548 worker trips and 215 vendor trips per day. Because of the logarithmic nature of noise levels, a doubling of the traffic volume (assuming that the speed and vehicle

mix do not also change) would result in a noise level increase of 3 dBA. Admiral Callaghan Lane between Columbus Parkway and Auto Club Drive has an average daily trip volume of 20,725 vehicles (Fehr and Peers 2019). Therefore, 291 project construction trips (239 worker trips plus 52 vendor trips) would not double the existing traffic volume of 20,725 vehicles per day. Construction related traffic noise would not be noticeable and would not create a significant noise impact.

California establishes noise limits for vehicles licensed to operate on public roads using a pass-by test procedure. Pass-by noise refers to the noise level produced by an individual vehicle as it travels past a fixed location. The pass-by procedure measures the total noise emissions of a moving vehicle with a microphone. When the vehicle reaches the microphone, the vehicle is at full throttle acceleration at an engine speed calculated for its displacement.

For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dBA. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline. According to the FHWA, dump trucks typically generate noise levels of 77 dBA and flatbed trucks typically generate noise levels of 74 dBA, at a distance of 50 feet from the truck (FHWA, Roadway Construction Noise Model, 2006).

OPERATIONS

Implementation of the proposed project would create new sources of noise in the project vicinity. The major noise sources associated with the project that would potentially impact existing and future nearby residences include the following:

- Off-site traffic noise;
- Mechanical equipment (i.e., trash compactors, air conditioners, etc.);
- Delivery trucks on the project site, and approaching and leaving the loading areas;
- Activities at the loading areas (i.e., maneuvering and idling trucks, loading/unloading, and equipment noise);
- Parking areas (i.e., car door slamming, car radios, engine start-up, maintenance activities, and car pass-by); and
- Landscape maintenance activities.

As discussed above and shown in Figure 3-2 in Chapter 3, Project Description, the closest sensitive receptors are single-family residences adjacent to the east and multi-family residences located approximately 150 feet to the south. The City of Vallejo's stationary source exterior noise standard for residential areas is 60 dBA (Table 4.10-6). The land use compatibility standard for residential areas is also 60 dBA for normally acceptable conditions.

Traffic Noise

Implementation of the project would generate increased traffic volumes along study roadway segments. The project is expected to generate 18,560 average daily trips (11,060 net new trips), which would result in noise increases on project area roadways. In general, a traffic noise increase of less than 3 dBA is barely perceptible to people, while a 5.0 dBA increase is readily noticeable (Caltrans, 2013). Generally, traffic volumes on project area roadways would have to approximately double for the resulting traffic noise levels to increase by 3.0 dBA. Therefore, permanent increases in ambient noise levels of less than 3 dBA are considered to be less than significant.

As shown in *Table 4.10-8: Existing and Project Traffic Noise*, the existing traffic-generated noise level on project area roadways is 64.1 dBA CNEL at 100 feet from the centerline of Admiral Callaghan Lane. As previously described, CNEL is 24-hour average noise level with a 5.0 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10.0 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Traffic noise levels for roadways primarily affected by the project were calculated using the FHWA's Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the project, based on traffic volumes (Fehr and Peers, 2019). As noted in Table 4.10-8, the project would not have a significant impact on existing traffic noise levels. The increase from existing noise levels from Admiral Callaghan Lane near the site is less than 1 dBA interlocutory. The proposed project includes the relocation and construction of a Costco store. The existing Costco store is located in the Gateway Plaza shopping center approximately 0.75-mile northwest of the proposed Costco. Although not a part of the proposed project, the existing Costco store would be closed and the building is assumed to ultimately be re-occupied by a future general commercial retail tenant as allowed under the existing zoning. The building would not be reoccupied until the new Costco store was operational. The vehicle trips from the existing Costco would be removed from area roadways and vehicle trips to the new Costco are considered net new trips. The distribution of vehicle trips is anticipated to change so that there would be fewer trips on certain roadways such as Plaza Drive and Turner Parkway and increased trips on Admiral Callaghan Lane.

Table 4.10-8: Existing and Project Traffic Noise

Roadway Segment	Existing Conditions (Existing Development)		With Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
Admiral Callaghan Lane						
Columbus Pkwy to Auto Club Dr	20,725	64.1	20,267	64.0	-0.1	No
Auto Club Dr to Plaza Dr	17,910	63.3	17,457	63.2	-0.1	No
Plaza Dr to Vallejo Corners	9,405	60.5	13,095	61.9	1.4	No
Vallejo Corners to Target Driveway	11,400	61.3	15,090	62.6	1.2	No

Table 4.10-8: Existing and Project Traffic Noise

Roadway Segment	Existing Conditions (Existing Development)		With Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
Target Driveway to Turner Pkwy	11,520	61.4	15,210	62.6	1.2	No
Turner Pkwy to Rotary Way	16,680	62.9	23,755	64.4	1.5	No
Rotary Way to I-80 Ramps	18,175	63.4	28,945	65.4	2.0	No
Plaza Drive						
Admiral Callaghan Ln to Gateway Plaza	10,620	61.0	9,790	60.7	-0.4	No
Gateway Plaza to Costco Driveway	7,070	59.3	7,472	59.5	0.2	No
Costco Driveway to Turner Pkwy	10,280	60.9	9,360	60.5	-0.4	No
Turner Parkway						
Admiral Callaghan Ln to Plaza Dr	7,500	60.8	7,360	60.7	-0.1	No
Redwood Parkway						
West of Admiral Callaghan Ln	16,140	62.9	17,240	63.2	0.3	No
East of Admiral Callaghan Ln	13,020	61.9	14,120	62.3	0.4	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level
1. Traffic noise levels are at 100 feet from the roadway centerline.
Source: Based on traffic data within the *Transportation Impact Analysis for the Fairview at Northgate*, prepared by Fehr and Peers, 2019.
Refer to Appendix H for traffic noise modeling assumptions and results.

Table 4.10-9: Near-Term and Near-Term With Project Traffic Noise, shows the near-term traffic. As shown in the table, near-term roadway noise levels with project would range from 51.7 to 65.6 dBA. The highest increase in noise levels would occur along Admiral Callaghan Lane between Rotary Avenue and the I-80 Ramps. Noise levels along Admiral Callaghan Lane would increase by 1.9 dBA with the project. This level is below the perceptible noise level change of 3.0 dBA. As discussed above, the proposed project includes a new Costco that is anticipated to indirectly result in the redistribution of trips from the existing Costco in Gateway Plaza. Therefore, fewer trips would occur on certain roadways such as Plaza Drive and Turner Parkway. This redistribution of trips would also affect Admiral Callaghan Lane. Since the noise level increase along the roadways in the project area would not be perceptible, no significant impacts would occur.

Table 4.10-9: Near Term and Near Term With Project Traffic Noise

Roadway Segment	Near Term		With Project		Project Change from Existing Conditions	Significant Impact?
	ADT	dBA CNEL[1]	ADT	dBA CNEL[1]		
Admiral Callaghan Lane						
Columbus Pkwy to Auto Club Dr	21,550	64.2	21,092	64.1	-0.1	No
Auto Club Dr to Plaza Dr	18,550	63.4	18,097	63.3	-0.1	No
Plaza Dr to Vallejo Corners	9,915	60.7	13,605	62.1	1.4	No
Vallejo Corners to Target Driveway	12,080	61.6	15,770	62.7	1.2	No
Target Driveway to Turner Pkwy	12,230	61.6	15,920	62.8	1.1	No
Turner Pkwy to Rotary Way	17,810	63.2	24,885	64.6	1.5	No
Rotary Way to I-80 Ramps	19,735	63.7	30,505	65.6	1.9	No
Plaza Drive						
Admiral Callaghan Ln to Gateway Plaza	10,700	61.1	10,375	60.9	-0.1	No
Gateway Plaza to Costco Driveway	7,600	59.6	8,002	59.8	0.2	No
Costco Driveway to Turner Pkwy	10,900	61.2	10,350	60.9	-0.2	No
Turner Parkway						
Admiral Callaghan Ln to Plaza Dr	7,980	61.1	7,840	61.0	-0.1	No
Redwood Parkway						
West of Admiral Callaghan Ln	17,280	63.2	18,380	63.5	0.3	No
East of Admiral Callaghan Ln	13,770	62.2	14,870	62.5	0.3	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level
1. Traffic noise levels are at 100 feet from the roadway centerline.
Source: Based on traffic data within the *Transportation Impact Analysis for the Fairview at Northgate*, prepared by Fehr and Peers, 2019. Refer to Appendix H for traffic noise modeling assumptions and results.

The project would not result in a doubling of traffic on area roadways. Moreover, project traffic would traverse and disperse over project area roadways, where existing ambient noise levels already exist. Future development associated with the proposed project would result in additional traffic on adjacent roadways, thereby increasing vehicular noise near existing and proposed land uses. However, this level is below the perceptible noise level change of 3.0 dBA. Since the noise level increase along the roadways in the project area would not be perceptible, impacts would be less than significant.

Stationary Noise Sources

Implementation of the proposed project would create new sources of noise in the project vicinity from residential sources, mechanical equipment, truck loading areas, parking lot noise, and landscape maintenance.

Residential Areas

Noise that is typical of high-density residential areas includes group conversations, pet noise, vehicle noise (see discussion below) and general maintenance activities. Noise from residential stationary sources would primarily occur during the "daytime" activity hours of 7:00 a.m. to 10:00 p.m. Furthermore, the residences would be required to comply with the noise standards set forth in the City's General Plan and Municipal Code.

Mechanical Equipment

Regarding mechanical equipment, the proposed project would generate stationary-source noise associated with heating, ventilation, and air conditioning (HVAC) units. Residential HVAC units typically generate noise levels of approximately 55 dBA at 3 feet[3]. The types of HVAC equipment would be consistent with those types used within the surrounding residences. As stated above, the nearest existing sensitive receptor's property lines are adjacent to the residential portion of the project site to the east. As shown on the Plan Development application, HVAC units would be ground-mounted and approximately 15 feet from the property line. The HVAC units would be located within the rear yards, screened from view, and mounted next to the proposed house which would provide some noise shielding as this area is within the property line fences. At this distance, noise levels would attenuate to 41 dBA and would not exceed the City's 60 dBA exterior standard for residential areas.

The nearest existing sensitive receptors south of the project site would be approximately 150 feet south of the proposed commercial area. Mechanical equipment is expected to be roof-mounted for one-story houses, and ground-mounted for two-story houses more than 300 feet from the closest receptors. Conservatively, at 300 feet, commercial mechanical equipment noise levels would be up to 60 dBA at 50 feet and attenuate to 48 dBA based on distance attenuation alone. This noise level is below the City's 60 dBA exterior standard for residential areas and would not be perceptible considering the existing ambient levels of 56 dBA in this area (Table 4.10-6). Mechanical equipment is anticipated to be enclosed and located more than 300 feet from the closest receptors, which would further reduce noise levels. Operation of mechanical equipment would not increase ambient noise levels beyond the acceptable compatible land use noise levels. Therefore, the proposed project would result in a less than significant impact related to stationary noise levels.

Tire Center Noise

The primary perceived source of operational noise from a Costco tire center is from the air wrenches used to loosen and tighten the lug nuts on a tire. However, most stationary source noise performance standards are in terms of a 60-minute energy- average level (Leq) and not for a few seconds of wrench operation. There are also multiple additional service activities that occur at tire centers that can cause short term noise generation (air compressors, tire inflation, on-vehicle tire balancing at a high spin rate, etc.).

[3] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

Additionally, the tire center would receive approximately 2 deliveries per week for new stock and disposing of used tires. Not all activities would occur simultaneously.

The typical Costco tire department layout is for a row of service bays with individual roll-up doors typically facing the parking lot and vehicle staging area. The proposed Costco tire center would have all its service areas located inside the building with the roll-up doors located along the northern facade, such that the nearest residences would have no direct line-of-sight to the actual interior workspaces of the tire department.

Although various noise measurements at tire centers throughout California have shown some variation because of differences in activity, intensity, layout, etc., they tend to cluster in a fairly narrow band. The combination of lug wrench operation plus numerous other noise sources (e.g., car starts, car horn, dropped tools, banging hammer on a stuck brake drum, air compressor, phone ringing, music, etc.) comprise the total noise generation expected from the tire facility associated with the proposed project. A reference noise level of 65 dBA at 50 feet from the tire center facade has been used as a conservative input assumption in other noise analyses for Costco tire center based on a sampling of tire center sound level measurements.[4] The proposed tire center would have roll-up doors facing north, the closest existing noise-sensitive land uses to the north would be approximately 1 mile away and shielded by the intervening commercial development and the Interstate 80/SR 37 Freeway interchange, with no line of sight to the sensitive uses from the tire center interior. The shortest distance from the door of the tire center to the residences to the south is approximately 500 feet and these residences would be shielded by the Costco building. At a distance of 400 feet the noise level from the tire center would be below the City's threshold of 60 dBA. Therefore, potential impacts are considered less than significant.

Loading Area Noise

The proposed project is a mixed-use development with commercial and retail uses that would necessitate occasional truck delivery operations. The primary noise associated with truck deliveries is the arrival and departure of trucks. Normal deliveries typically occur during the hours of 2:00 AM to 10:00 AM. During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting' braking activities; back-up beepers while backing up toward the docks/loading areas; dropping down the dock ramps; and maneuvering away from the docks. The proposed project is not anticipated to require a significant number of truck deliveries. The majority of deliveries for the commercial uses would consist of vendor deliveries in vans and would be somewhat infrequent and irregular. Truck deliveries for the proposed Costco store would be approximately 10 trucks per day. The loading dock area of the proposed Costco store is located approximately 90 feet north of the southern property boundary and approximately 150 feet north of the closest existing multi-family residences. While there would be temporary noise increases during truck maneuvering and engine idling, these impacts would of short duration and infrequent. Typically, heavy truck operations generate a noise level of 68 dBA at a distance of 30 feet. At 150 feet, noise levels would attenuate to 54 dBA, which is below the City's 60 dBA standard for residential areas and below the ambient noise levels from the adjacent

[4] River Crossing Marketplace Specific Plan Draft EIR, dated April 2018. prepared by Placeworks, page 4.10-34.

roadways in this location. Loading area noise levels would be further attenuated by an 8-foot noise wall on the south side of the loading area. The truck ramps that serve Costco warehouse trucks descend approximately 6-8 feet. The noise attenuation wall is located at the same elevation as the parking lot thereby attenuating noise from the loading docks. As noise levels associated with trucks and loading/unloading activities would be below City standards and ambient levels, impacts would be less than significant. Furthermore, as previously discussed, VMC Section 16.072.050(C) identifies "sounds from transportation equipment used exclusively in the movement of goods and people to and from a given premises" as sounds that can exceed the City's noise standard of 60 dBA for the project site.

Gas Station Noise

The proposed gas station is located in the southwestern portion of the site. General gas station operations are expected to have similar sound levels as the parking areas described below. Fuel supply trucks are expected to deliver fuel to the gas station up to 12 times per day during the hours the gas station is in operation from 5 AM to 10:00 PM. Typically, only one truck at a time would be at the gas station. The drive aisles for the gas station are approximately 300 feet from the nearest residence. As discussed above, heavy truck operations generate a noise level of 68 dBA at a distance of 30 feet. At a distance of 300 feet the noise level would attenuate to approximately 51 dBA which is below the City standard of 60 dBA and below the ambient traffic noise levels from the adjacent roadways. As such, potential impacts are less than significant.

Furthermore, gas station deliveries would fall within the sound level exceptions provided in VMC Section 16.072.050(C) which identifies "sounds from transportation equipment used exclusively in the movement of goods and people to and from a given premises" as sounds that can exceed the City's noise standard of 60 dBA for the project site.

Parking Areas

Traffic associated with parking lots is typically not of sufficient volume to exceed community noise standards, which are based on a time-averaged scale such as the CNEL scale. Also, noise would primarily remain on the project site and would be intermittent (during peak-events, e.g., car door slamming, engine starting, etc.). However, the instantaneous maximum sound levels generated by a car door slamming, engine starting up and car pass-bys may be an annoyance to adjacent noise-sensitive receptors. Parking lot noise can also be considered a "stationary" noise source.

The commercial center would have approximately 962 surface parking spaces. The instantaneous maximum sound levels generated by a car door slamming, engine starting up, and car pass-bys range from 60 to 63 dBA at 50 feet and may be an annoyance to adjacent noise-sensitive receptors. Conversations in parking areas may also be an annoyance to adjacent sensitive receptors. Sound levels of speech typically range from 33 dBA at 48 feet for normal speech to 50 dBA at 50 feet for very loud speech. Surface parking lot noise would be partially masked by background noise from traffic along I-80 and Admiral Callaghan Lane. Additionally, the nearest sensitive receptors would be approximately 300 feet south of the surface parking area and parking lot noise would attenuate to 47 dBA at this distance. Therefore, parking lot noise

would not result in substantially greater noise levels than currently exist in the vicinity and would not exceed the City's 60 dBA standard for residential areas. Noise impacts would less than significant.

Landscape Maintenance Activities

Development and operation of the proposed project includes new landscaping that would require periodic maintenance. Noise generated by a gasoline-powered lawnmower is estimated to be approximately 70 dBA at a distance of 5 feet. However, maintenance activities would operate during daytime hours for brief periods of time as allowed by the City's Municipal Code and would not permanently increase ambient noise levels in the project vicinity and would be consistent with landscape maintenance activities that currently occur at the surrounding uses. Therefore, with adherence to the City's Municipal Code, impacts associated with landscape maintenance would be less than significant.

Overall, implementation of MM NOI-1 and adherence to the City's Municipal Code requirements, noise impacts associated with traffic, mechanical equipment, deliveries, loading/unloading activities, and parking lot noise would be reduced to a less than significant level.

Mitigation Measure:

MM NOI-1: **Construction Noise.** Prior to the start of grading, the Construction Manager shall provide evidence acceptable to the City of Vallejo Planning & Development Services Director ("Director"), that:

- Construction activities shall be restricted to day time hours of between 7:00 a.m. and 6:00 p.m. Mondays through Saturdays. No construction activity shall occur on Sundays or federal holidays. The Director shall have authority to grant exceptions from this restriction for the concrete pour of the Costco store and for activities occurring within a fully sealed building envelope.
- Helicopter usage shall be limited to no more than two weekdays between 9 a.m. and 5 p.m. At times when the helicopter is not actively in the process of connecting straps to and lifting and placing HVAC units on the roof of the Costco building, the helicopter shall ascend, as appropriate, to lessen the level of noise. At least 14 days prior to helicopter usage, the construction contractor shall provide written notice of such usage to residents, businesses and owners of property within 500 feet of the project site. The Director shall review and approve such notice prior to distribution.
- Prior to the start of construction activities, the construction contractor shall:
    - Maintain and tune all proposed equipment in accordance with the manufacturer's recommendations to minimize noise emission.
    - Inspect all proposed equipment and should fit all equipment with properly operating mufflers, air intake silencers, and engine shrouds that are no less effective than as originally equipped by the manufacturer.

- Post a sign, clearly visible at the site, with a contact name and telephone number of the City of Vallejo's authorized representative to respond in the event of a noise complaint.
- Place stationary construction equipment and material delivery in loading and unloading areas as far as practicable from the residences.
- Limit unnecessary engine idling to the extent feasible.
- Use smart back-up alarms, which automatically adjust the alarm level based on the background noise level or switch off back-up alarms and replace with human spotters.
- Use low-noise emission equipment.
- Limit use of public address systems.
- Minimize grade surface irregularities on construction sites.

IMPACT NOI-2	***WOULD THE PROJECT RESULT IN GENERATION OF EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

CONSTRUCTION

Increases in groundborne vibration levels attributable to the proposed project would be primarily associated with construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The FTA has published standard vibration velocities for construction equipment operations. In general, depending on the building category of the nearest buildings adjacent to the potential pile driving area, the potential construction vibration damage criteria vary. For example, for a building constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.50 inches per second (in/sec) peak particle velocity (PPV) is considered safe and would not result in any construction vibration damage. The FTA architectural damage criterion for continuous vibrations for non-engineered timber and masonry buildings (i.e., 0.20 inch/second) appears to be conservative, as identified in *Table 4.10-10: Groundborne Vibration Criteria: Architectural Damage*. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction

vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment.

Table 4.10-10: Groundborne Vibration Criteria: Architectural Damage

	Building Category	PPV (in/sec)	L_v (VdB)[1]
I.	Reinforced concrete, steel, or timber (no plaster)	0.5	102
II.	Engineered concrete and masonry (no plaster)	0.3	98
III.	Non-engineered timber and masonry buildings	0.2	94
IV.	Buildings extremely susceptible to vibration damage	0.12	90

1. RMS velocity calculated from vibration level (VdB) using the reference of one micro-inch/second.

Source: City of Vallejo, Propel Vallejo General Plan Update and Sonoma Boulevard Specific Plan Environmental Impact Report, 2016.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. According to the applicant, no pile drivers would be used during construction. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Since there are no established vibration standards in the City's Municipal Code, this evaluation uses the FTA (2018) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for normal buildings. This measurement is also the level at which vibrations may begin to annoy people inside buildings (Caltrans 2013).

Table 4.10-11: Typical Construction Equipment Vibration Levels, identifies vibration levels feet for typical construction equipment. Based on FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction would range from 0.003 to 0.210 inches/second PPV at 25 feet from the source of activity. It is also acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest structure.

The nearest sensitive receptors are approximately 96 feet to the east and 150 feet to the south. Based on typical vibration levels, ground vibration generated by heavy-duty equipment could reach levels of 0.028 inch per second peak particle velocity at 96 feet and 0.014 at 150 feet. The use of construction equipment would not result in a groundborne vibration velocity level above the established threshold of 0.2 inch per second PPV. As a result, impacts associated with excessive groundborne vibration during construction would be less than significant.

Table 4.10-11: Typical Construction Equipment Vibration Levels

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)	Peak Particle Velocity at 96 Feet (inches per second)	Peak Particle Velocity at 150 Feet (inches per second)
Large Bulldozer	0.089	0.0118	0.0061
Caisson Drilling	0.089	0.0118	0.0061
Loaded Trucks	0.076	0.0101	0.0052
Rock Breaker	0.059	0.0078	0.0040
Jackhammer	0.035	0.0047	0.0024
Vibratory Roller	0.210	0.0279	0.0143
Small Bulldozer/Tractor	0.003	0.0004	0.0002

1. Calculated using the following formula: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$, where: PPV (equip) = the peak particle velocity in inch per second of the equipment adjusted for the distance; PPV (ref) = the reference vibration level in inch per second from Table 7-4 of the FTA Transit Noise and Vibration Impact Assessment Guidelines (September 2018); D = the distance from the equipment to the receiver.

OPERATIONS

The proposed project would not generate groundborne vibration that could be felt at surrounding uses. The project would not involve railroads or substantial heavy truck operations, with the exception of delivery vehicles to the project site once facilities are operational. As a result, impacts from vibration associated with project operation would be less than significant.

IMPACT NOI-3	***WOULD THE PROJECT BE 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?*** ***(NO IMPACT)***

Napa County Airport lies approximately six miles northwest of the project site. Other public airport facilities include Buchanan Field Airport in the City of Concord and Sonoma Valley Airport in the City of Sonoma, both approximately 12 miles from the project site. According to the General Plan EIR, no private air facilities such as helipads are within ten miles of the City. Therefore, no impacts would occur.

4.10.6 CONCLUSION

As described above, the proposed project would comply with the noise and vibration standards established in the City of Vallejo General Plan and Noise Ordinance codified in the City's Municipal Code. Implementation of MM NOI-1 would reduce construction noise to a less than significant level. Noise level increases associated with project vehicular traffic would not exceed significance thresholds. The proposed project would introduce new stationary noise sources that would result in small noise level increases proximate to noise-sensitive land uses. However, noise levels from project-related stationary sources would not exceed the City's standards. The proposed project would not generate a temporary or permanent increase in ambient noise levels in excess of City standards. Groundborne vibration impacts would also be less than significant. The project site is located approximately six miles from the nearest public airport and ten miles from the nearest private air facility. Therefore, the project would not expose residents or employees in the area to excessive noise levels due to airstrips or airports. Noise impacts for the proposed project would be less than significant with implementation of MM NOI-1.

4.10.7 CUMULATIVE IMPACTS

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the proposed project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the proposed project to potentially result in cumulative noise impacts.

CONSTRUCTION

The project's construction activities would be less than significant with the implementation of MM NOI-1. Based on the fact that noise dissipates as it travels away from its source, noise impacts from on-site activities and other stationary sources would be limited to the project site and vicinity. The project site is bordered by I-80 to the west, existing residences to the southeast and east, and existing commercial uses to the north and south. Construction activities at other planned and approved projects would be required to take place during daytime hours, and the City and project applicants would be required to evaluate construction noise impacts and implement mitigation, if necessary, to minimize noise impacts. Each project would be required to comply with the applicable City's Municipal Code limitations on allowable hours of construction. Therefore, project construction would not contribute to cumulative impacts and impacts in this regard are not cumulatively considerable.

OPERATIONS

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to buildout of the proposed project and other projects in the vicinity. However, noise from generators and other stationary sources could also generate cumulative noise levels but are not found to be significant.

Stationary Noise

As discussed above, impacts from the project's operations would be less than significant. Due to site distance, intervening land uses, and the fact that noise dissipates as it travels away from its source, noise impacts from on-site activities and other stationary sources would be limited to the project site and vicinity. No known past, present, or reasonably foreseeable projects would compound or increase the operational noise levels generated by the project. Thus, cumulative operational noise impacts from related projects, in conjunction with project-specific noise impacts, would not be cumulatively significant.

Traffic Noise

A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. Cumulative increases in traffic noise levels were estimated by comparing the Existing With Project and Near Term scenarios to existing conditions. The traffic analysis considers cumulative traffic from future growth assumed in the traffic mode, as well as cumulative projects identified by the City of Vallejo.

The following criteria is used to evaluate the combined effect of the cumulative noise increase.

- *Combined Effect.* The cumulative with project noise level ("Cumulative With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use. Although there may be a significant noise increase due to the proposed project in combination with other related projects (combined effects), it must also be demonstrated that the project has an incremental effect. In other words, a significant portion of the noise increase must be due to the proposed project.

The following criteria have been used to evaluate the incremental effect of the cumulative noise increase.

- *Incremental Effects.* The "Cumulative With Project" causes a 1.0 dBA increase in noise over the "Cumulative Without Project" noise level.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed project and growth due to occur in the general area would contribute to cumulative noise impacts. *Table 4.10-12: Cumulative With Project Conditions Predicted Traffic Noise Levels,* identifies the traffic noise effects along roadway segments in the vicinity of the project site for "Existing," "Cumulative Without Project," and "Cumulative With Project," conditions, including incremental and net cumulative impacts.

Table 4.10-12: Cumulative With Project Conditions Predicted Traffic Noise Levels

Roadway Segment	Existing	Cumulative Without Project	Cumulative With Project	Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	dBA @ 100 Ft from Centerline	dBA @ 100 Ft from Centerline	dBA @ 100 Ft from Centerline	dBA Difference: Existing and Cumulative With Project	dBA Difference: Cumulative Without and With Project	
Admiral Callaghan Lane						
Columbus Pkwy to Auto Club Driveway	64.1	64.9	65.2	1.2	0.3	No
Auto Club Dr to Plaza Dr	63.3	64.2	64.5	1.2	0.3	No
Plaza Dr to Vallejo Corners	60.5	61.4	62.6	2.1	1.2	No
Vallejo Corners to Target Driveway	61.3	62.2	63.2	1.9	1.0	No
Target Driveway to Turner Pkwy	61.4	62.3	63.3	1.9	1.0	No
Turner Pkwy to Rotary Way	62.9	63.8	65.3	2.4	1.5	No
Rotary Way to I-80 Ramps	63.4	64.3	66.2	2.8	1.9	No
Plaza Drive						
Admiral Callaghan Ln to Gateway Plaza	61.0	61.7	62.1	1.1	0.4	No
Gateway Plaza to Costco Driveway	59.3	60.2	61.0	1.7	0.8	No
Costco Driveway to Turner Pkwy	60.9	61.8	62.4	1.5	0.6	No
Turner Parkway						
Admiral Callaghan Ln to Plaza Dr	60.8	61.7	62.3	1.5	0.5	No
Redwood Parkway						
West of Admiral Callaghan Ln	62.9	63.9	64.2	1.2	0.3	No
East of Admiral Callaghan Ln	61.9	62.8	63.2	1.3	0.4	No

ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level

1. Traffic noise levels are at 100 feet from the roadway centerline.

Source: Based on traffic data within the *Transportation Impact Analysis for the Fairview at Northgate*, prepared by Fehr and Peers, 2019. Refer to Appendix H for traffic noise modeling assumptions and results.

First, it must be determined whether the "Future With Project" increase above existing conditions (Combined Effects) is exceeded. As indicated in the table, the proposed project has no street segments that exceed combined effects criterion. Next, under the Incremental Effects criteria, cumulative noise impacts are defined by determining if the forecast ambient ("Future Without Project") noise level is increased by 1 dB or more.

The project's contribution to traffic noise is evaluated in Table 4.10-12. As shown in the table, the majority of Admiral Callaghan Lane segments exceed in the incremental effects criterion, but do not exceed the combined effects criterion. As discussed above, the proposed project would increase local noise levels by a maximum of 2.1 dBA CNEL. As the increase is less than 3 dBA, the project's cumulative noise contribution would be less than significant. Based on the significance criteria set forth in this EIR, no roadway segments would result in significant impacts because they would not exceed both the combined or the incremental effects criteria. The proposed project would not result in long-term mobile noise impacts based on project-generated traffic as well as cumulative and incremental noise levels. Therefore, the proposed project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The proposed project's contribution to noise levels would not be cumulatively considerable.

4.10.8 REFERENCES

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California Department of Transportation, *Transportation and Construction-Induced Vibration Guidance Manual*, 2004.

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U.S. EPA, *Protective Noise Levels*, November 1979.

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4.11 ENERGY CONSERVATION

According to State CEQA Guidelines Section 15126.2(b), Section 15126.4 (a)(1)(C), and Appendix F, the goal of conserving energy implies the wise and efficient use of energy including decreasing reliance on natural gas and oil and increasing reliance on renewable energy sources (renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat). The project would be constructed to Title 24 standards, which are designed to reduce energy demand in all new construction.

This section describes the existing setting of the project site as it relates to energy conservation; identifies associated regulatory conditions and requirements; presents the criteria used to evaluate potential impacts related to use of fuel and energy upon implementation of the project; and identifies mitigation measures to reduce or avoid each significant impact.

4.11.1 PROJECT ENERGY CONSUMPTION

Energy consumption is analyzed in this EIR due to the potential direct and indirect environmental impacts associated with the project. This section presents information on the existing energy consumption in the region and project vicinity. The following information serves as the baseline for assessing the project's impacts related to energy conservation.

CALIFORNIA'S ENERGY USE AND SUPPLY

Californians consumed 285,701-gigawatt hours (GWh)[1] of electricity in 2016, which is the most recent year for which data is available. Of this total, Solano County consumed 3,207 GWh.[2] In 2016, the California electricity mix included natural gas (33.67%), coal (4.13%), large hydroelectric plants (14.72%), and nuclear (9.08%). The remaining 29 percent was supplied from renewable resources, such as wind, solar, geothermal, biomass, and small hydroelectric facilities.[3] In 2017, the State consumed 2,110,829 million cubic feet[4] of natural gas.[5]

Energy usage is typically quantified using the British Thermal Unit (BTU). Total energy usage in California was 7,676 trillion BTU in 2015 (the most recent year for which this specific data is available), which equates to an average of 197 million BTU per capita. Of California's total energy usage, the breakdown by sector

[1] A watt hour is a unit of energy equivalent to one watt of power expended for one hour. For example, a typical light bulb is 60 watts, meaning that if it is left on for one hour, 60-watt hours have been used. One kilowatt equals 1,000 watts. The consumption of electrical energy by homes and businesses is usually measured in kilowatt hours (kWh). Some large businesses and institutions also use megawatt hours (MWh), where one MWh equals 1,000 kWh. One gigawatt equals 1,000 megawatts, or 1,000,000 kilowatts. The energy output of large power plants over long periods of time, or the energy consumption of jurisdictions, can be expressed in gigawatt hours (GWh).

[2] California Energy Commission (CEC), *Electricity and Natural Gas Consumption by County,* 2018.

[3] California Energy Commission (CEC), *Energy Almanac, California's Electricity Data*, 2018.

[4] 100 cubic feet (CCF) is approximately the energy equivalent to burning 100 cubic feet of natural gas. 100 CCF of natural gas equals 103,700 a British Thermal Unit (BTU). A BTU is the amount of energy needed to raise the temperature of one pound of water by one-degree Fahrenheit. A kBTU is 1,000 BTUs. A therm is 100,000 BTUs.

[5] U.S. EIA, *California Natural Gas Total Consumption*, 2018.

is 39 percent transportation, 24 percent industrial, 19 percent commercial, and 18 percent residential. Electricity and natural gas in California are generally consumed by stationary users such as residences and commercial and industrial facilities, whereas petroleum consumption is generally accounted for by transportation-related energy use.[6] In 2017, taxable gasoline sales (including aviation gasoline) in California accounted for 15,540,154,774 gallons of gasoline.[7]

In 2002, California established its Renewable Portfolio Standard program[8] with the goal of increasing the annual percentage of renewable energy in the State's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to year 2010 for retail sellers of electricity (*Public Utilities Code* §399.15(b)(1)). Then-Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the California Air Resources Board (CARB) under its Assembly Bill (AB) 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In September 2010, the CARB adopted its Renewable Electricity Standard regulations, which require all of the State's load-serving entities to meet this target. In October 2015, then-Governor Jerry Brown signed into legislation Senate Bill (SB) 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Additional energy efficiency measures beyond the current regulations are needed to meet these goals as well as the AB 32 greenhouse gas (GHG) reduction goal of reducing statewide GHG emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030 (see Chapter 4.6, Greenhouse Gas Emissions, for a discussion of AB 32 and SB 32). Part of the effort in meeting California's long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to one-half of California's electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon.[9]

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[6] EIA (US Energy Information Administration), California State Profile and Energy Estimates, updated April 19, 2018, http://www.eia.gov/state/data.cfm?sid=CA#ConsumptionExpenditures and https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_te.html&sid=US&sid=CA, accessed March 4, 2019.

[7] California Board of Equalization, *Net Taxable Gasoline Sales*, 2016, http://www.cdtfa.ca.gov/taxes-and-fees/MVF_10_Year_Report.pdf, accessed March 4, 2019.

[8] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country.

[9] California Energy Commission (CEC), *Final Integrated Energy Policy Report Update,* 2016.

CURRENT ENERGY PROVIDERS

Electricity Provider

Currently, Pacific Gas and Electric Company (PG&E) provides electricity to Solano County businesses and residents. The PG&E 2016 power mix was as follows: 17 percent natural gas; 24 percent nuclear; 33 percent renewables; 12 percent large hydroelectric; 14 percent unspecified power.[10] As shown in *Table 4.11-1: Electricity Consumption in Solano County 2006-2017*, electricity consumption in Solano County has remained relatively constant between 2006 and 2017.

Table 4.11-1: Electricity Consumption in Solano County 2006-2017

Year	Electricity Consumption (in millions of kilowatt-hours)
2006	3,166
2007	3,341
2008	3,176
2009	3,175
2010	3,064
2011	3,122
2012	3,193
2013	3,229
2014	3,221
2015	3,216
2016	3,207
2017	3,203

Source: CEC, *Electricity Consumption by County,* 2018.
https://ecdms.energy.ca.gov/elecbycounty.aspx

Natural Gas Provider

PG&E operates one of the largest natural gas distribution networks in the country, including 42,141 miles of natural gas transmission and distribution pipelines.[11] In all, PG&E delivers gas to approximately 4.3 million customer accounts in Northern and Central California, including in Solano County. As shown in *Table 4.11-2: Natural Gas Consumption in Solano County 2006-2017*, natural gas consumption in Solano County has remained relatively constant between 2006 and 2017.

Table 4.11-2: Natural Gas Consumption in Solano County 2006-2017

Year	Natural Gas Consumption (in millions of therms)
2006	225
2007	205
2008	239
2009	220

[10] Pacific Gas & Electric (PG&E), *PG&E's 2016 Electric Power Mix Delivered to Retail Customers*, 2018.
[11] Pacific Gas & Electric (PG&E), *Company Profile,* 2018.

Year	Natural Gas Consumption (in millions of therms)
2010	226
2011	210
2012	217
2013	216
2014	229
2015	222
2016	254
2017	228

Source: CEC, *Natural Gas Consumption by County,* 2018.
https://ecdms.energy.ca.gov/gasbycounty.aspx

Transportation Fuel

California's transportation sector uses roughly half of the energy consumed in the State. In 2018, Californians consumed approximately 15.6 billion gallons of gasoline and 3.1 billion gallons of diesel fuel.[12] As shown in *Table 4.11-3: Automotive Fuel Consumption in Solano County 2009-2019*, on-road automotive fuel and heavy-duty diesel fuel consumption in Solano County has remained steady since 2009.

Table 4.11-3: Automotive Fuel Consumption in Solano 2009-2019

Year	Gasoline Fuel Consumption (Gallons)	Heavy-Duty Vehicle/Diesel Fuel Consumption (Gallons)
2009	188,513,362	47,719,882
2010	188,711,624	46,906,128
2011	183,745,173	47,874,745
2012	182,007,071	47,359,062
2013	182,198,737	48,658,392
2014	184,622,481	49,019,991
2015	189,624,741	49,377,350
2016	196,480,312	52,815,728
2017	191,239,545	52,995,438
2018 (projected)	187,821,236	53,175,715
2019 (projected)	184,198,298	53,425,413

Source: California Air Resources Board, EMFAC2017.

4.11.2 REGULATORY SETTING

The following is a description of State and local environmental laws and policies that are relevant to energy conservation. See also Chapter 4.2, Air Quality, Chapter 4.6, Greenhouse Gas Emissions, and

[12] California State Board of Equalization (BOE), *Net Taxable Gasoline Gallons*, 2018 and California State Board of Equalization (BOE), *Taxable Diesel Gallons 10-year Report,* 2018.

Chapter 4.15, Transportation and Circulation, for other policies related to energy use. See Chapter 4.16, Utilities and Service Systems for policies related to water consumption.

FEDERAL

National Energy Conservation Policy Act

The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements.

Energy Policy Act of 2005

The Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary micro-turbine power plants, and solar power equipment.

Energy and Independence Security Act of 2007

The Energy and Independence Security Act of 2007 sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, and reduction in petroleum use and increase in alternative fuel use. This act also amends portions of the National Energy Policy Conservation Act.

STATE

Assembly Bill 32 and Senate Bill 32

California's major initiative for reducing GHG emissions is outlined in AB 32, the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15 percent reduction below 2005 emission levels; the same requirement as under S-3-05) and requires CARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires CARB to adopt regulations to require reporting and verification of statewide GHG emissions. Reductions in overall energy consumption have been implemented to reduce emissions. See Chapter 4.6 (Greenhouse Gas) for a further discussion of AB 32.

In September 2016, the Governor signed into legislation SB 32, which builds on AB 32 and requires the state to cut GHG emissions to 40 percent below 1990 levels by 2030. With SB 32, the Legislature also passed AB 197, which provides additional direction for updating the Scoping Plan to meet the 2030 GHG

reduction target codified in SB 32. CARB has published a draft update to the Scoping Plan and has received public comments on this draft but has not released the final version.

Additional energy efficiency measures beyond the current regulations are needed to meet these goals as well as the AB 32 greenhouse gas (GHG) reduction goal of reducing statewide GHG emissions to 1990 levels by 2020 and the SB 32 goal of 40 percent below 1990 levels by 2030 (see Chapter 4.6, Greenhouse Gas, for a discussion of AB 32 and SB 32). Part of the effort in meeting California's long-term reduction goals include reducing petroleum use in cars and trucks by 50 percent, increasing from one-third to more than one-half of California's electricity derived from renewable sources, doubling the efficiency savings achieved at existing buildings and making heating fuels cleaner; reducing the release of methane, black carbon, and other short-lived climate pollutants, and managing farm and rangelands, forests, and wetlands so they can store carbon.[13]

Building Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in Title 24, Part 6, of the California Code of Regulations, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and take effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 standards.

California Green Building Standards Code

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. CALGreen standards require new residential and commercial buildings to comply with mandatory measures under five topical areas: planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. CALGreen also provides voluntary measures (CALGreen Tier 1 and Tier 2) that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2019 and becomes effective January 1, 2020.

Among the key mandatory provisions are requirements that new buildings:

- Reduce indoor potable water use by at least 20 percent below current standards;
- Recycle or salvage at least 50 percent of construction waste;
- Utilize low VOC-emitting finish materials and flooring systems;
- Install separate water meters tracking non-residential buildings' indoor and outdoor water use;

[13] California Energy Commission (CEC), *Final Integrated Energy Policy Report Update,* 2016.

- Utilize moisture-sensing irrigation systems for larger landscape areas;
- Receive mandatory inspections by local officials of building energy systems, such as heating, ventilation, and air conditioning (HVAC) and mechanical equipment, to verify performance in accordance with specifications in non-residential buildings exceeding 10,000 square feet; and
- Earmark parking for fuel-efficient and carpool vehicles.

2008 California Energy Action Plan Update

The *2008 Energy Action Plan Update* provides a status update to the *2005 Energy Action Plan II,* which is the State of California's principal energy planning and policy document (CPUC and CEC, 2008). The plan continues the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

2006 Appliance Efficiency Regulations

The California Energy Commission adopted Appliance Efficiency Regulations (Title 20, California Code of Regulations §§ 1601 through 1608) on October 11, 2006. The regulations were approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non-federally regulated appliances. While these regulations are now often viewed as "business-as-usual," they exceed the standards imposed by all other states and they reduce GHG emissions by reducing energy demand.

Senate Bill 1078 and 107; Executive Order S-14-08, S-21-09, and SB 2X

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In April 2011, Governor Brown signed SB 2X, which legislated the prior Executive Order S-14-08 renewable standard.

Executive Order B-30-15, Senate Bill 350, and Senate Bill 100

In April 2015, the Governor issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the CEC to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the California Public Utilities Commission (CPUC) to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. In 2018, SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

LOCAL

Propel Vallejo General Plan 2040

The City of Vallejo General Plan lists the following goals and policies related to energy consumption:

Policy NBE-1.15 Energy Efficiency.	Support measures to reduce energy consumption and increase energy efficiency in residential, commercial, industrial, and public buildings.
Action NBE-1.15A	Connect businesses and residents with voluntary programs that provide free or low-cost energy efficiency audits, retrofit installations, rebates, financing and contractors.
Action NBE-1.15B	Participate in regional energy efficiency financing programs such as low-interest revolving loan funds, the California Comprehensive Residential Building Retrofit Program, California First, and the Property Assessed Clean Energy (PACE) program that enable Vallejo property owners to obtain low-interest financing for energy improvements.
Action NBE-1.15C	Consider creating a Residential Energy Conservation Ordinance (RECO) and Commercial Energy Conservation Ordinance (CECO) to require point-of-sale energy audits and retrofits for all buildings that do not meet minimum energy efficiency requirements.

City of Vallejo Municipal Code

Municipal Code Section 12.48.010 adopts the 2016 California Green Building Standards.

4.11.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the *CEQA* Guidelines. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it causes one or more of the following to occur:

- 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 State or local plan for renewable energy or energy efficiency.

The analysis below generally follows Appendix F of the State CEQA Guidelines, which states that the goal of conserving energy implies the wise and efficient use of energy, including decreasing overall per capita energy consumption, decreasing reliance on fossil fuels, and increasing reliance on renewable energy sources. According to Appendix F, the analysis should include a description of energy conservation measures included as part of the project and should consider whether a project would result in inefficient, wasteful and unnecessary consumption of energy.

METHODOLOGY

In determining whether implementation of the project would result in the inefficient, wasteful or unnecessary consumption of fuel or energy, this analysis considers the recommendations of Appendix F (as described above), which states that environmental impact analyses of energy conservation may include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project's life cycle including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials may be discussed.
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.
3. The degree to which the project complies with existing energy standards.
4. The effects of the project on energy resources.
5. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

This section analyzes energy consumption on three sources of energy that are relevant to the project: electricity, natural gas, and transportation fuel for vehicle trips associated with new development, as well as the fuel necessary for project construction. The analysis of project electricity/natural gas usage is based on California Emissions Estimator Model (CalEEMod) modeling, which quantifies energy use for occupancy. The results of the CalEEMod modeling are included in Appendix C (Air Quality and GHG Data)

of this EIR. Modeling related to project energy consumption was based primarily on the default settings in the computer program for Solano County. The amount of operational fuel use was estimated using CalEEMod outputs for the project and CARB's Emissions Factor 2017 (EMFAC2017) computer program for typical daily fuel usage in Solano County. Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. The results of EMFAC2017 modeling and construction fuel estimates are included in Appendix C, *Air Quality and GHG Data*.

4.11.4 ENERGY CONSUMPTION

IMPACT ENG-1	***WOULD THE PROJECT 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)***

CONSTRUCTION (SHORT-TERM)

The energy consumption associated with buildout of the project includes electricity usage associated with water usage for dust control, diesel fuel consumption from on-road hauling trips and off-road construction diesel equipment, and gasoline consumption from on-road worker commute and vendor trips. The methodology for each category is discussed below. This analysis relies on the construction equipment list and operational characteristics, as stated in Chapter 4.2, Air Quality, and Chapter 4.6, Greenhouse Gas Emissions, as well as Appendix C of this Draft EIR. Quantifications of construction energy consumption are provided for the project.

Electricity Usage

Electricity usage associated with water consumption for construction dust control is calculated based on total water consumption and the energy intensity for supply, distribution, and treatment of water. The total number of gallons of water usage is calculated based on acreage disturbed during grading and site preparation, as well as the daily water consumption rate per acre disturbed.

- The total acres disturbed are calculated using the methodology described in Chapter 4.2 of Appendix A of the CalEEMod User's Guide (Grading Equipment Passes).
- The water application rate of 3,020 gallons per acre per day is from Air & Waste Management Association's Air Pollution Engineering Manual.

The energy intensity value is based on the CalEEMod default energy intensity per gallon of water for Solano County. As summarized in *Table 4.11-4: Project Energy Consumption During Construction*, the total electricity consumption associated with water consumption for construction dust control would be approximately 74,820 kWh (74.8 megawatt hours [MWh]) during site preparation and grading of the project.

Table 4.11-4: Project Energy Consumption During Construction

Source	Project Construction Usage	Solano County Annual Energy Consumption	Percentage Increase Countywide
Electricity Use	**Megawatt Hours (MWh)**		
Water Consumption [a]	74.8	3,203,000	0.0023%
Diesel Use	**Gallons**		
On-Road Construction Trips [b]	149,144	52,995,438	0.281%
Off-Road Construction Equipment [c]	187,418		0.354%
Construction Diesel Total	**336,562**		**0.635%**
Gasoline	**Gallons**		
On-Road Construction Trips [b]	117,888	191,239,545	0.062%

Notes:
a. Construction water use estimated based on acres disturbed per day per construction sequencing and estimated water use per acre (AWMA 1992).
b. On-road mobile source fuel use based on vehicle miles traveled (VMT) from CalEEMod and fleet-average fuel consumption in gallons per mile from EMFAC2017 in Solano County.
c. Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry.
Abbreviations:
CalEEMod: California Emission Estimation Model; EMFAC: Emission Factor Model 2017; kWh: kilowatt-hour; MWh: megawatt-hour.
Sources: AWMA, 1992; DOE 2016; USEPA 1996.

Diesel Usage: On-Road Construction Trips

The diesel usage associated with on-road construction mobile trips is calculated based on vehicle miles traveled (VMT) from vehicle trips (i.e., worker, vendor, and hauling), the CalEEMod default diesel fleet percentage, and vehicle fuel efficiency in miles per gallon. VMT for the entire construction period is calculated based on the total daily trips (refer to Chapter 4.6, Greenhouse Gas). Construction fuel consumption was calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 4.11-4, the total diesel consumption associated with on-road construction trips would be approximately 149,144 gallons over the duration of buildout of the project.

Diesel Usage: Off-Road Construction Equipment

The construction diesel usage associated with the off-road construction equipment is calculated based on CalEEMod emissions outputs and conversion ratios from the Climate Registry. As summarized in Table 4.11-4, the total diesel consumption associated with off-road construction equipment is approximately 187,418 gallons for duration of buildout of the project.

Gasoline Usage

Gasoline use associated with on-road construction mobile trips is calculated based on VMT from vehicle trips (i.e., worker, vendor, and hauling); the CalEEMod default gasoline fleet percentage; and vehicle fuel efficiency in miles per gallon using the same methodology as the construction on-road trip diesel usage calculation discussed above. The total gasoline consumption associated with on-road construction trips would be approximately 117,888 gallons over the duration of buildout of the project (Table 4.11-4).

In total, construction of the project is estimated to consume approximately 74,820 kWh (74.8 MWh) of electricity, 336,562 gallons of diesel, and 117,888 gallons of gasoline. As indicated in the environmental setting above, Californians consumed 285,701 GWh of electricity in 2016, of which Solano

County consumed 3,203 GWh. Therefore, construction electricity consumption would represent approximately $2.6x10^{-5}$ percent of the electricity consumption in the State, and 0.0023 percent of the electricity consumption in Solano County.

In 2015, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel. Solano County annual diesel consumption in 2017 was 52,995,438 gallons and gasoline consumption was 191,239,545 gallons. Project construction gasoline consumption would represent 0.062 percent of annual gasoline consumption in the County, and construction diesel consumption would represent 0.635 percent of annual diesel consumption in the County. Therefore, based on the project's relatively low construction fuel use proportional to State and County consumption, the project would not substantially affect existing energy or fuel supplies or resources. New capacity/additional sources of construction fuel are not anticipated to be required.

Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. In addition, some incidental energy conservation would occur during construction through compliance with State requirements that equipment not in use for more than five minutes be turned off. Project construction equipment would also be required to comply with the latest U.S. EPA and CARB engine emissions standards. These engines use highly efficient combustion engines to minimize unnecessary fuel consumption.

The proposed project has construction activities that would consume energy, primarily in the form of diesel fuel (e.g., mobile construction equipment) and electricity (e.g., power tools). Construction activities would be required to monitor air quality emissions using applicable regulatory guidance such as the BAAQMD Rules and CEQA Guidelines. This requirement indirectly relates to construction energy conservation because when air pollutant emissions are reduced as a result of monitoring and the efficient use of equipment and materials, this results in reduced energy consumption. There are no aspects of the proposed project that would foreseeably result in the inefficient, wasteful, or unnecessary consumption of energy during construction activities.

Due to increasing transportation costs and fuel prices, contractors and owners have a strong financial incentive to avoid wasteful, inefficient, and unnecessary consumption of energy during construction. There is growing recognition among developers and retailers that sustainable construction is not prohibitively expensive, and that there is a significant cost-savings potential in green building practices and materials. Substantial reductions in energy inputs for construction materials can be achieved by selecting building materials composed of recycled materials that require substantially less energy to produce than non-recycled materials. The project-related incremental increase in the use of energy bound in construction materials such as asphalt, steel, concrete, pipes, and manufactured or processed materials (e.g., lumber and gas) would not substantially increase demand for energy compared to overall local and regional demand for construction materials. It is reasonable to assume that production of building materials such as concrete, steel, etc., would employ all reasonable energy conservation practices in the interest in minimizing the cost of doing business.

As described above, the project's fuel from the entire construction period would increase fuel use in the County by less than one percent. It should be noted that the CEQA Guideline Appendix G and Appendix F criteria requires the project's effects on local and regional energy supplies and on the requirements for additional capacity to be addressed. A less than one percent increase in construction fuel demand is not anticipated to trigger the need for additional capacity. Additionally, use of construction fuel would be temporary and would cease once the project is fully developed. As such, project construction would have a nominal effect on local and regional energy supplies.

There are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites in the region or State. Therefore, it is expected that construction fuel consumption associated with the project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature. Therefore, potential impacts are considered less than significant.

OPERATIONAL (LONG-TERM)

The energy consumption associated with project operations would occur from building energy (electricity and natural gas) use, water consumption, and transportation-related fuel consumption. The methodology for each category is discussed below. Note that this energy resources analysis is consistent with the analysis presented in Chapter 4.2, Air Quality, and Chapter 4.6, Greenhouse Gas. Quantifications of operational energy consumption are provided for the proposed project.

Transportation Energy Demand

Gasoline and diesel usage associated with on-road vehicular trips were calculated based on total VMT calculated for the analyses within Chapter 4.2, Air Quality, and Chapter 4.6, Greenhouse Gas, and average fuel efficiency from EMFAC2017 model. The EMFAC2017 fuel efficiency data incorporate the Pavley Clean Car Standards and the Advanced Clean Cars Program.[14] As summarized in *Table 4.11-5: Project Annual Energy Consumption During Operations*, the total gasoline and diesel consumption associated with on-road trips would be approximately 307,184 gallons per year and 69,861 gallons per year, respectively.

Table 4.11-5: Project Annual Energy Consumption During Operations

Source	Project Operational Usage	Solano County Annual Energy Consumption	Percentage Increase Countywide
Electricity Use		**Megawatt Hour/Year (MWh/year)**	
Building [a]	2,475	3,203,000	0.0773%
Water [a]	160		0.005%
Total Electricity	**2,635**		0.0823%
Natural Gas Use		**Therms/year**	
Building [a]	57,170	254,000,000	0.023%
Diesel Use		**Gallons/Year**	
Mobile [b]	69,861	52,995,438	0.132%

[14] The California Air Resources Board EMFAC 2017 Technical Documentation (March 2018) notes that emissions are estimated with all current controls active, except Low Carbon Fuel Standards (LCFS). The reason for excluding LCFS is that most of the emissions benefits due to the LCFS come from the production cycle (upstream emissions) of the fuel rather than the combustion cycle (tailpipe). As a result, LCFS is assumed to not have a significant impact on CO_2 emissions from EMFAC's tailpipe emission estimates.

Source	Project Operational Usage	Solano County Annual Energy Consumption	Percentage Increase Countywide
Gasoline Use		**Gallons/Year**	
Mobile [b]	307,184	191,239,545	0.161%

Notes:
a. The electricity, natural gas, and water usage are based on project-specific estimates and CalEEMod defaults.
b. Calculated based on the mobile source fuel use based on vehicle miles traveled (VMT) and fleet-average fuel consumption (in gallons per mile) from EMFAC2017.

Abbreviations: CalEEMod: California Emission Estimation Model; EMFAC2017: California Air Resources Board Emission Factor Model; kBTU: thousand British Thermal Units; kWh: kilowatt-hour; MWh: Megawatt-hour.

Electricity Usage

The electricity usage associated with project operations is based on CalEEMod defaults. As summarized in Table 4.11-5, the single-family residential, retail uses, and parking areas is forecasted to use 2,475 MWh (approximately 2.48 GWh) of electricity per year.

The electricity usage associated with operational water consumption is estimated based on the annual water consumption, and the energy intensity factor is the CalEEMod default energy intensity per gallon of water for Solano County. Project area water use is based on the water demand per square foot factors in CalEEMod. Proposed project land uses would use approximately 34.7 million gallons (20.1 million gallons for indoor uses and 14.6 million gallons for outdoor uses) of water annually which would require 159,810 kWh per year for conveyance and treatment.

Natural Gas Usage

The methodology used to calculate the natural gas usage associated with the building envelopes constructed pursuant to the project is based on CalEEMod default usage rates. As summarized in Table 4.11-5, the building envelope would require 5,716,983 thousand British Thermal Units (kBTU) (57,170 therms) of natural gas per year.

Operation of uses implemented pursuant to the project would annually consume approximately 2.64 GWh of electricity, 5,717 million BTU of natural gas, 69,861 gallons of diesel, and 307,184 gallons of gasoline.

Californians consumed 285,701 GWh of electricity in 2016, of which Solano County consumed 3,203 GWh. The project's operational electricity consumption would represent 0.001 percent of the electricity consumption in the State, and 0.0823 percent of the energy consumption in Solano County. Regarding natural gas, Californians consumed 12,739 million therms (or 1,273.9 billion kBTUs) of natural gas and 254 million therms of natural gas in Solano County in 2016. Therefore, the project's operational natural gas consumption would represent 3.2×10^{-6} percent of the natural gas consumption in the State and 0.023 percent of the natural gas consumption in the County.

In 2015, Californians consumed approximately 15.1 billion gallons of gasoline and 3 billion gallons of diesel fuel. Project operational consumption of gasoline and diesel would represent 0.005 percent of gasoline and 0.006 percent of diesel consumption statewide. Project operational consumption of gasoline and diesel would represent 0.427 percent of gasoline and 0.350 percent of diesel consumption in the County.

Therefore, project operations would not substantially affect existing energy or fuel supplies or resources. The project would comply with applicable energy standards and new capacity would not be required. Impacts would be less than significant in this regard.

Energy Efficiency Measures

As discussed above, California's Energy Efficiency Standards for Residential and Non-residential Buildings create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and non-residential buildings. These standards are incorporated within the California Building Code and are expected to substantially reduce the growth in electricity and natural gas use. For example, requirements for energy-efficient lighting, heating and cooling systems, and green building materials are expected to save additional electricity and natural gas. These savings are cumulative, doubling as years go by.

Furthermore, the electricity provider, PG&E, is subject to California's Renewables Portfolio Standard (RPS). The RPS requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 50 percent of total procurement by 2030. SB 100 revised the goal of the program to achieve the 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045. Renewable energy is generally defined as energy that comes from resources which are naturally replenished within a human timescale such as sunlight, wind, tides, waves, and geothermal heat. As discussed in Chapter 4.6, Greenhouse Gas, Mitigation Measure GHG-10 requires the project applicant to demonstrate that the Costco store has been designed to accommodate rooftop solar panels and that within 4 years of occupancy, the Costco store must install rooftop solar panels or another renewable energy source that generates at least 500,000-kilowatt hours per year.

The project would be required to comply with all federal, State, and local requirements for energy efficiency, including the latest Title 24 standards. The project would not result in the inefficient, wasteful, or unnecessary consumption of building energy. Therefore, potential impacts are considered less than significant.

The project would be required to comply with the latest State Building Code (Title 24, Part 6 of the California Code of Regulations), which further minimize energy consumption towards the California Long-Term Energy Efficiency Strategic Plan's (CEESP) goal to have 100 percent of new homes achieve zero net energy. The current (2016) Building Code approved by the California Energy Commission reduces energy use in new homes by 28 percent compared to the previous (2013) version of the code. As noted above, the 2019 Building Energy Efficiency Standards take effect on January 1, 2020. Under the 2019 standards, homes are expected to use about 53 percent less energy and nonresidential buildings about 30 percent less energy than buildings under the 2016 standards. These efficiency standards are included in the CalEEMod calculations for the project.

Additionally, the California Plumbing and Green Building Codes require water-efficient fixtures that would reduce water consumption and water-related energy use. For example, the code requires automatic irrigation systems utilizing weather and/or soil moisture-based irrigation controllers. The code also requires the installation of high-efficiency toilets (HET) with a maximum of 1.28 gallons per flush, install kitchen faucets, bath faucets, and shower heads that are 20 percent more efficient than typical low-flow plumbing fixtures.

In an effort to reduce energy consumption and promote sustainability, Costco incorporates various energy-saving measures when constructing a new facility. These practices are identified in Chapter 4.6, Greenhouse Gas, of this EIR.

The single-family residential, commercial, and open space uses would serve local community needs by providing a housing source near major roadways such as I-80 and Admiral Callaghan Lane. The project site is located near a major commercial center in the City. Energy would be minimized due to the proposed project's proximity to commercial and office uses which can result in reduced vehicle trips. The site has been designed to provide on-site recreational amenities such as parks and open space. All revegetation and landscaping would comply with the Solano County Landscape Design Guidelines including use of native species, which would minimize landscaping water and reduce water energy consumption.

Considering these requirements in addition to the project design features described above, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Therefore, potential impacts are considered less than significant.

IMPACT ENG-2	***WOULD THE PROJECT CONFLICT WITH OR OBSTRUCT STATE OR LOCAL PLAN FOR RENEWABLE ENERGY OR ENERGY EFFICIENCY?*** ***(LESS THAN SIGNIFICANT IMPACT)***

Project design and operation would comply with State Building Energy Efficiency Standards, appliance efficiency regulations, and green building standards. As discussed above in Impact ENG-1, project development would not cause inefficient, wasteful and unnecessary energy consumption, and impacts would be less than significant. The City of Vallejo adopted a Climate Action Plan (CAP) in 2012 in order to help reduce energy consumption and GHG emissions to become a more sustainable community and to meet the goals of AB 32. The CAP outlines various measures and strategizes numerous methods on how the City's long-term vision can be achieved. A CAP Compliance Checklist completed for the project is included in Appendix C of this EIR. This checklist demonstrates the project's compliance with the City's CAP.

The commercial components of the proposed project would include design features such as pre-manufactured metal wall panels with insulation that carry a higher R-Value and greater solar reflectivity to help conserve energy, reflective cool roof material, high-efficiency restroom fixtures and HVAC units, and reclaim tanks used to capture heat released by refrigeration equipment to heat domestic water rather than releasing outside. Additional energy efficiency and energy saving measures are discussed above in

Impact ENG-1. These measures, in addition to the mitigation measures included in Chapter 4.6, Greenhouse Gas, implement energy-efficient designs and fixtures, incorporate renewable energy into the project, and would reduce overall energy consumption. Therefore, the project is consistent with AB 32, which aims to reduce energy consumption and subsequently decrease emissions statewide to 1990 levels by 2020. As such the project is consistent with regulations such as the State's RPS and Title 24 which are aimed at increasing the use of renewable energy and energy-efficient buildings, respectively. Impacts are considered less than significant.

Bay Area MTC's RTP/SCS Plan Bay Area 2040 integrates transportation, land use and housing to meet GHG reduction targets set by CARB. The most recent plan was adopted in July 2017. Plan Bay Area 2040 establishes GHG emissions goals for automobiles and light-duty trucks for 2020 and 2035 as well as an overall GHG target for the project region consistent with both the target date of AB 32 and the post-2020 GHG reduction goals of EOs 5-03-05, B-30-15, and SB 32. The proposed project is located near major roadways and is proximate to several major employers. Additionally, Mitigation Measure TR-4 (refer to Chapter 4.15, Transportation) requires a new SolTrans pull out. Existing transit stops along Admiral Callaghan Lane and Turner Parkway connect the project site to other parts of the City including downtown Vallejo and the Vallejo Transit Center. Increasing residential land uses near major employment centers is a key strategy for reducing regional VMT. The reduction in VMT would result in a corresponding reduction in transportation fuel consumption. Mitigation measures included in Chapter 4.6, Greenhouse Gas related to reducing travel demand would contribute to a reduction in reducing project VMT and energy consumption. Therefore, the project would be consistent with regional goals to reduce trips and VMT. Potential impacts are considered less than significant, and no mitigation is required.

4.11.5 CUMULATIVE IMPACTS

Construction and operations associated with implementation of the project would result in the consumption of fuel and energy, but it would not do so in a wasteful manner. The consumption of fuel and energy would not be substantial in comparison to statewide electricity, natural gas, gasoline, and diesel demand (Table 4.11-4 and Table 4.11-5). New capacity or supplies of energy resources would not be required. Additionally, the project would be subject to compliance with all federal, State, and local requirements for energy efficiency.

The anticipated project impacts, in conjunction with cumulative development in the area, would increase urbanization and result in increased energy consumption. As noted above, the project would not result in significant energy consumption impacts. The project would not be considered inefficient, wasteful, or unnecessary with regard to energy. No known past, present, or reasonably foreseeable projects would compound or increase the project's energy consumption. Thus, cumulative energy impacts from related projects, in conjunction with project-specific energy consumption, would not be cumulatively significant. Therefore, potential impacts are considered less than significant.

4.11.6 REFERENCES

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4.12 POPULATION AND HOUSING

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting for population and housing. It also identifies potential impacts on population and housing that would result from implementation of the proposed project. The following analysis of the potential environmental impacts related to population and housing is also derived from the following sources:

- Propel Vallejo 2040 General Plan.
- City of Vallejo Housing Element Update (2015-2023).
- Propel Vallejo 2040 General Plan EIR.
- Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), Plan Bay Area.
- David Taussig & Associates, Economic Impact Analysis for Fairview at Northgate.

4.12.1 ENVIRONMENTAL SETTING

POPULATION

Solano County

Solano County has a current population of approximately 439,793 persons (DOF, 2018a). *Table 4.12-1: City of Vallejo Existing and Forecasted Population* shows population numbers for the County, City of Vallejo, and Bay Area as determined by the California Department of Finance (DOF) and ABAG. DOF estimates that the population of Solano County will increase to 511,600 by 2040. As identified in the table, the population in Solano County is forecasted to grow nearly 20 percent between 2015 and 2040. The Bay Area as a whole is expected to experience an approximate 25 percent growth in population.

Table 4.12-1: City of Vallejo and Solano County Existing and Forecasted Population

	2015	2018	2040	2015-2040 Percent Change
Bay Area	7,461,400	7,772,586	9,299,100	24.63%
Solano County	427,148	439,793	511,600	19.77%
City of Vallejo	117,844	119,252	131,800	11.84%

Source: DOF, 2018a; ABAG, 2013; City of Vallejo, 2017

City of Vallejo

As of January 2018, the City of Vallejo has a population of 119,544 (CDOF, 2019) persons representing approximately 27 percent of Solano County's population (DOF, 2018a). The population in Vallejo is expected to increase to 131,800 by 2040 (Table 4.12-1). The City would see a population increase of 12

percent between 2015 and 2040, while the County would experience a 20 percent increase over the same time period.

HOUSING

Solano County

As shown in *Table 4.12-2: Housing Units for City of Vallejo and Solano County*, the County has an estimated 158,786 housing units with an average of 2.88 persons per household (DOF, 2018b). As reported by the DOF, the vacancy rate is a measure of the availability of housing in a community. It also demonstrates how well the types of units available meet the market demand. A low vacancy rate suggests that households may have difficulty finding housing within their price range; a high supply of vacant units may indicate either the existence of a high number of desired units, or an oversupply of units. The vacancy rate for housing in Solano County is estimated to be 6.4 percent (DOF, 2018b).

City of Vallejo

According to the DOF, the City of Vallejo had approximately 44,725 housing units with an average of 2.88 persons per household in 2018 (DOF, 2018b). The vacancy rate of the City is higher than that of Solano County.

Table 4.12-2: Housing Units for City of Vallejo and Solano County

	2018	Persons per Household	Vacancy Rate
Bay Area	2,685,303	2.75	6.1%
Solano County	158,786	2.88	6.4%
City of Vallejo	44,725	2.88	8.7%

Source: DOF, 2018b; ABAG, 2013

The ABAG determines the regional housing needs allocation (RHNA) by income category for each community patterns, types and tenure of housing needs, and others. The City's allocation is shown in *Table 4.12-3: Regional Housing Needs Allocation 2014-2022 (Housing Units)*. The City is required to ensure that sufficient sites that are planned and zoned for housing are available to accommodate its need and to implement proactive programs that facilitate and encourage the production of housing commensurate with its housing needs. The extremely low income and very low-income need are approximately 35 percent of the total RHNA allocation.

Table 4.12-3: Regional Housing Needs Allocation 2014-2022 (Housing Units)

	Very Low 0 to 50%	Low 51 to 80%	Moderate 81% to 120%	Above Moderate 120% or more	Total
City of Vallejo	283	178	211	690	1,362

Source: ABAG, 2014-2022 RHNA Plan
Note: According to the 2015-2013 City of Vallejo Housing Element, income levels are as follows: Very Low – up to $29,186; Low - $29,186 to $46,697; Moderate - $46,697 to $70,045; Above Moderate - $70,045 and above.

EMPLOYMENT

Jobs and Employed Residents

In ABAG's Projections 2013, the City of Vallejo's jobs growth projections are projected to line up with the County's jobs growth projections by approximately 26 percent. There were 34,230 jobs in the Vallejo as shown in *Table 4.12-4: City of Vallejo and Solano County – Jobs, 2015 and 2040. T*he Bay Area jobs growth projection as a whole is expected to increase by approximately 23 percent. Table 4.12-4 shows the jobs projections for Vallejo, Solano County, and the Bay Area region.

Table 4.12-4: City of Vallejo and Solano County – Jobs, 2015 and 2040

	2015	2040	2015-2040 Percent Change
City of Vallejo	34,230	43,070	25.8
Solano County	143,130	179,910	25.8
Bay Area	3,669,990	4,505,230	22.8

Source: ABAG, 2013

Jobs-Housing Balance

The ratio of jobs to housing balance is calculated by dividing the number of jobs in the community by the number of households in the same area. This ratio demonstrates the balance of jobs and housing within a community. If the jobs-employed ratio is greater than 1.0, then more workers enter a community than residents leave a community each workday. If the jobs-employed ratio is less than 1.0, then more residents commute outside of a community than workers enter the community each day. In 2015, Vallejo's jobs/housing ratio was 0.83 (34,230 jobs/40,879 households). ABAG's Projections 2013 estimated that the Bay Area region as a whole had approximately 1.35 jobs per household in 2015. This demonstrates that the City has a smaller proportion of jobs per household than the region as a whole, indicating an imbalance of land uses in the City, such that a larger proportion of residents work outside of Vallejo (City of Vallejo, 2016). A jobs-employed resident imbalance can be problematic because it results in longer commutes as residents' travel to other more distant locales for employment.

Table 4.12-5: City of Vallejo and Solano County – Jobs and Employed Residents, 2015 shows the ratio of jobs to employed residents is 0.66 in the City of Vallejo. This is lower than the ratio of jobs to employed residents for Solano County.

Table 4.12-5: City of Vallejo and Solano County— Jobs and Employed Residents, 2015

	Jobs	Employed Residents (2015)	Ratio
City of Vallejo	34,230	52,120	0.66
Solano County	143,130	193,010	0.74

Source: ABAG, 2013

4.12.2 REGULATORY SETTING

FEDERAL

There are no federal regulations for population and housing that would be applicable to the proposed project.

STATE

Association of Bay Area Governments (ABAG) Projections 2013

ABAG is the official comprehensive regional planning agency for the San Francisco Bay area, which is composed of nine counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. ABAG produces growth forecasts on 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 forecast to make funding and regulatory decisions. ABAG projections are also the basis for the Regional Transportation Plan (RTP) and regional Ozone Attainment Plan. The general plans, zoning regulations, and growth management programs of local jurisdictions inform the ABAG projections. The ABAG 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 greater development and redevelopment in urban core and transit-accessible areas throughout the ABAG region.

In July 2017, ABAG and the MTC adopted Plan Bay Area 2040 and its associated EIR. This second regional housing and transportation plan is a long-range blueprint to guide transportation investments and land-use decisions through 2040, while meeting the requirements of Senate Bill (SB) 375, which calls on each of the State's 18 metropolitan areas to develop a Sustainable Communities Strategy (SCS) to accommodate future population growth and reduce GHG emissions from cars and light trucks.

The Action Plan portion of Plan Bay Area 2040 also focuses on economic development, particularly improving transportation access to jobs, increasing middle-wage job creation and maintaining the region's infrastructure. Another focus of the Action Plan is resilience in terms of enhancing climate protection and adaptation efforts, strengthening open space protections, creating healthy and safe communities, and protecting communities against natural hazards.

Regional Housing Needs Allocation

Regional Housing Need Allocation (RHNA) is the State-mandated process to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate in its General Plan Housing Element. As part of this process, the California Department of Housing and Community Development (HCD) identifies statewide housing needs and assigns the County a share in a manner that is consistent with the development pattern included in the SCS of the 2014 RTP that was adopted in June 2014.

The RHNA for the 2015-2023 planning period is organized into housing needs for various income levels. Table 4.12-3 shows Vallejo's RHNA allocation. ABAG estimated the RHNA for Vallejo to be 1,362 units for the Housing Element 5th cycle.

California Housing Element Law

State law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the State level, HCD estimates the relative share of California's projected population growth that could occur in each county in the State based on DOF population projections and historic growth trends. HCD oversees the process to ensure that the council of governments distribute its share of the State's projected housing need, also known as RHNA.

Each city and county must update Its General Plan Housing Element on a regular basis. Among other things, including incorporating policies, the Housing Element must identify potential sites that could accommodate a city's share of the regional housing needs, its RHNA allocation. Before adopting an update to its Housing Element, the city or county must submit a draft to the HCD for review. HCD advises the local jurisdiction as to whether its Housing Element complies with the provisions of California Housing Element law (California Government Code Sections 65580–65589.8).

Plan Bay Area, Strategy for a Sustainable Region

Plan Bay Area, the region's SCS, was adopted on July 18, 2013. This strategy was based on a set of projections published as *Projections 2013*. The SCS sets a development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies would reduce GHG emissions from transportation (excluding goods movement) beyond the per capita reduction targets identified by California Air Resources Board (CARB). Implementation of Plan Bay Area would achieve a 16 percent per capita reduction of GHG emissions by 2035 and a 10 percent per capita reduction by 2020 from 2005 conditions (ABAG, 2017).

LOCAL REGULATIONS

City of Vallejo 2015-2023 Housing Element

The City of Vallejo's General Plan Housing Element was adopted in May 2015 and certified by HCD. As mandated by State law, the Housing Element contains a Housing Needs Assessment that evaluates local conditions and needs regarding housing demand, supply, and affordability. The Housing Element includes a Housing Needs Assessment that indicates current and projected housing needs of across income categories and shows capacity with appropriately zoned land for its RHNA. Vallejo's RHNA target for the planning period January 31, 2015 to January 31, 2023 for each of the four household income groups is: very low-income (283 units), low-income (178 units), moderate-income (211 units), and above moderate-income (690 units). Through calendar year 2018, the City has produced 146 units (10.7 percent) toward its total RHNA of 1,362 units.

Based on the Housing Needs Assessment, Housing Element law requires that cities establish a set of Goals, Policies, and Objectives regarding housing in the local community and the programs and activities the city will implement to achieve its goals. The Housing Element contains goals, policies, and strategies to guide future residential development, as well as to preserve and enhance existing residential areas in Vallejo. Relevant policies related to population and housing in Vallejo are listed below.

Policy NBE-2.7	Jobs-Housing Balance. Match the levels of employment and housing opportunities locally.
Action NBA-2.7A	Update City regulations to ensure housing opportunities are in close proximity to employment centers and transit, including near the Ferry Terminal and Vallejo Transit Station.
Policy EET-1.13	Data and Information Systems. Invest in data and mapping capabilities to realize sustainable economic development and evaluate potential environmental impacts.
Action EET-1.13B	Partner with SolTrans and WETA to collect and analyze data that assist in making strategic land use and economic development decisions, including origin and destination studies, transit ridership projections, and supporting data to determine appropriate jobs-to-housing ratio and level of retail services.
Goal A	Facilitate production of housing to accommodate Vallejo's fair share of the regional housing demand.
Policy A.1	The City of Vallejo strives to provide opportunities for the development of new housing adequate to meet its share of the increasing regional demand from households at all income levels.
Policy A.2	Convert vacant infill land and surplus, vacant nonresidential properties to housing and mixed-use where feasible, economically desirable, and compatible.
Policy B.1	The City of Vallejo strives to increase the range of housing opportunities for all residents, including those unable to afford market-rate housing within the community.
Goal F	Provide housing choice for Vallejo residents.
Policy G.1	The City of Vallejo will undertake a range of efforts to assist the private sector in maintaining and improving the condition of existing housing units and also to maintain and improve the living environments within the City's neighborhoods.
Policy H.3	Protect the character of the existing neighborhoods by preserving the existing lot sizes and requiring infill projects to be compatible with the existing neighborhoods.
Goal I	Promote energy efficiency.

Policy I.1	The City of Vallejo will promote energy efficiency in residential development within the City, including reduction of energy use through better design and construction in individual homes and also through energy-efficient urban design.

4.12.3 STANDARDS OF SIGNIFICANCE

The following criteria, included in Appendix G of the State CEQA Guidelines, will be used to determine the significance of potential population and housing impacts. Impacts to population and housing would be significant if the proposed project would:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

4.12.4 PROJECT IMPACTS AND MITIGATION

Research was conducted on demographic and housing conditions using existing documents and other information sources. The potential impacts of the proposed project were evaluated by comparing the anticipated project effects on population and housing with existing conditions. In accordance with CEQA, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. Population and housing impacts are analyzed below according to topic discussion required by CEQA.

IMPACT POP-1	***WOULD THE PROPOSED PROJECT, INDUCE SUBSTANTIAL UNPLANNED POPULATION GROWTH IN AN AREA, EITHER DIRECTLY (FOR EXAMPLE, BY PROPOSING NEW HOMES AND BUSINESSES) OR INDIRECTLY (FOR EXAMPLE, THROUGH EXTENSION OF ROADS OR OTHER INFRASTRUCTURE)?*** ***(LESS THAN SIGNIFICANT)***

The proposed project would result in an increase in population associated with 178 single-family residences on a site identified in the City's Housing Element for residential development. The commercial component of the project proposes a commercial center with 179,688 sf of commercial building area on 21.8 acres similarly on a site identified in the City's general plan for commercial development. These commercial businesses are expected to generate 92 new jobs to the City. The existing Costco employs approximately 270 employees. Due to the proximate location, current employees of Costco are anticipated to work at the new site. The new site is larger, with 26,701 additional square feet and is anticipated to have 330 employees. This would be an increase of approximately 60 employees. The proposed commercial uses, excluding Costco, with 27,550 new square feet are anticipated to generate

approximately 32 new permanent employees. Taken in sum, the proposed project would result in approximately 92 new permanent jobs once construction is completed.

It should be noted that Costco's starting wage for its U.S. employees is $14.50 an hour but based on the total number of U.S. employees, the average hourly wage is $22.50 an hour. Costco's employees also have access to health insurance benefits, for which the company covers 90 percent of the annual costs (Seattle Times, 2018). While it is not possible to know the exact numbers, the salary and benefits package offered by Costco is anticipated to encourage local residents to apply for and accept positions with Costco. Other employees are anticipated to commute to the store from the surrounding areas and another group could relocate to the City for the job opportunity. The potential employees who would relocated would slightly increase the demand for housing. The numbers related to employment are shown in *Table 4.12-6: Net Employment of Proposed Project,* below.[1]

Table 4.12-6: Net Employment of Proposed Project

Category	Square Feet (sf)	Existing Employment	Anticipated Employment	Increased Employment
Costco	152,138	270[1]	330[1]	60
Other Commercial[2]	27,550	0	32[3]	32
Total	**179,688**	**309**	**--**	**92**

Source: DTA, 2018
Notes:
[1] Information provided by Costco via personal communication.
[2] Other Commercial includes the proposed Commercial Center, which contains the 4 separate buildings.
[3] Assumes 860 square feet per retail worker.

The project proposes 178 single-family detached units. According to the DOF, the average household has 2.88 persons per unit (DOF, 2018). Therefore, the proposed project is estimated to add 513 new residents. As shown in *Table 4.12-7: Additional Population Generated by Project*, 513 new residents represent a 0.43 percent increase in the City's 2018 population. This is a negligible increase to the City's population and would be well within the range of population growth forecasted by ABAG, which is 131,800 by 2040. Therefore, the proposed project's growth would be consistent with ABAG's projections for the City.

Table 4.12-7: Additional Population Generated by Project

Vallejo Current Population	Population Generated by Residential Project Compoent[1]	Percent of Total Population
119,252	513	0.43%

Source: DOF, 2018; ABAG, 2013
Note:
[1] Based on 2.88 people per unit from DOF Table E-5, 2018

As discussed above, the proposed project would provide 178 new housing units and result in direct population growth. In addition, it is anticipated that the proposed project would directly increase in

[1] While not a part of the project, the analysis in this EIR assumes that the existing Costco building will be re-occupied with a general commercial retail use as allowed under the current zoning. At a rate of 860 square feet per retail employee the existing building of approximately 125,000 square feet would result in 145 employees (125,000 square feet/860 square feet per employee = 145 employees)

employment opportunities and indirectly induce a small number of people to move into the city for the jobs and thereby increase the local population. However, this increase is anticipated to be incrementally small compared to the overall population in the City. In addition, the proposed project would generate new employment opportunities and would be consistent with the City's jobs and housing goals. The City of Vallejo Housing element notes that this balance is a high priority and the City Vallejo has a high proportion of older rental housing stock. The proposed project would provide 178 new homes toward the City's obligation of 1,362 units for the Housing Element cycle 2015-2023. In addition to the housing units, the proposed project would create 92 new jobs from the commercial uses. While the proposed project would result in more new residents than jobs, the proposed project would not substantially affect the City's jobs-housing balance. For these reasons, impacts associated with increased population growth in this regard would be less than significant and no mitigation measures are required.

IMPACT POP-2	***WOULD THE PROPOSED PROJECT, DISPLACE SUBSTANTIAL NUMBERS OF EXISTING PEOPLE OR HOUSING, NECESSITATING THE CONSTRUCTION OF REPLACEMENT HOUSING ELSEWHERE?*** ***(NO IMPACT)***

The project site is currently vacant and undeveloped. The project site does not include any existing housing and therefore would not displace housing or people. Implementation of the proposed project would not displace any people, nor would it require the construction of replacement housing elsewhere. As a result, no impacts would occur.

4.12.5 CONCLUSION

Implementation of the proposed project would not induce substantial unplanned population growth because the proposed project includes a mixture of commercial and residential uses which are each consistent with and anticipated development in the City's general plan and housing element. The proposed project's growth would be consistent with ABAG's projections for the City. For these reasons, impacts associated with increased population growth would be less than significant and no mitigation measures are required. In addition, the proposed project would not displace substantial people or require construction of replacement housing because the project site is currently vacant.

4.12.6 CUMULATIVE IMPACTS

The project is consistent with the planned land uses in the City's Propel Vallejo 2040 General Plan and the population and employment projections in ABAG's Plan Bay Area. Impacts from cumulative growth are considered in the context of their consistency with regional planning efforts. The proposed project is expected to generate 513 total residents and a total of approximately 92 new jobs. Additionally, the re-use of the existing Costco building would result in approximately 145 new general commercial retail jobs which are anticipated to be filled by existing residents from the surrounding area. The proposed project would not require any replacement housing or displace any existing residents. The proposed project is

consistent with the General Plan which guides the development of housing and business opportunities in the City. No cumulative impacts related to displacement would occur.

The City of Vallejo is anticipated to have an approximate population of 131,800 by 2040. The proposed project represents less than one percent of this total (Table 4.12-1). ABAG projects that Solano County's population will increase from 427,300 people in 2015 to 511,600 people in 2040, and the nine-county Bay Area as a whole is projected to increase from 7,461,400 people to 9,299,100 people in the same period, an increase of over 1.8 million. Within this planning context in terms of both local and regional population growth, the increase created by the proposed project would not be cumulatively considerable. Further, the proposed project would not induce population growth that has not been planned and it would not result in an exceedance of ABAG projections for Vallejo. Therefore, the proposed project would not cause a cumulatively considerable impact on population and housing and no mitigation is required.

4.12.7 REFERENCES

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4.13 PUBLIC SERVICES

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting for public services that would be provided to the proposed project. It also describes the impacts on existing public services that would result from implementation of the proposed project and mitigation measures that would reduce these impacts, if necessary. The following analysis of the potential environmental impacts related to utilities and service systems is also derived from the following sources:

- Available literature and other publicly available information from affected agencies.
- Propel Vallejo 2040 General Plan.
- City of Vallejo Code of Ordinances.
- Correspondence with affected Public Services districts.

The potential impacts on public services were evaluated based, in part, on correspondence with the local service agencies that serve the project area. This section provides baseline information on and evaluates potential impacts on public services and policies related to the proposed project. Environmental and regulatory settings and mitigation measures to reduce significant impacts, where applicable, are provided.

4.13.1 ENVIRONMENTAL SETTING

The proposed project is located in the City of Vallejo (City), which is within the western portion of Solano County. Vallejo is the largest city in Solano County and the tenth-largest in the Bay Area. The County is bounded by Napa County on the west and north, Yolo County to the north and east, Sacramento County to the east and Contra Costa to the south. The City encompasses an area of approximately 50 square miles. On the west, the City is framed and characterized by its boundary with San Pablo Bay and the Napa/Sonoma Marshes, which is a northern reach of the San Francisco Bay. To the south, the City is bounded by the Carquinez Strait, and unincorporated Solano County open space lands to the northeast.

Within the City, emergency services are provided by the City of Vallejo Fire Department (VFD) and City of Vallejo Police Department (CVPD). School services are provided by the Vallejo City Unified School District, and library services are provided by the Solano County Library (SCL). A more detailed description of each of these services, where applicable, including locations, service areas and service ratios, response times, and other information is provided below.

City of Vallejo Fire Department (VFD)

The City of Vallejo Fire Department (VFD) provides service to the City of Vallejo. Services provided by VFD include fire suppression, emergency medical services (EMS), emergency response, and a range of non-emergency services, including public education, fire prevention programs, and permit inspection services. The VFD also participates in countywide and Statewide Mutual Aid Programs with fire agencies in Solano County, Napa County, and Contra Costa County (VFD, 2019).

The VFD operates out of six fire Station 3. All fire stations, with the exception of Station 21, house an engine company and three firefighters on each shift. Station 21 operates with a truck company, three firefighters and a 110-foot ladder truck on each shift. The Battalion chief's office is located at Station 21. The Department's Administrative Offices and Fire Prevention are located at 970 Nimitz Avenue. *Table 4.13-1: Fire Station Locations and Distance*, shows the location and approximate distance each fire is from the project site, and **Figure 4.13-1: Public Safety Facilities**, shows the locations graphically. Station 27 would have the primary response responsibility to the project site with the rotation continuing to Stations 23, 24, and 25, as needed.

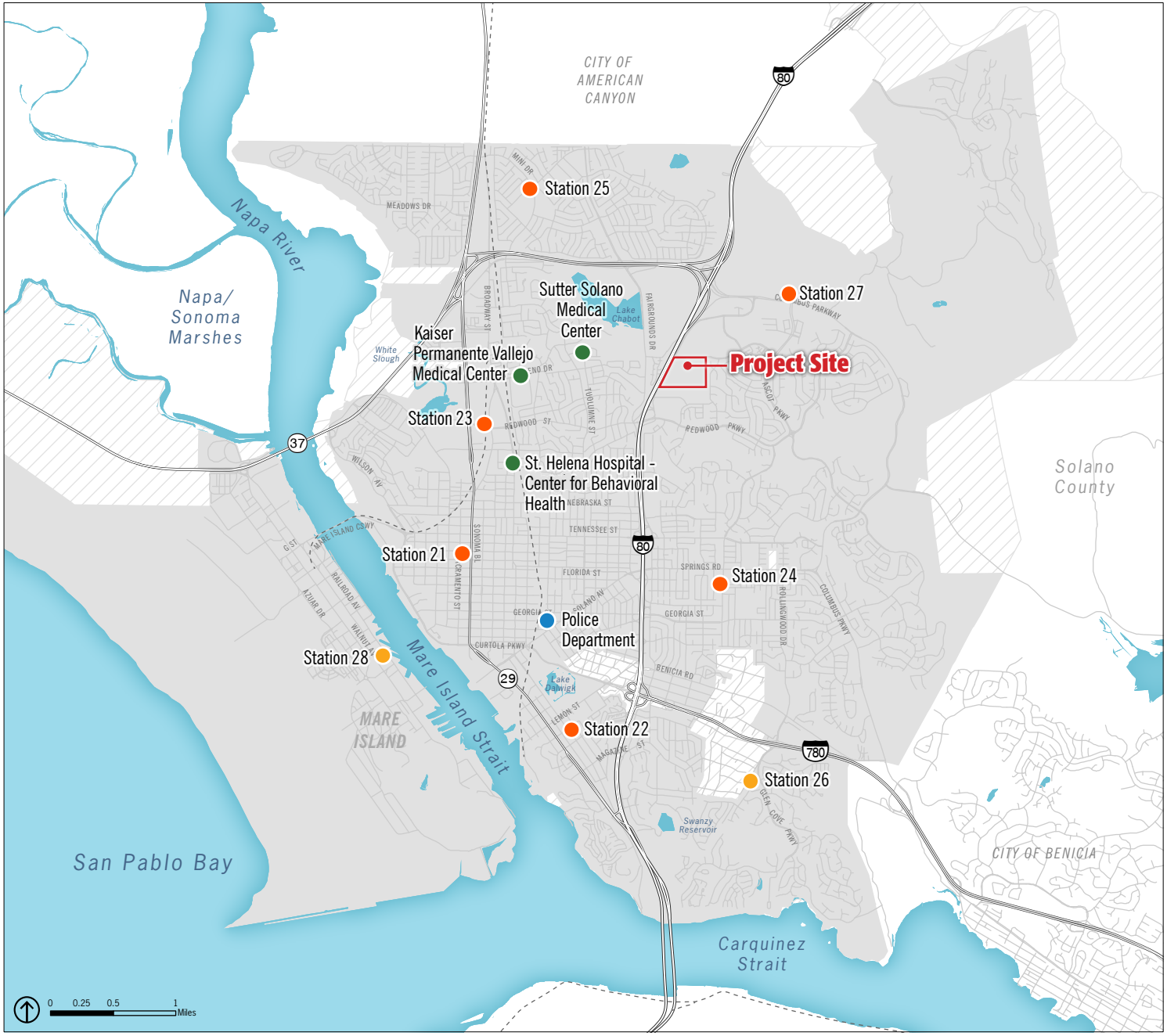
Table 4.13-1: Fire Station Locations and Distance

Fire Station	Location	Distance from Project Site	Equipment
Station 27	1585 Ascot Circle	0.95 miles	Engine
Station 24	1005 Oakwood Avenue	1.7 miles	Engine
Station 25	595 Mini Drive	1.8	Engine
Station 23	900 Redwood Street	1.45 miles	Engine
Station 21	1220 Marin Street	2.10 miles	Ladder Truck
Station 22	700 5th Street	2.8 miles	Engine
Source: City of Vallejo Fire Department Website, 2018			

Current VFD staffing in the Fire Suppression Division consists of 76 firefighters, firefighter paramedics, engineers, captains, and battalion chiefs. The staff is dispersed across three different shifts in the six stations to ensure coverage 24 hours a day, 7 days a week (Sproete, 2019). The division of stations, personnel and equipment levels allow for simultaneous dispatch of up to three engines, one truck, one paramedic unit and the Battalion Chief to calls. All engines are Class A pumpers capable of pumping 1,500 gallons of water per minute. Other emergency vehicles available to combat fire include a wildland fire truck (City of Vallejo, 2017).

From 2008 to 2017, the yearly emergency calls for service within the City rose from 11,739 to 14,389, an increase of 2,650 over the approximate 10-year period (City of Vallejo, 2017). Based on the current population of the City, 119,252 (DOF, 2018), this is approximately .12 calls per person, or one call per every 8 people.

National Fire Protection Association (NFPA) best practice guidelines recommend that the first responding unit arrive at the scene of a structural fire within 7 minutes, 90 percent of the time, and that the balance of the units arrive within 11 minutes of call receipt, 90 percent of the time (City of Vallejo, 2017). The City has established a required response time for requests for emergency services. The response time for the first company to arrive on scene is approximately 6-7 minutes after the first alarm. For a fire, the response time for a total complement of 3 engines, 1 ladder truck, one Battalion Chief and one Ambulance would be approximately 11 minutes. Currently, the VFD average response time to a typical call is approximately 5.65 minutes, which is within an acceptable range (Sproete, 2019).



Public Safety Facilities

- Police Station
- Fire Station
- Closed Fire Station
- Hospital

- Vallejo City Limit
- Sphere of Influence (SOI)
- Railroad

Source: City of Vallejo, 2017

FIGURE 4.13-1: Public Safety Facilities
Fairview at Northgate Project

Not to scale

Kimley»Horn

For major incidents, the City has an Automatic Aid Agreement with the cities of Benicia and American Canyon, and a Master Mutual Air plan with Solano County. These programs help ensure that coverage and emergency services can be maintained for all local as well as area residents.

City of Vallejo Police Department

Law enforcement services to the proposed project would be provided by the Vallejo Police Department (VPD). VPD provides police protection services for Vallejo's 53 square miles in the incorporated City limits. VPD serves a population of approximately 119,544 people (CDOF, 2019). In 2014 according to the City General Plan EIR, VPD operated with 101 sworn officers. This number had grown to 109 officers in December of 2017. The number of sworn personnel currently is 106, but VPD is funded for a total of 123 officers. Based on the current 106 sworn personnel, VPD maintains approximately 1.12 officers per 1,000 population[1].

VPD operates out of the Vallejo Police Station, located at 111 Amador Street. The police station provides office space for administrative and operational staff, in addition to four holding cells with audio/video surveillance that is monitored by the department dispatch center. VPD is organized into eight units providing field operations and support services and includes Records; Communications and Dispatch; Patrol; Detectives; Traffic; Management Support; Community Services Section; and Code Enforcement. VPD's Community Services Section (CSS) operates out of a separate facility located at 2 Florida Street and addresses quality of life crimes in the city and provides assistance and support to Neighborhood Watch groups as well as public education and outreach services in the community (VPD, 2018).

The City of Vallejo does not have an established response time goal. Instead, incoming calls are prioritized and responded to according to level of urgency. Priority 1 calls involve people at risk of immediate danger, injury, or loss of life, and Priority 2 calls require an immediate response to prevent a situation from escalating to a Priority 1. Response times for lower priority service requests can vary considerably depending upon the time of day, day of week, and call volume.

Vallejo City Unified School District (VCUSD)

The proposed project is within the VCUSD. The VCUSD is a medium-sized TK-12 school district serving approximately 14,000 students. VCUSD serves students with 13 elementary (K-5) schools (including one charter school), three middle schools serving grades 6-8, two comprehensive high schools, a continuation school, a community day school, and a non-traditional school which provides support to families who choose an independent study/home study option. In addition, the VCUSD has an extensive child development and preschool program and an adult school which serves 4,000 adults (VCUSD, 2019). **Figure 4.13-2: Parks and Schools**, shows the schools that would serve the proposed project.

[1] T. Incarnacion, Vallejo Police Department, personal communication, July 2019.

Parks and Schools

- Parks
- Schools
- Planned Parks
- Vallejo City Limit
- Sphere of Influence (SOI)
- Railroad

Mini Parks (<1 Acre)
1. Coventry Way
2. Crescent Park
3. Garthe Estates
4. Glen Cove Marina
5. Knights Circle
6. Martin Luther King Jr. Unity Plaza
7. Reflections Park

Neighborhood Parks (approx. 4-10 Acres)
8. Alden Park
9. Bennington Park
10. Beverly Hills Park
11. Borges Ranch Park
12. Carquinez Park
13. Castlewood Park
14. Chapel Park
15. City Park
16. Crest Ranch
17. Delta Meadows Park
18. Fairmont Park
19. Glen Cove Park
20. Grant Mahoney Park
21. Henry Ranch Park
22. Hiddenbrooke Park
23. Highlands Park
24. North Vallejo Park
25. Northgate Neighborhood Park
26. Richardson Park
27. Service Club Park
28. Setterquist Park
29. Sheveland Park
30. Terrace Park
31. Washington Park
32. Wilson Park

Community Parks (approx. 10-70 Acres)
33. Blue Rock Springs Park
34. Dan Foley Park
35. Glen Cove Nature Area
36. Hanns Memorial Park
37. Independence Park
38. Lake Dalwigk Park
39. Wardlaw Park

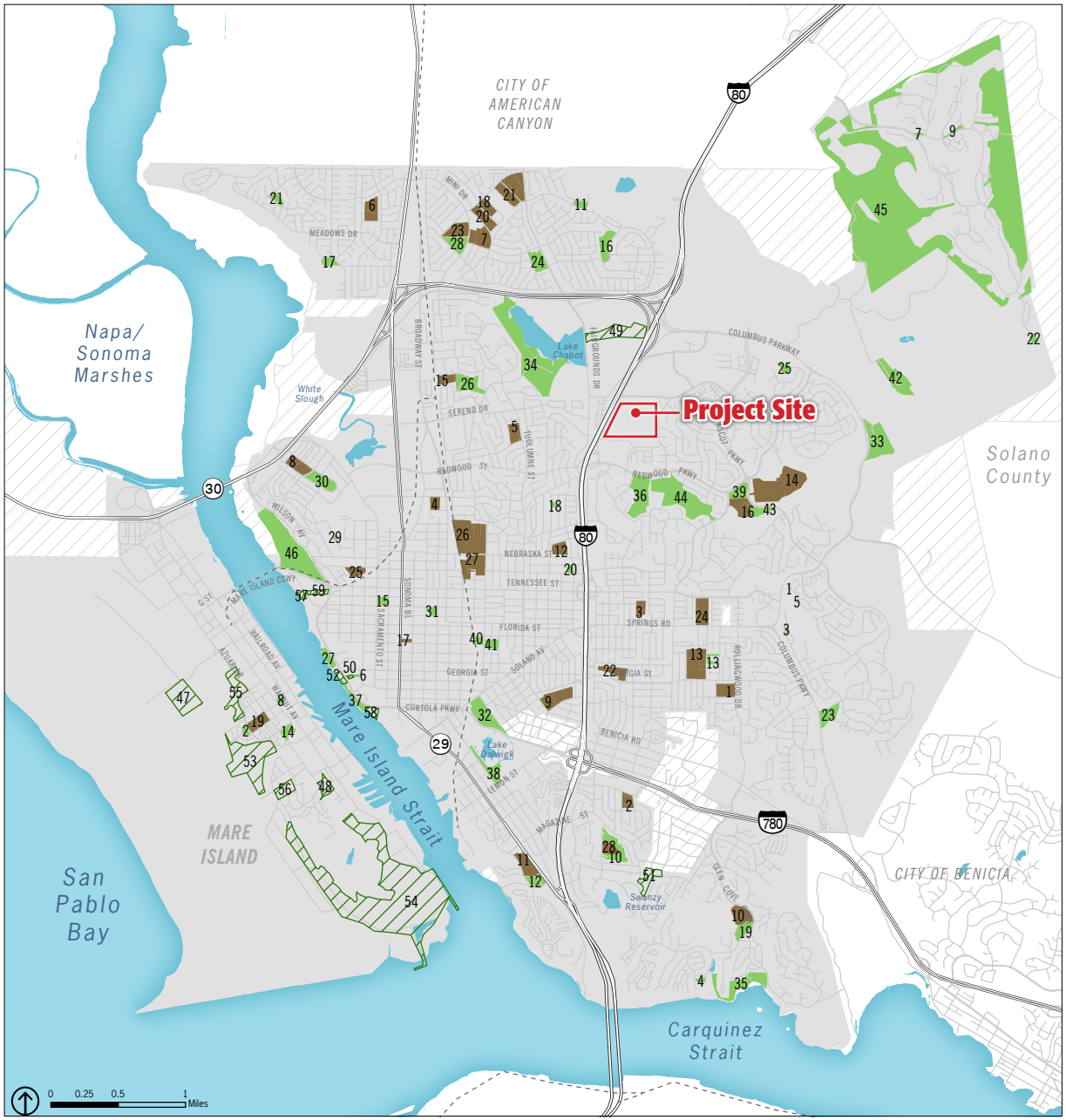
Special Use Parks
40. Amador Tennis Park
41. Children's Wonderland
42. McIntyre Ranch
43. Wardlaw Skate/BMX Park

Linear Parks
44. Blue Rock Springs Trail

Natural Open Space
45. Hiddenbrooke Open Space
46. River Park

Planned Parks
47. City Park - Mare Island
48. Club Drive Park
49. Creek Park
50. Festival Green
51. High Glen
52. Independence Park Expansion
53. Mare Island Community Park
54. Mare Island Shoreline Heritage Preserve
55. Morton Field
56. Parade Grounds
57. Promenade Park
58. Southern Waterfront
59. Wetland Park

Schools
1. Annie Pennycook Elementary
2. Beverly Hills Elementary
3. Cave Language Academy
4. Caliber Charter School (Planned)
5. Cooper Elementary
6. Dan Mini Elementary
7. Elsa Widenmann Elementary
8. Federal Terrace Elementary
9. Franklin Middle School
10. Glen Cove Elementary
11. Grace Patterson Elementary
12. Highland Elementary
13. Hogan Middle School
14. Jesse M. Bethel High School
15. John Finney High School/Peoples (Continuation School)
16. Joseph H. Wardlaw Elementary
17. Lincoln Elementary School
18. Loma Vista Environmental Science Academy
19. Mare Island Health & Fitness Academy
20. Mare Island Technological Academy
21. Solano Middle School
22. Steffan Manor Elementary
23. Vallejo Adult Transition/Everest
24. Vallejo Charter School
25. Vallejo Education Academy
26. Vallejo High School
27. Vallejo High School/ Independent Study Academy
28. Vallejo Regional Education Center



Source: City of Vallejo, 2017

FIGURE 4.13-2: Parks and Schools
Fairview at Northgate Project

Not to scale

Kimley»Horn

The proposed project would generate new elementary, middle school, and high school students. The proposed project is in the attendance areas of Joseph H. Wardlow Elementary School at 1698 Oakwood Avenue approximately one mile to the southeast, Hogan Middle School at 850 Rosewood Avenue approximately 2 miles to the south, and Jesse M. Bethel High School at 1800 Ascot Parkway approximately one mile to the east. The majority of students generated from the proposed project, with exception of those who may attend a private school or be homeschooled, would attend these schools.

Parks

Parks within the City of Vallejo are managed by the Greater Vallejo Recreation District (GVRD). 7 mini parks (approximately less than 1 acre) totaling 6.06 acres; 25 neighborhood parks (approximately 4 – 10 acres) totaling 149.45 acres, 7 community parks (approximately 10-70 acres) totaling 153.20 acres, 1 linear park totaling 44 acres; two natural open space areas totaling 535 acres, and 4 special purpose parks totaling 33.46 acres. Total existing park acreage is approximately 921.17 acres (City of Vallejo, 2017). A summary of the available parks and associated acreages is provided in Table 4.14-1 in Chapter 4.14, Recreation.

The GVRD also operates sports fields for baseball, softball, and soccer that are available for reservation/rental. GVRD provides five community centers including the Foley Cultural Center, Vallejo Community Center, North Vallejo Community Center, Norman C. King South Vallejo Community Center, and the Mare Island Sports Complex. Within the parks and community centers the GVRD provides numerous classes including but not limited to aquatics and swim camps, arts, dance classes, sports programs, kids club programs and outdoor programs, and special events such as concerts, movies, and holiday events. (City of Vallejo, 2018).

Other Public Services

Libraries

The City is served by Solano County Libraries, which operates a total of eight libraries, that provide a total of approximately 133,188 square feet of building space and a collection of over 612,000 book volumes. All these libraries would be available to future project residents. Within the City there are two libraries, the John F. Kennedy Library and Springstowne Library.

John F. Kennedy Library

The John F. Kennedy Library opened in 1970 and operates on the second floor of a building owned by the City of Vallejo in the City Hall complex approximately 2.5 miles from the project site. The 46,874-square-foot library was remodeled in 2005 and in 2013. The library includes collections for adults, teens and children as well as a computer center, story hour room, study rooms and a Friends of the Library bookstore. Equipment offered at the library includes 34 computers with Microsoft Office suite and Internet access; 4 computers with only library catalog and database access; 2 black & white printer/copiers (10 cents per page); 1 color printer/copier (50 cents per page); 1 scanner; and wireless network (Solano County, 2019a).

Springstowne Library

The Springstowne Library opened in 1956 and is located at 1003 Oakwood Avenue approximately 1.5 miles from the project site. The branch was remodeled in late 2007 but is the smallest public library in the system with approximately 3,024 square feet and is also one of the busiest per square foot. The branch is within easy walking distance of six schools and is centrally located to serve the residential neighborhoods of east Vallejo (Solano County 2019b).

Medical Facilities

The City of Vallejo is served by many local medical offices, including the Kaiser Permanente Vallejo Medical Center at 975 Sereno Drive and the Solano County Family Health Services at 365 Tuolumne Street. The Kaiser facility is located approximately one mile west of the project site and provides emergency services, urgent care services, and pharmacy services. The Solano County Family Health Services is located approximately 3 miles south, and provides comprehensive primary medical and dental care for Solano County residents and is committed to serving the uninsured, low-income, and medically underserved communities.

4.13.2 REGULATORY SETTING

FEDERAL

There are no Federal regulations pertaining to fire services, police services, or school services that would be applicable to the proposed project.

Fire Protection

State

California Building Code

The State of California provides a minimum standard for building design through the California Building Code (CBC), which is located in Part 2 of Title 24 of the California Code of Regulations. The California Building Code is based on the International Building Code but has been modified for California conditions. 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 CBC. Typical fire safety requirements of the CBC include the installation of sprinklers in all commercial and residential 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 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 Title 24 of the California Code of Regulations. The CFC is revised and published every three years by the California Building Standards Commission.

California Health and Safety Code and International Building Code

The California Health and Safety Code provides regulations pertaining to the abatement of fire-related hazards. This Code also requires that local jurisdictions, including Vallejo, enforce the International Building Code, which provides standards for fire-resistant building and roofing materials and other fire-related construction methods.

Local Regulations

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is organized by Title, Chapter, and Section. The most recent Municipal Code was passed on July 28, 2015 by Ordinance No. 1715N.C. (2d) and was updated on July 2018. The Municipal Code contains several Chapters and Sections that relate to fire protection services.

Chapter 3.06 - Public Facilities Impact Mitigation Fee

Title 3 Revenue and Finance, Chapter 3.06, Public Facilities and Impact Mitigation Fee, of the Municipal Code states that the City Council may establish, by resolutions adopted in conformance with, fees to provide funding for required public facilities for the city. Fees would be required for any new structure, as well as for modifications or alterations to existing structures that increase the number of units or gross floor area, as applicable.

Chapter 12.28 - Fire Code

Title 12 Buildings and Construction, Chapter 12.28, Fire Code, Section I. adopts and incorporates the provisions of the 2016 Edition of the CFC. As noted under State regulations, the CFC is the official Fire Code for the State and all political subdivisions.

Police Protection

State

There are no State regulations pertaining to police services applicable to the proposed project.

Local

City of Vallejo Municipal Code

Chapter 3.06 – Public Facilities Impact Mitigation Fee

Title 3, Revenue and Finance, Chapter 3.06, Public Facilities and Impact Mitigation Fee, of the Municipal Code states that the City Council may establish, by resolutions adopted in conformance with the chapter, fees to provide funding for required public facilities for the city. Fees would be required for any new structure, as well as for modifications or alterations to existing structures that increase the number of units or gross floor area, as applicable.

Chapter 14.44 – City of Vallejo – Improvement District Financing Code

Title 14, Local Improvements, Chapter 14.44, City of Vallejo Improvement District Financing Code, of the Municipal Code states that an improvement district may be established to finance any one or more municipal services, including police protection services, within an area.

Schools

State

California Senate Bill 50 and California Government Code (Section 65995(b)) and Education Code (Section 17620)

California Senate Bill (SB) 50 places limitations on the power of local governments to require mitigation of school facilities by developers. Under the provisions of SB 50, school districts can collect fees to offset the cost of expanding school capacity, which becomes necessary as development occurs. These fees are determined based on the square footage of proposed uses. As a part of this Bill, school districts must base their long-term facilities needs and costs on long-term population growth in order to qualify for this source of funding. Payment of statutory school fees is deemed to be adequate mitigation of school impacts under CEQA. Prior to SB 50, case law allowed cities to consider and impose conditions to mitigate impacts of new development on school facilities.

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. Currently, the maximum impact fees allowed by SB 50 are as follows:

- In the case of residential construction, two dollars and ninety-seven cents ($3.79) per square foot of assessable space.
- In the case of any commercial or industrial construction, thirty-three cents ($0.61) per square foot of chargeable covered and enclosed space. (Gov. Code §65995, subd. (b)).

According to California Government Code Section 65995(3)(h), the payment of statutory fees is "deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization...on the provision of adequate school facilities." The school district is responsible for implementing the specific methods for mitigating school impacts under the Government Code.

Mitigation Fee Act (California Government Code (Sections 66000 through 66008)

Enacted as Assembly Bill (AB) 1600, the Mitigation Fee Act requires a local agency, such as the City of Vallejo, 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 project on which it is to be levied. This Act became enforceable on January 1, 1989 (California Legislative Information, 2019).

California State Assembly Bill 97 (AB 97)

Approved in July 2013, AB 97 revises existing regulations related to financing for public schools, by requiring State funding for county superintendents and charter schools that previously received a general-purpose entitlement. The bill authorizes local educational agencies to spend, for any local educational purpose, the funds previously required to be spent for specified categorical education programs, including, among others, programs for teacher training and class size reduction.

The Mello-Roos Communities Facilities Act of 1982

The Act allows any county, city, special district, school district or joint powers authority to establish a Mello-Roos Community Facilities District (a "CFD") which allows for financing of public improvements and services. By law, the CFD is also entitled to recover expenses needed to form the CFD and administer the annual special taxes and bonded debt (Calforniataxdata.com, 2019).

The City of Vallejo has three Community Facilities District (CFD) including CFD 1, CFD, 2, and CFD, 3. CFD 2 includes the project site and is generally located in the northeast quadrant of the city on the east side of I-80. CFD 2 consists of approximately 2,432 acres and fully incorporates the Northgate and Hiddenbrooke developments (EMMA, 2007). The CFD was established pursuant to the School Board's adoption of Resolution No. 1274 on April 11, 1989. VCUSD created CFD No.2 pursuant to the Mello-Roos Act and adopted a special tax on development in other areas to mitigate the impact of these developments on school facilities.

Local

City of Vallejo Municipal Code

Chapter 14.44 – City of Vallejo – Improvement District Financing Code

Title 14, Local Improvements, Chapter 14.44, City of Vallejo Improvement District Financing Code, of the Municipal Code states that an improvement district may be established to finance one or more municipal services within an area including elementary and secondary school sites and structures.

Parks

Federal Regulations

There are no Federal regulations pertaining to park/open space/recreation services applicable to the proposed project.

State Regulation

Mitigation Fee Act

The 1987 Mitigation Act (California Government Code Section 66000) authorizes development impact fees to provide new park and recreation facilities to mitigate for new residential development projects. The City has applied this Act to establish a development impact fee under Section 3.18 of the Municipal Code.

Quimby Act

The 1975 Quimby Act (California Government Code Section 66477) authorizes cities and counties to adopt ordinances requiring that developers set aside land, donate conservation easements or pay fees for park improvements. Revenues generated through the Quimby Act cannot be used for operation and maintenance of park facilities. A 1982 amendment (Assembly Bill (AB) 1600) requires agencies to clearly show a reasonable relationship between the public need for the recreation facility or parkland and the type of development project upon which the fee is imposed. Cities with a high ratio of park space to inhabitants can set a standard of up to 5 acres per thousand persons for new development. Cities with a lower ratio can only require the provision of up to 3 acres of park space per thousand people. The calculation of a city's park space to population ratio is based on a comparison of the population count of the last federal census to the amount of City-owned parkland. Under Section 3.18.170 Park Impact Fees – Imposed, the City has adopted a standard of 4.25 acres per 1,000 people.

Improvement Act of 1911 and Lighting and Landscaping Act of 1972

The Improvement Act of 1911 may be used by cities, counties, and other municipal organizations to assess fees for improvements, including parks, parkways, recreation areas (including necessary structures), and other necessary improvements to the local agency's streets, property and easements. The 1972 Lighting and Landscaping Act (California Streets and Highways Code Section 22500 et seq.) had a similar intent and has been employed by the City of Vallejo, providing limited maintenance funding of parks that serve new neighborhoods. In accordance with the Acts, the City of Vallejo has established 26 Landscape Maintenance Districts (LMDs) that are overseen by the Engineering Division. Within these Districts, property owners are assessed a fee based on the size of the parcel of land they occupy. The proposed landscaping within Turner Parkway is located within the Region 1 LMD (City of Vallejo, 2019).

General Plan

Goal CP-2:	Safe City: Protect personal safety in Vallejo's neighborhoods and public spaces.
Policy CP-2.1:	*Police Services*. Provide responsive, efficient, and effective police services that promote a high level of public safety.
Action CP-2.1A:	Maintain community engagement initiatives and strengthen partnerships with community members and neighborhood groups to combat crime, improve public safety, and facilitate communication regarding law enforcement needs.

Action CP-2.1B:	Use crime statistics and other data to establish priorities and guide crime prevention and response programs.
Action CP-2.1C:	Continue to leverage and expand the use of technology to enhance efficiency and effectiveness of law enforcement and promote officer and community safety.
Action CP-2.1D:	Work towards a geographic policing model while continuing to develop and implement tactical initiatives to fight crime and improve public safety.
Action CP-2.1E:	Periodically review response capabilities to determine potential need for additional law enforcement facilities, equipment, or personnel, and identify specific geographic areas requiring expanded services.
Policy CP-2.2:	*Safer Urban Design.* Improve public safety and reduce demand for police service through project design enhancements in new development and public spaces.
Action CP-2.2A:	Continue to include the Police Department in the review of major new development plans and projects, particularly those related tobacco and alcohol establishments, to ensure that projects are designed and operated in a manner that minimizes the potential for criminal activity and maximizes the potential for responsive police services.
Action CP-2.2B:	Using CPTED principles, update City regulations to incorporate requirements for design of multi-family residences and public spaces that deter criminal activity in neighborhoods, streets, and public areas and promote opportunities for natural surveillance.
Action CP-2.2C:	Work with the GVRD to improve and maintain park facilities as safe places for community gathering.
Action CP-2.2D:	Work with GVRD and VCUSD to establish standards for site layout, lighting, and signage to deter criminal activity in and around parks, schools, and recreation sites.
POLICY CP-2.3	Fire Prevention and Response Services. Ensure the provision of fire prevention and emergency response services that minimize fire risks and protect life and property.
Action CP-2.3E	Work with property owners and public agencies to ensure that plant growth is managed to minimize fire danger.
Action CP-2.3D:	Continue to maintain mutual aid agreements that allow for supplemental aid from other police and fire departments in the event of emergencies.
Action CP-3.1C:	Collaborate with VCUSD to address issues such as facility upgrades, classroom

	capacity, truancy, graduation rates, and school violence.
POLICY NBE-1.16	Solid Waste Reduction. Promote reduction of the production of solid waste throughout Vallejo.
Action NBE-1.16A	Continue to update the City's Construction/Demolition Waste Reuse and Recycling Ordinance as higher diversion rates become feasible, necessary, or required.
Action NBE-1.16B	As funding allows, provide recycling receptacles in parks and public spaces, in addition to trash receptacles.
Action NBE-1.16C	Continue to partner with CalRecycle and VALCORE Community Recycling to offer and promote backyard composting bins and free composting classes to Vallejo residents and to disseminate information about composting on the City's website.
Policy NBE-2.9:	*Public Service Provision.* Ensure that development will create revenue and provide any land needed to directly support the services it will require.
Action NBE-2.9A:	Require fiscal impact analyses, as appropriate, for development proposals in order to evaluate its public facility needs and costs, and the revenue likely to be generated by that development.
Action NBE-2.9D:	Periodically update nexus studies and adjust development impact fees as may be needed to ensure that there is sufficient funding for the infrastructure and public services needed to support growth.
Action NBE-2.9E	Engage the Vallejo City Unified School District (VCUSD) in the review of major new residential development projects to ensure that adequate school facilities are or will be available to accommodate new students.

City of Vallejo Code of Ordinances

The City of Vallejo Municipal Code Section 3.18 requires that developers of residential land either dedicate land at a rate of 4.25 acres per 1,000 persons or pay an in-lieu fee for land acquisition. According to Section 3.18.170 (d), the Park Impact Fee is increased automatically by the Engineering News Record Construction Cost Index for San Francisco Bay Area (City of Vallejo, 2019).

4.13.3 STANDARDS OF SIGNIFICANCE

In accordance with State CEQA Guidelines, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to public services, if it would:

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

- Fire Protection;
- Police Protection;
- Schools;
- Parks;
- Other Public Facilities.

Section 15131 of the State CEQA Guidelines addresses economic and social effects of a project. Pursuant to §15131(a), "Economic or social effects shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical change."

Based on these standards, the effects of the proposed project have been categorized as either a "less than significant" impact or a "potentially significant" impact. Mitigation measures are recommended for potentially significant impacts. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a "significant and unavoidable" impact.

4.13.4 PROJECT IMPACTS AND MITIGATION

IMPACT PUB-1	***WOULD THE PROJECT RESULT IN SUBSTANTIAL ADVERSE PHYSICAL IMPACTS ASSOCIATED WITH THE PROVISION OF NEW OR PHYSICALLY ALTERED GOVERNMENTAL FACILITIES, NEED FOR NEW OR PHYSICALLY ALTERED GOVERNMENTAL FACILITIES, THE CONSTRUCTION OF WHICH COULD CAUSE SIGNIFICANT ENVIRONMENTAL IMPACTS, IN ORDER TO MAINTAIN ACCEPTABLE SERVICE RATIOS, RESPONSE TIMES OR OTHER PERFORMANCE OBJECTIVES FOR ANY OF THE PUBLIC SERVICES:*** ***a) FIRE PROTECTION*** ***b) POLICE PROTECTION*** ***c) SCHOOLS*** ***d) PARKS*** ***e) OTHER PUBLIC FACILITIES*** ***(LESS THAN SIGNIFICANT IMPACT)***

a) Fire Protection

A significant impact would result if development of the proposed project would result in increased demands for fire protection services such that new or physically altered fire protection facilities would be needed, the construction or operation of which could cause significant environmental impacts from the expansion of VFD facilities needed to maintain acceptable service ratios, response times, or other performance objectives. Buildout of the proposed project would result in 178 new single-family residences, and a 152,138 square foot (sf) Costco with fueling station, and 27,550 sf of other commercial space. The proposed project would increase demand for fire, rescue, and emergency medical services in the VFD service area from the increase in residents and employees, as well as the addition of new structures.

As discussed above, the proposed Costco would include up to 30 fueling dispensers and a related 50 sf kiosk. Uses such as gas stations can pose a risk of special hazard fire. Operation of the fueling islands would be regulated by building, fire and environmental codes and subject to supervision and inspection by various public agencies, including the U.S. and State Environmental Protection Agencies (EPA), U.S. and State Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and the Department of Toxic Substances Control (DTSC). Under these operations requirements, this aspect of the proposed project is not anticipated to result in a substantial increase in calls for service or demand for additional equipment such that new or expanded facilities would be needed.

The proposed project would be developed on a vacant parcel surrounded by existing urban development, and roadways, and is in an area already served and responded to by VFD. This would ease the ability of VFD to respond to the project site should an emergency situation arise. The proposed project would be less than one mile from Station 27 and less than two miles from three other fire stations. Station 27 would be the primary station responding to the project site and the rotation, if Station 27 units were not available, would be Station 23, Station 24, and Station 25. VFD currently meets the response time goals of between six to seven minutes. The response time to the proposed project is anticipated to be acceptable. (VFD, 2019). The proposed project has been designed to conform with the latest fire and building codes and regulations, which would further ensure ease of access and that fire protection services have the on-site resources needed to adequately serve the proposed project. Therefore, the proposed project would not create a need to expand existing facilities (Sproete, 2019). The project has been reviewed by the VFD and no need for additional fire facilities has been identified. Additionally, the project is consistent with the Propel Vallejo 2040 General Plan land use designations and does not develop the property at an intensity that would result in the need for additional fire facilities. This would be verified during the design review process as the part of project permitting. During this process, appropriate fees would be paid in accordance with the City of Vallejo Master Fee Schedule. Fees would be paid as applicable for plan review and inspection services, occupancy fees, fire safety inspections, and fees for other fire services. A portion of the fees would be used to help offset the potential impacts fire and safety services due to the anticipated increased request for services. Although the proposed project is anticipated to increase calls for fire protection services, the proposed project is not anticipated to increase demand to a level such that new facilities would be required. Therefore, impacts related to the provision

of these services and potential secondary effects on the environment from new construction would be less than significant.

b) Police protection

A significant impact would result if development of the proposed project would result in increased demands for police protection services such that new or physically altered fire protection facilities would be needed, the construction or operation of which could cause significant environmental impacts. A significant impact would result if, in order to maintain acceptable service ratios, response times, or other performance objectives, the proposed project would result in increased demand for police protection services such that new or physically altered facilities would be needed, the construction or operation of which could cause significant environmental impacts.

The proposed project would result in 178 new single-family residences, and a 152,138 square foot (sf) Costco with fueling station, and 27,550 sf of other commercial space. As discussed above, the VPD does not have an adopted response time goal and prioritizes service according to level of urgency. Based on the existing City average of 2.88 persons per household, the proposed project would generate approximately 513 new residents and the ratio would remain approximately 1.1 officers per 1,000 population.

It is anticipated that population and employment growth resulting from implementation of the project would increase the demand for police protection. Funding for police services is derived from the City's General Fund, which is based primarily on property tax and sales tax revenues. As the project is developed, there would be an increase in these revenues, which could be used to fund additional operations. To address the project's proportionate share of police protection, the project applicant would pay applicable City development fees. Any additional law enforcement facilities constructed by the City would be proposed by the City at the time they are needed and would undergo separate environmental review. No new facilities are required to solely serve this project. Therefore, the projected increase in demand for police protection would be less than significant.

c) Schools

A significant environmental impact could result if students generated by the proposed project would result in the need for new or physically altered school facilities in order to maintain acceptable service ratios or other performance objectives and the construction could cause significant environmental impacts. The proposed project would result in the construction of 178 new single-family housing units. The proposed commercial development would not result in new students who would require school services. Therefore, is not considered in this analysis. The students generated by the housing component of the proposed project would be within the VCUSD. Using the student generation rates provided by VCUSD as shown in *Table 4.13-2: Students Generated by the Proposed Project*, shows that the proposed project would generate approximately 59 elementary aged students, 24 middle school aged students, and 39 high school students for a total student generation of approximately 122 new students.

Table 4.13-2: Students Generated by the Proposed Project

Housing Type and Grade Level				
Single Family Residential	**Students Per Unit**	**Proposed Units**	**Students Generated**	**Fees to be Assessed**
Grade Level	--	--	--	--
Elementary School	0.331	178	59	yes
Middle School	0.136	178	24	yes
High School	0.218	178	39	yes
Total	**--**	**--**	**122**	--
Source: Student generation rates from the City of Vallejo Propel Vallejo 2040 GP EIR.				

Students generated from the proposed project would attend either Wardlow Elementary, Hogan Middle School, or Jesse M. Bethel High School at 1800 Ascot Parkway. Wardlow Elementary provides classes for kindergarten through fifth grade and had a total enrollment of 547 students in 2018. Hogan Middle School serves sixth through eighth grade and had a total enrollment of 980 students in 2018, and Jesse M. Bethel High School serves students in ninth through twelfth grade and had a total enrollment of 1,226 students. The current VUSD enrollment is approximately 35% less than capacity. In addition, Elite Charter School is opening for 2019 and will draw approximately 220 students from first through fifth grade (Brito, 2019). Additionally, considering the students would likely be dispersed through the grade levels, it is anticipated that the schools would have more than adequate capacity to serve the increased demand.

Furthermore, the proposed project would be required to pay school impact fees that would mitigate the impact to the schools that would accommodate new students. Under Section 65995 of the California Government Code, the payment of impact fees is deemed to fully mitigate the impacts of new development on school facilities, regardless of whether the fees are adequate to fully fund the expansion or construction of needed facilities. Impacts would be less than significant in this regard.

d) Parks

A significant impact would result if development of the proposed project would result in increased demands for parks such that new or physically altered undeveloped areas would be used for the construction of a park(s) facility such that a significant environmental impact would result. Chapter 3.18 of the Vallejo Municipal Code, Land Dedication and Fees for Park and Recreational Purposes, requires developers of residential land to either dedicate land at a rate of 4.25 acres per 1,000 persons, or pay an in-lieu fee for land acquisition. A significant impact could result if the new park facilities cause significant environmental impacts. The total existing park acreage in the City is approximately 921.17 acres, which is approximately 7.72 acres per 1,000 residents. The proposed project includes a park space dedication of 2.66 acres of park space including two 0.15-acre “pocket” parks, two 0.13-acre paseos connecting to the pocket parks, 0.18-acre of open space along Turner Parkway, and a 1.92-acre linear park/trail to be located between the residential area and a 5.7-acre open space area. The linear park/trail would connect to a proposed meandering pathway along Turner Parkway which would make it accessible to area residents. In addition, the City of Vallejo requires the payment of a Development Impact Fee to the GVRD for each single-family unit. The collection of fees and determined fair share fee amounts are adopted by

the City as Conditions of Approval (COAs) for all new development projects prior to project approval. Fees paid aid in the development of new park-space and maintenance as required, to ensure continued high-quality park facilities for all city residents. Given that the City maintains an ample and diverse range of park sites and park facilities and collects fees from new development to fund the construction of new parks and the maintenance of existing parks, the additional demand for parks generated by the project would not result in the physical deterioration of existing parks and facilities within Vallejo. As such, this is a less than significant impact and no mitigation is required.

e) Other Public Facilities

Other public facilities include services provided to the public to serve medical needs such as hospitals and urgent care, cultural centers such as museums, and libraries, and other governmental functions such as city services needed for permitting and licensing. To help offset some of the cost of providing new or expanding existing public facilities, Chapter 3.06 – Public Facilities Impact Mitigation Fees of the City Municipal Code would be applicable. This public facilities impact mitigation fee ordinance is based on City Council findings that new residential, commercial, and industrial development will increase the demand for and require the construction of or expansion of public facilities to include but not limited to senior centers, library annex, and cultural arts center(s).

Libraries within the City include two Solano County Public Libraries. One library is at 505 Santa Clara Street approximately 1.75 miles to the southeast, and the second library, the Springstowne Library is at 1003 Oakwood Ave. approximately 2.75 miles to the southwest, and the Vallejo Naval and Historical Museum is located at 734 Marin St, approximately 2.0 miles to the southwest. The City also has numerous cultural centers within 2.0 miles of the project site including, the Dan Foley Cultural Center, Filipino Community Centers, the Florence Douglas Senior Center and Vallejo Community Center. Medical needs of the community are served by numerous centers within approximately one mile and include the Sutter Solano Medical Center, Kaiser Permanente Medical Center, Kaiser Permanente Vallejo Medical Center, and Adventist Health Vallejo. Finally, City governmental services are generally clustered at 555 Santa Clara Street and include Vallejo Human Resources, City Hall, City Planning, and other City services.

Buildout of the project would result in the construction of 178 new single-family homes and a population of approximately 513 residents. The commercial component would not directly increase the number of residents who may use public services. The people living in the residential component would represent approximately 0.43% of the existing City population. It is likely that some of the new residents would move to the new homes from within the City and some people would move from outside areas. Those who move from within the City would already be using other public facilities and therefore, would not increase the demand.

While the proposed project would increase demand for services, it would be required to pay fees to provide a fair share contribution toward the provision of the services. Nonetheless, the increased demand from new residents and commercial uses would be incrementally small compared to the availability of existing resources. Therefore, the proposed project is not anticipated to result in a significant increase in demand for these types of public facilities. Accordingly, the increase in demand would not require

construction of new buildings or ancillary structures such that significant impacts on the environment would occur. Thus impacts in this regard would be less than significant, and no mitigation is required.

4.13.5 CONCLUSION

The proposed project would pay all applicable fees to provide for its fair share of increased demand for fire protection, law enforcement, and school services, as well as park resources. The proposed project has been designed to conform to all safety requirements and provides 2.66 acres of park area that would be available to residents as well as the surrounding neighborhoods. Through the payment of fees, analysis in this document, and project design element, impacts to these resources would be less than significant.

4.13.6 CUMULATIVE IMPACTS

As discussed in Chapter 6.0, Alternatives, the Draft EIR considers growth under the proposed project in conjunction with other projects within the City of Vallejo that would have the potential to have cumulative effects on public service resources. Some other resource areas such as air quality that may be regionally significant are discussed in terms of a larger area. The proposed project has been evaluated for its potential combined impact relative to each public service provider with other projects in the associated service areas of each service provider. A significant cumulative environmental impact would result if this cumulative growth would exceed the ability of these districts to adequately serve the area, thereby requiring construction of new facilities or modification of existing facilities.

Fire Protection

This draft EIR considers growth under the proposed project and other projects within the City of Vallejo VFD service area. A significant cumulative impact would result if the proposed project with other projects in the City would exceed the ability of the VFD to adequately provide service, thereby requiring construction of new facilities or modification of existing facilities.

As described above, the Project Area is served by the VFD. The proposed project would be primarily served by VFD Station 27 and rotate through Stations 23, 24, and 25, depending on existing call volumes. The rotation would ensure that adequate fire services are available for the project site and other service areas. The VFD has indicated that the anticipated growth under the proposed project could be served by the existing station and the proposed project would not result in a substantial cumulative impact to fire protection services. In addition, all future development within the VFD service areas would be required to comply with State and local regulations, including CBC and CFC requirements, and be reviewed by the VFD to ensure risks associated with fire hazards be minimized. Therefore, the cumulative impact would be less than significant.

Police Protection

The draft EIR considers growth under the proposed project and other projects within the VPD service area. A significant cumulative impact would result if the proposed project with other projects in the City would

exceed the ability of the VPD to adequately provide service, thereby requiring construction of new facilities or modification of existing facilities.

As described above, the proposed project would be served by VPD and would increase service demand very slightly. The proposed project would implement applicable General Plan goals, policies and actions and future development would also be required to comply with the City's Municipal Code Chapter 3.06 – Public Facilities Impact Mitigation Fee. Accordingly, the proposed project would pay required development impact fees and future residents would pay property taxes to account for and offset the increased demand for law enforcements services. In and of itself, the proposed project would not result in demand such that new or expanded law enforcement facilities would be needed but it would make an incremental contribution to the need for a new station. Taken in sum with other past, present, and future projects, a cumulative impact could result if a new facility or expansion of existing facilities was needed and that new or expanded facility resulted in impacts to the environment. The General Plan EIR contemplated development of a new station but such analysis was not feasible because the site future site was not known. The General Plan EIR further stated that if and when a new police station is constructed to accommodate growth, the future station would be subject to project-level CEQA analysis in order to determine site specific potential environmental impacts once a location has been selected. Therefore, as the cumulative impact would be less than significant.

VCUSD

The proposed project would be served by the VCUSD and students generated would attend the Joseph H. Wardlow Elementary, Hogan Middle School, and Jesse M. Bethel High School. The areas which these schools serve are largely urbanized and the other land within the service areas has been developed. Accordingly, substantial future residential development that would combine with the proposed project resulting in an extensive increase demand for new school sites is not anticipated. Cumulative projects within the service areas of these schools that are residential in nature and would generate additional students would be subject to site specific CEQA review. These projects also were previously contemplated in the Propel Vallejo 2040 General Plan EIR. Accordingly, the General Plan EIR found that under Section 65995 of the California Government Code, the payment of impact fees is deemed to fully mitigate the impacts of new development on school facilities. Therefore, cumulative impacts related to school facilities would be less than significant.

Recreation

The proposed project would not result in a cumulative impact to park resources. As discussed above, the proposed project includes the provision of 2.56 acres of park space, of which 2.0 acres would be usable by area residents and would be immediately adjacent to 5.7 acres of open space. Additionally, the ratio of park resources that would be provided under the proposed project would be substantially the same as currently exists City wide. Therefore, impacts from parks would not be cumulatively considerable and impacts would be less than significant.

Other Facilities

Other public facilities in the City include libraries, hospitals, and cultural centers such as museums. The proposed project would not create a significant demand for governmental services beyond those already considered in the Propel Vallejo 2040 General Plan. Implementation of the proposed project would result in a population of approximately 513 residents, which represents approximately 0.43% of the existing City population. The increased demand from new residents is not anticipated to result in a significant increase in demand for these types of public facilities such that new buildings, or ancillary structures would be needed or expanded to serve the proposed new development. Therefore, buildout of the proposed project would not result in a significant increase in demand for these public facilities and the impacts would be less than significant. No mitigation is required.

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4.14 RECREATION

This section of the Environmental Impact Report (EIR) describes the affected environment and regulatory setting for recreation that would be provided to the proposed project. It also describes the impacts on existing recreation resources that would result from implementation of the proposed project and mitigation measures that would reduce these impacts. The following analysis of the potential environmental impacts related to recreation comes from the following sources:

- Propel Vallejo 2040 General Plan.
- Propel Vallejo 2040 General Plan EIR.
- Greater Vallejo Recreation District (GVRD) Master Plan, 2006.
- Vallejo Trails Master Plan, 1988.

4.14.1 ENVIRONMENTAL SETTING

EXISTING PARKS AND RECREATIONAL FACILITIES

The City of Vallejo (City) has 7 mini parks, 26 neighborhood parks, 9 community parks, 1 linear park, 2 natural open space areas, and 3 special purpose parks. The closest community parks to the project site are Hanns Park and Blue Rock Springs Park, both located approximately 0.33 mile south of the project site. *Table 4.14-1: City of Vallejo Parks and Recreational Facilities,* identifies the total acreage of parkland in Vallejo according to the classifications used by the Greater Vallejo Recreation District (GVRD) and City's Municipal Code. **Figure 4.13-2: Parks and Schools** in Chapter 4.13, Public Services, shows that most residents live within a ½-mile radius of a park or recreation facility.

Vallejo parks are classified as follows, based on size and the type of recreational use offered.

Mini Parks – small, limited use sites generally less than one acre in size. Located in more densely built areas, they vary from small green spaces with open grass areas, children's playgrounds or small picnic spaces, to small squares and plazas.

Neighborhood Parks – mid-sized parks intended to serve nearby residents living within a ½-mile radius. They are primarily designed for informal, unsupervised recreational activities and typically feature facilities such as children's playgrounds, picnic areas, pathways, open grass areas for passive use, outdoor basketball courts, and non-lighted, multi-use ball fields. Neighborhood parks generally range from 4 to 10 acres, although GVRD operates several smaller neighborhood parks.

Community Parks – larger facilities intended to serve residents living within a 1- to 2-mile radius. They are generally between 10 and 70 acres and designed with a sports field or similar facility that provides active and structured recreation opportunities as the central focus; they can also provide opportunities for passive recreation. Community parks attract people from a wider geographic area than neighborhood

or mini parks and require ancillary facilities such as parking lighted sports fields, and restrooms. A community park can also function as a neighborhood park for nearby residential areas.

Table 4.14-1: City of Vallejo Parks and Recreational Facilities

Park Name	Size (Acres)	Operated By	Owned By
Mini Parks			
Coventry Way	0.25	City of Vallejo	City of Vallejo
Crescent Park	1.96	City of Vallejo	City of Vallejo
Garthe Estates	0.75	City of Vallejo	City of Vallejo
Glen Cove Marina	0.75	City of Vallejo	City of Vallejo
Knights Circle	0.25	City of Vallejo	City of Vallejo
Martin Luther King Jr. Unity Plaza	0.6	City of Vallejo	City of Vallejo
Reflections	1.5	City of Vallejo	City of Vallejo
Subtotal	**6.06**		
Neighborhood Parks - subtotal			
Alden	5.0	City of Vallejo	City of Vallejo
Bennington	2.5	City of Vallejo	City of Vallejo
Beverly Hills Park	11.7	GVRD	City of Vallejo
Borges Ranch Park	3.4	GVRD	City of Vallejo
Carquinez Park	6.3	GVRD	GVRD
Castlewood Park	4.6	GVRD	City of Vallejo
Chapel	3.0	City of Vallejo	City of Vallejo
City Park	3.0	GVRD	City of Vallejo
Crest Ranch Park	10.3	GVRD	GVRD/City of Vallejo
Delta Meadows Park	4.0	GVRD	City of Vallejo
Fairmont Park	1.0	GVRD	GVRD
Glen Cove	6.8	GVRD	City of Vallejo
Grant Mahoney Park	1.5	GVRD	GVRD
Henry Ranch Park	3.4	GVRD	City of Vallejo
Hiddenbrooke	2.05	GVRD	City of Vallejo
Highlands Park	9.3	GVRD	City of Vallejo
Northgate	4.0	GVRD	City of Vallejo
Richardson Park	13.3	GVRD	City of Vallejo
Service Club	4.2	City of Vallejo	City of Vallejo
Setterquist Park	8.9	GVRD	GVRD
Sheveland Park	1.0	GVRD	City of Vallejo
Terrace Park	11.0	GVRD	GVRD
Washington Park	2.5	GVRD	City of Vallejo

Table 4.14-1: City of Vallejo Parks and Recreational Facilities

Park Name	Size (Acres)	Operated By	Owned By
Wilson	17.8	GVRD	GVRD/City of Vallejo
Subtotal	**149.45**		
Community Park			
Blue Rock Springs Park	24.5	GVRD	City of Vallejo
Dan Foley Park	68.2	GVRD	City of Vallejo
Glen Cove Nature Area	15.0	GVRD	City of Vallejo
Hanns Memorial	22.6	GVRD	City of Vallejo
Independence Park	1.0	GVRD	City of Vallejo
Lake Dalwigk Park	8.9	GVRD	GVRD/City of Vallejo
Wardlaw	13.0	GVRD	City of Vallejo
Subtotal	**153.20**		
Linear Park			
Blue Rock Springs Corridor	44.0	GVRD	City of Vallejo
Subtotal	**44**		
Natural Open Space			
Hiddenbrooke Open Space	481.0	GVRD	GVRD/City of Vallejo
River Park	54.0	GVRD	City of Vallejo
Subtotal	**535**		
Special Purpose Parks			
Amador Tennis	5.0	GVRD	--
Children's Wonderland	3.0	GVRD	GVRD
McIntyre Ranch	24.0	GVRD	GVRD
Wardlaw Skate/BMX Park	1.46	GVRD	City of Vallejo
Subtotal	**33.46**		
Total Acreage	**921.17**		

Note: GVRD = Greater Vallejo Recreation District
Source: City of Vallejo, 2017

Special Use Parks – facilities designed for specialized recreational activities. In Vallejo, these include the Wardlaw Skate/BMX Park and Children's Wonderland.

Linear Parks – open space or landscape features such as creek corridors, canals, trail alignments, and abandoned railroad rights-of-way. They link community facilities and provide passive recreational opportunities such as walking, jogging, and bicycling. They typically feature trails, landscaped or natural areas, viewpoints, and seating areas. Neighborhood park facilities may be incorporated when space is available.

Natural Open Space – large, undeveloped properties left primarily in their natural state with recreation as a secondary use. This type of park often includes wetlands, steep hillsides, stream and creek corridors, and environmentally sensitive lands containing wildlife habitat or unique and/or endangered plant species. Typically managed by a governmental agency, natural open space may or may not offer full public access.

With approximately 921.17 acres of parks and open space within the City limits, Vallejo is meeting its parkland standard. The nearest parks and recreation facilities to the project site are Hanns Park and Blue Rock Springs Corridor Park.

GREATER VALLEJO RECREATION DISTRICT

The Greater Vallejo Recreation District (GVRD) is a "Special Service District" that operates separately, but in partnership with the City of Vallejo. GVRD provides park and recreation programs to the City's residents. The District currently manages 407 acres of public park space including 20 neighborhood parks, 10 community parks, 6 special purpose parks, an Olympic-size swimming pool, and 4 community centers. The GVRD manages some of the parks listed above including the Amador Area, Beverly Hill Park, Blue Rock Spring and others. All parks within the City, including these parks and other managed by GVRD, are listed in Table 4.14-1, above.

4.14.2 REGULATORY SETTING

STATE REGULATIONS

Mitigation Fee Act

The 1987 Mitigation Act (California Government Code Section 66000) authorizes development impact fees to provide new park and recreation facilities to mitigate for new residential development projects. The City has applied this Act to establish a development impact fee under Section 3.18 of the Municipal Code.

Quimby Act

The 1975 Quimby Act (California Government Code Section 66477) sets forth parkland standards for jurisdictions within the State of California. The Act provides for a maximum of 3 acres of park dedication/fee per 1,000 persons unless the amount of existing (at the time of adoption) neighborhood and community parkland exceeds that limit. If a jurisdiction exceeds the 3 acres per 1,000 persons, then the jurisdiction is eligible to adopt the higher 5 acres per 1,000 persons standard.

Lighting and Landscaping Act

The 1972 Lighting and Landscaping Act (California Streets and Highways Code Section 22500 et seq.) (1972 Act) has been used by the City to provide limited maintenance funding of parks that serve new neighborhoods. The City has established 26 Landscape Maintenance Districts (LMDs) pursuant to the 1972 Act. A LMD is a used to make certain improvements to particular neighborhoods within the community.

These improvements, such as parks, playgrounds, landscapes, sidewalks, trees, etc. are paid for by the landowners within the LMD. The public right-of-way along Turner Parkway is within the City's Landscape Maintenance District Region 4.

LOCAL REGULATIONS

Solano Open Space

Solano Open Space area covers 10,000 acres of open space generally bordered by I-80, I-680, and Lake Herman Road and functions as an important buffer between the neighboring cities of Benicia, Fairfield, and Vallejo. This open space area is managed by a Joint Powers Authority (JPA) formed in May 1992. The JPA's goal is to plan, manage, and maintain the land for open space preservation, conservation and enhancement uses, agricultural production, and regional parkland recreation.

Measure K

Measure K is a $48 annual parcel tax for the purpose of funding park operations and maintenance through the GVRD. Measure K was approved by Vallejo residents in May 2012 with a terminus date of 2018. Measure K generates approximately $2 million per year in revenue to the GVRD. This funding goes towards services and programs, including salaries and benefits, capital improvements, maintenance, and recreation programs. To renew the tax, a parcel tax measure was placed on the May 2, 2017 ballot. The measure was approved by GVRD voters to renew the GVRD's annual parcel tax. The property tax is now based on units of property rather than assessed value. The tax expires in 2023. The project site is/is not subject to Measure K.

Propel Vallejo General Plan 2040

The policies, goals, and implementation measures in the General Plan applicable to the proposed project are provided below.

Policy CP-3.4	Parks. Plan for and provide parkland and facilities to support Vallejo's recreational needs.
Action CP-3.4A	Maintain a standard of 4.25 acres of parkland per thousand residents and continue to require that new residential development make a fair share contribution to future parks development.
Action CP-3.4C	Update City regulations to allow a portion of the parkland dedication requirement to be met through the provision of onsite mini parks and trails in new development.
Policy CP-3.6	Park Safety. Ensure that parks are designed and managed to maximize the personal safety of users and maintain the visibility of play areas.
Policy CP-1.4	Active Recreation Facilities. Ensure all Vallejo residents are served by convenient and safe active recreation facilities that meet the needs of all ages, abilities, and interest groups.

Action CP-1.4E Promote community "ownership" of active recreation facilities by establishing programs that encourage local residents and neighborhood organizations to "adopt," protect, and maintain parks, open spaces, and trails.

City of Vallejo Municipal Code

Chapter 3.18 of the Vallejo Municipal Code (VMC), Land Dedication and Fees for Park and Recreational Purposes, requires developers of residential land to either dedicate land at a rate of 4.25 acres per 1,000 persons, or pay a Park Impact Fee per residential unit. The Park Impact Fee is automatically adjusted by the Engineering News Record Construction Cost Index for the San Francisco Bay Area. *Table 4.14-2: City of Vallejo Park Impact Fee FY 2016-2017*, identifies fees collected for each type of residential development.

Table 4.14-2: City of Vallejo Park Impact Fee FY 2016-2017

Type of Development	Fee Amount
Single Family Detached	$12,191
Single Family Attached	$10,991
Duplex	$9,952
Multi-family	$8,353
Mobile Home	$7,313

Source: City of Vallejo, 2017a.

Vallejo Trails Master Plan (1988)

In 1988, the Vallejo Trails Master Plan was developed jointly between the City of Vallejo and GVRD in response to an increased resident interest in trails. The Trails Master Plan provides a map as well as guidelines, policies, and objectives to support the network of recreational trails throughout Vallejo. The plan also includes continued development of a local bicycle network by the City and GVRD.

The project site borders an existing portion of the Class 2 Bicycle Facility, striped one-way for bike travel, on Admiral Callaghan Lane. As part of the Admiral Callaghan Lane improvements, the planned/proposed Class 2 Bicycle facility would be installed.

Greater Vallejo Recreation District Master Plan (2006)

The GVRD Master Plan was adopted in 2006 to guide future development of parks, recreation, and open space facilities throughout the City. The Master Plan establishes service standards independent of the Vallejo General Plan standards for parks, recreation, and open space facilities. It includes policies to distribute recreational amenities evenly throughout the City and describes existing conditions of parks and recreation facilities located within the City. The Master Plan also includes opportunity areas for new parks/facilities to meet both District and national goals from the National Recreation and Park Association and includes financing strategies for maintenance of existing parks and expansions.

4.14.3 STANDARDS OF SIGNIFICANCE

The following criteria included in Appendix G of the State CEQA Guidelines is used to determine the significance of potential recreation impacts. Impacts to recreation would be significant if the proposed project would:

- 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
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment

4.14.4 PROJECT IMPACTS AND MITIGATION

IMPACT REC-1	***WOULD THE PROJECT, INCREASE THE USE OF EXISTING NEIGHBORHOOD AND REGIONAL PARKS OR OTHER RECREATIONAL FACILITIES SUCH THAT SUBSTANTIAL PHYSICAL DETERIORATION OF THE FACILITY WOULD OCCUR OR BE ACCELERATED?*** ***(LESS THAN SIGNIFICANT)***

The proposed project would increase the demand on existing neighborhood parks due to the increase in the residential population associated with the project. As previously discussed in Local Regulations, Chapter 3.18 of the VMC would require the developer to either dedicate land at a rate of 4.25 acres per 1,000 residents or pay an in-lieu fee for land acquisition. The General Plan includes Action CP-3.4A to maintain this standard to accommodate for the growth associated with new development. In addition to the dedication requirement, VMC Chapter 3.18 requires the payment of an impact fee for the purpose of providing park improvements. Chapter 3.18 allows dedication of improved parks to be credited against the dedication and/or impact fee, subject to City and GVRD approval.

Based on VMC Chapter 3.18 and the proposed number of residential units, the project's park dedication requirement pursuant to the Quimby Act is calculated to be 2.31 acres. The proposed project includes 2.66 acres of parks and trails[1]. The project includes the following open space facilities for the use of project residents and the general public: two 0.15-acre "pocket" parks, two 0.13-acre paseos connecting to the pocket parks, 0.18-acre of open space along Turner Parkway, and a 1.92-acre linear park/trail to be located between the residential area and a 5.7-acre open space area.

In addition, the City of Vallejo requires the payment of a Development Impact Fee to the GVRD for each single-family unit. The collection of fees and determined fair share fee amounts are adopted by the City as Conditions of Approval (COAs) for all new development projects prior to project approval. Fees paid

[1] Acreage calculation does not include north/south residential paseos.

aid in the development of new park-space and maintenance as required, to ensure continued high-quality park facilities for all city residents. Given that the City maintains an ample and diverse range of park sites and park facilities and collects fees from new development to fund the construction of new parks and the maintenance of existing parks, the additional demand for parks generated by the project would not result in the physical deterioration of existing parks and facilities within Vallejo. As such, this is a less than significant impact and no mitigation is required.

IMPACT REC-2	***DOES THE PROJECT INCLUDE RECREATIONAL FACILITIES OR REQUIRE THE CONSTRUCTION OR EXPANSION OF RECREATIONAL FACILITIES WHICH MIGHT HAVE AN ADVERSE PHYSICAL EFFECT ON THE ENVIRONMENT?*** ***(LESS THAN SIGNIFICANT)***

As previously addressed, the project proposes two 0.28-acre parks for the use of project residents. Further, a 2.0-acre linear park/trail would be located between the residential area and the 5.7-acre open space area. The linear park/trail would be accessible to the public and connect to a meandering sidewalk along Turner Parkway on the north and extend to the south with connections to the residential area from three pass-thru walkways between homesites bordering the park/trail. Within the interior of the residential area, the project would provide a series of pedestrian paseos connecting to the parks and liner park/trail and a new meandering sidewalk on Turner Parkway. The proposed project includes these walkways to encourage pedestrian activity within the residential community as well as to the on-site retail and service-oriented uses.

All parks proposed as part of the project would occur within the existing development footprint and potential impacts are accounted for in this EIR. Should the proposed project not meet its parkland dedicated requirements through the provision of the proposed on-site parkland, the proposed project would be required to pay an in-lieu fee as mitigation for the amount of parkland acreage not provided. Any off-site parks developed using in-lieu fees would occur through the City of Vallejo or GVRD consistent with the respective parks plan. These measures would ensure that additional demand for parks generated by the proposed project would not result in the physical deterioration of existing parks and facilities within Vallejo. In addition, all newly constructed parks would require permitting and their own environmental review in accordance with CEQA. This would ensure that any environmental impacts are disclosed and mitigated to the extent possible. Therefore, the project would not result in an adverse physical effect on the environment.

4.14.5 CONCLUSION

Implementation of the proposed project would increase the demand for parks due to new residential population associated with the project. Chapter 3.18 of the Vallejo Municipal Code would require the developer to either dedicate land at a rate of 4.25 acres per 1,000 persons and/or pay a Park Impact Fee per residential unit or 2.31 acres. As part of the proposed project, on-site parks and recreational uses totaling 2.66 acres would be provided: two 0.15-acre “pocket” parks, two 0.13-acre paseos connecting to

the pocket parks, 0.18-acre of open space along Turner Parkway, and a 1.92-acre linear park/trail. With compliance with the City's Park Impact Fee requirements (Chapter 3.18 of the Vallejo Municipal Code), the project would have a less than significant impact on park and recreation facilities in the City, and no mitigation is required. Further, the project includes the preservation of 5.7 acres of wetlands/open space which serves as a buffer between the residential and commercial components of the proposed project.

4.14.6 CUMULATIVE IMPACTS

A significant cumulative environmental impact would result if cumulative growth including the proposed project would result in or accelerate substantial physical deterioration of a recreational facility, or exceed the ability of the local agencies to provide recreational opportunities, resulting in the need for construction of new facilities thereby causing an adverse physical impact on the environment.

The proposed project is anticipated to generate approximately 513 new residents and marginally increase demand for recreational opportunities in the City. The proposed project would provide recreational opportunities within the project site to help serve the increased demand. The proposed project would include 2.66 acres of park area. The proposed project also includes the preservation of 5.7 acres of open space adjacent to the linear trail. This area would serve as a physical and aesthetic visual buffer between the residential and commercial components of the proposed project. In addition, the project applicant would be required to pay additional applicable fees as part of the City's Park Impact Fee if the City should determine the existing provision of parks is not adequate to satisfy City requirements.

All other new residential or qualifying development projects would be required to provide new park and recreation facilities or pay fees to mitigate for impacts. Fees are collected at the time new building permits for new development are issued. Fees are determined by the fee schedule in effect at the time of permit issuance. The development of and planning for all new parks provided as part of the proposed project, by other projects, or funded by payment of fees would be reviewed by the City. City review would ensure the new recreational facilities are planned and built-in accordance with all applicable City policies and guidance. The final location and size of additional recreational facilities would be determined as part of future development activity and as determined by the City. These measures would ensure the provision of adequate parklands are provided in conjunction with past, present, and reasonably foreseeable projects Impacts associated with construction of new parks, or specific parkland expansion or improvement projects would undergo site-specific environmental review, if applicable.

The proposed project would not result in a change in parkland demand for the City of Vallejo because the project would meet its project-specific parkland requirements as well as providing a linear park/trail that would be open to the public. It is anticipated that this would minimize the proposed projects contribution to cumulative impacts. Therefore; the proposed project, combined with past, present, and reasonably foreseeable future projects, would not result in a substantial impact to park and recreational facilities. The proposed project also is not anticipated to result in significant environmental impacts from off-site recreational resources because each would undergo site-specific CEQA review. As a result, the cumulative impact associated with parks and recreational facilities would be less than significant.

4.14.7 REFERENCES

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4.15 TRANSPORTATION

This section summarizes the findings of the Fairview at Northgate Transportation Impact Analysis (TIA) prepared by Fehr & Peers (December 2019). The TIA considers both short-term (construction) and long-term (operation/implementation) traffic impacts of the project. The TIA was prepared in accordance with criteria set forth by the City of Vallejo (City) and California Department of Transportation (Caltrans), and the Transportation Research Board's 2010 Highway Capacity Manual methodology for intersection level of service (LOS) analysis. The TIA is included in its entirety as Appendix J of this EIR.

Additional data sources included the following:

- Propel Vallejo 2040 General Plan (General Plan).
- Propel Vallejo 2040 General Plan EIR.
- Napa/Sonoma Travel Demand Model.
- Plan Bay Area 2040.
- Caltrans Performance Measurement System Data.

4.15.1 METHODOLOGY AND ASSUMPTIONS

TRAFFIC STUDY AREA

The traffic study area was selected in consultation with City of Vallejo staff based on a review of the project location and the amount of traffic that could be added to intersections in the area. The traffic study area is depicted on **Figure 4.15-1: Project Study Intersections and Trip Distribution**. It encompasses 25 intersections, including 5 new intersections formed by the project driveways, and 2 future intersections to be constructed as part of the planned I-80 at Redwood Parkway interchange improvements. These intersections include the following:

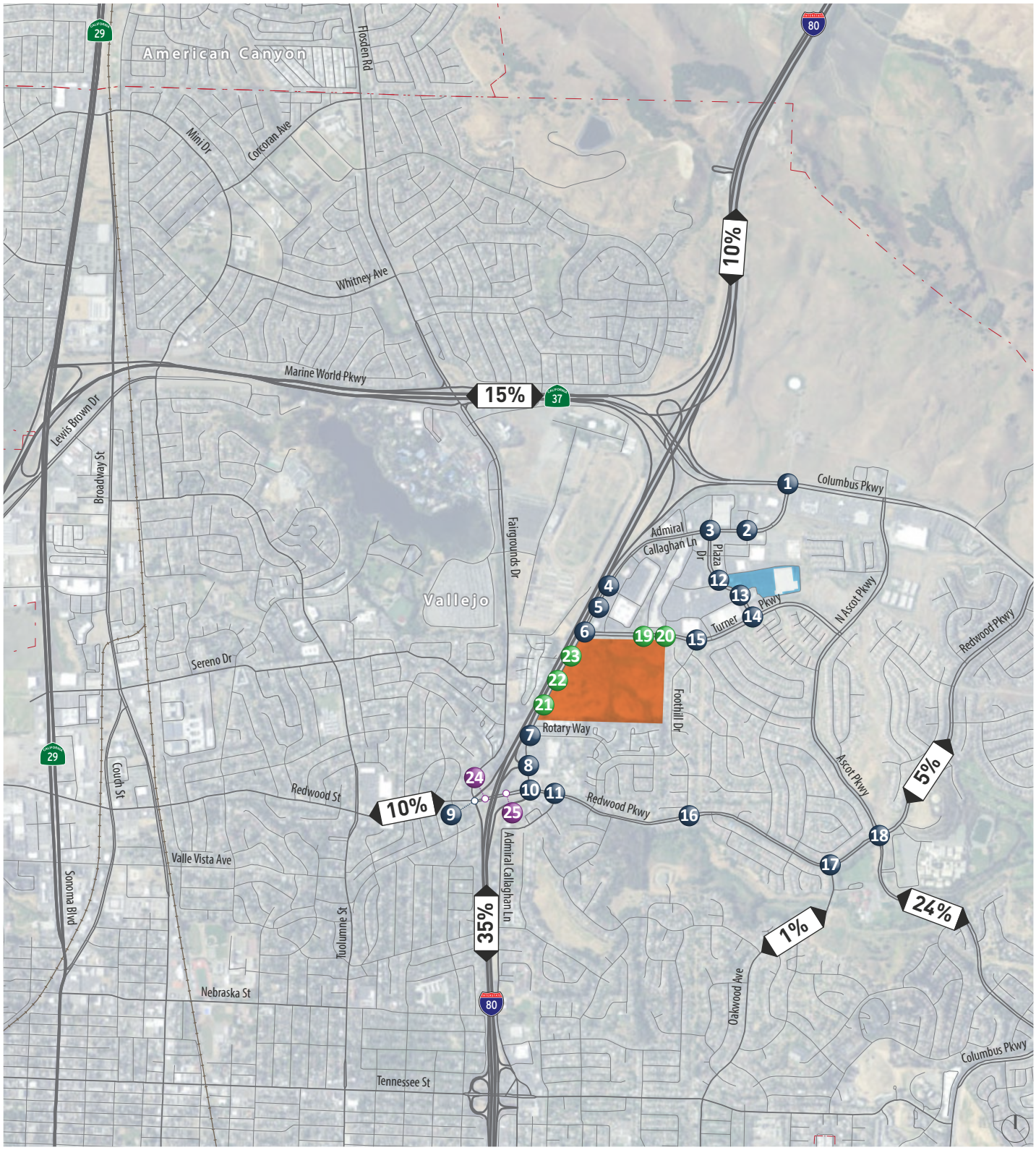
Intersections

1. Admiral Callaghan Lane at Columbus Parkway
2. Admiral Callaghan Lane at Auto Club Drive
3. Admiral Callaghan Lane at Plaza Drive
4. Admiral Callaghan Lane at Vallejo Corners
5. Admiral Callaghan Lane at Target Driveway
6. Admiral Callaghan Lane at Turner Parkway
7. Admiral Callaghan Lane at Rotary Way
8. Admiral Callaghan Lane at I-80 EB Ramps
9. Redwood Street at Fairgrounds Drive at I-80 WB Ramps

10. Redwood Parkway at Admiral Callaghan Lane (N) at I-80 EB Off-Ramp
11. Redwood Parkway at Admiral Callaghan Lane (S)
12. Plaza Drive at Gateway Plaza
13. Plaza Drive at Costco Driveway
14. Plaza Drive at Turner Parkway
15. Turner Parkway at Foothill Drive
16. Redwood Parkway/Foothill Drive
17. Redwood parkway/Oakwood Drive
18. Redwood Parkway/Ascot Parkway
19. Turner Parkway/Western Residential Project Driveway
20. Turner Parkway/Eastern Residential Project Driveway (With project only)
21. Admiral Callaghan Lane/Southern Project Driveway (With project only)
22. Admiral Callaghan Lane/Middle Project Driveway (With project only)
23. Admiral Callaghan Lane/Northern Project Driveway (With project only)
24. Redwood Parkway/I-80 Westbound Ramps (Future intersection: Cumulative (2040) cases only)
25. Redwood Parkway/I-80 Eastbound Ramps (Future intersection: Cumulative (2040) cases only).

Freeway Segments

1. I-80 Westbound East of Columbus Parkway
2. I-80 Westbound between Columbus Parkway and Redwood Parkway
3. I-80 Westbound West of Redwood Parkway
4. I-80 Eastbound East of Columbus Parkway
5. I-80 Eastbound between Columbus Parkway and Redwood Parkway
6. I-80 Eastbound West of Redwood Parkway



Project Site | Existing Costco Site | # Study Intersection | # Project Access Intersection | # Future Intersection

X% Project Trip Distribution

Source: Fehr + Peers, 2019

FIGURE 4.15-1: Project Study Intersections and Trip Distribution
Fairview at Northgate Project

Kimley»Horn

STUDY SCENARIOS

Each of the traffic study area intersections and freeway segments have been analyzed for the following scenarios:

- **Existing Conditions.** *Existing Conditions* quantify the current traffic operations at the study locations and are considered the baseline conditions against which changes are measured.
- **Existing with Project Conditions.** The *Existing with Project Conditions* scenario is a hypothetical scenario which assumes that the project would be fully implemented at the present time. This analysis isolates the potential impact of the project from other projects and circulation system improvements and assumes full development of the proposed project with full absorption of project traffic on the existing circulation system. For this scenario, project peak hour traffic volumes are added to the Existing Conditions volumes to obtain the *Existing with Project* traffic volumes.
- **Near-Term (2023 plus Other Approved Projects) without Project Conditions.** The *Near-Term (2023) without Project Conditions* scenario forecasts four years of development in the City and Solano County without the proposed project. The *Near-Term (2023) No Project* scenarios were forecasted using the Napa/Sonoma Travel Demand Model.
- **Near-Term (2023 plus Other Approved Projects) with Project Conditions.** The *Near-Term (2023) with Project Conditions* scenario refers to Year 2023 conditions with the addition of project traffic.
- **Cumulative (2040) without Project Conditions.** The *Cumulative (2040) without Project Conditions* scenario forecasts traffic conditions in Year 2040 associated with development in the City and Solano County without the proposed project. The *Cumulative (2040) No Project* scenarios were forecasted using the Napa/Sonoma Travel Demand Model.
- **Cumulative (2040) with Project Conditions.** The *Cumulative (2040) with Project Conditions* scenario refer to traffic impacts associated with the addition of project-generated traffic to traffic volumes anticipated in 2040.

TRAFFIC IMPACT ANALYSIS METHODOLOGY

Intersection Analysis Methodology

The traffic operations analysis uses the Synchro and Synchro/SimTraffic 9.0 software, based on the procedures outlined in the Transportation Research Board's 2010 Highway Capacity Manual (2010 HCM). Intersection operation inputs include vehicle and pedestrian volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. For intersections not located on Admiral Callaghan Lane, Redwood Parkway, and Turner Parkway (Intersections #1 - #3, and #12 through #20), isolated intersection analysis using the Synchro software was used. For the remaining intersections (#4 - #11 and #21 - #25), the SimTraffic software was used to analyze the Admiral Callaghan/Redwood Parkway/Turner Parkway network as a system. The average of ten SimTraffic model runs determined the intersection operations for these intersections.

The calculation returns a volume-to-capacity (V/C) ratio that translates into a corresponding Level of Service (LOS). LOS is a quantitative measure of the average delay experienced by a driver at the intersection. LOS ranges from LOS A, representing uncongested, free-flowing conditions, to LOS F, representing severely congested, over-capacity conditions. *Table 4.15-1: Level of Service Definitions - Intersections* provides ranges of delay and volume-to-capacity ratios that correspond to vehicular LOS at intersections.

Table 4.15-1: Level of Service Definitions - Intersections

Level of Service	Signalized Intersections		Unsignalized Intersections	
	Delay (seconds/vehicle)	Volume-to-Capacity Ratio (V/C)	Delay (seconds/vehicle)	Volume-to- Capacity Ratio (V/C)
A	< 10.0	< 1.0	< 10.0	< 1.0
B	> 10.0 to 20.0	< 1.0	> 10.0 to 15.0	< 1.0
C	> 20.0 to 35.0	< 1.0	> 15.0 to 25.0	< 1.0
D	> 35.0 to 55.0	< 1.0	> 25.0 to 35.0	< 1.0
E	> 55.0 to 80.0	< 1.0	> 35.0 to 50.0	< 1.0
F	> 80.0	> 1.0	> 50.0	> 1.0
Source: 2010 *Highway Capacity Manual.*				

Queues

Vehicle queues were evaluated with SimTraffic at intersections along Redwood Parkway and Admiral Callaghan Lane. The SimTraffic 9.0 software was used. The 50th percentile and 95th percentile queues are reported. The 50th percentile queue reflects the typical vehicle queues, while the 95th percentile queue reflects the typical maximum extent of vehicle queues during the hour, occurring two to three times during the hour. Maximum queues may be longer but occur infrequently. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection.

Signal Warrants

Unsignalized study intersections operating below acceptable standards during peak hours were studied to determine whether installation of a traffic control signal is justified. Unsignalized study intersections were evaluated under the Peak Hour Signal Warrant 3 criteria outlined in the 2014 California Manual on Uniform Traffic Control Devices (MUTCD).

To assess the need for signalization of stop-controlled intersections, the MUTCD (Caltrans, 2014) presents ten signal warrants. The Peak Hour Volume Warrant (Warrant 3B) and the Peak Hour Delay Warrant (Warrant 3A) were used as a supplemental analysis tool to assess operations at the unsignalized intersections.

Freeway Analysis Methodology

Freeway facilities (basic, weaving, and merge/diverge segments) were evaluated using the Highway Capacity Software 2010 (HCS 2010). The HCS 2010 implements the procedures defined in the 2010 HCM and takes into consideration peak hour traffic volumes, free-flow speeds, percentage of heavy vehicles, and number of travel lanes. These factors are used to determine the vehicle density, measured in passenger cars per mile per lane. *Table 4.15-2: Level of Service Definitions – Freeway Facilities* provides the relationship between vehicle density and LOS for freeway facilities.

Table 4.15-2: Level of Service Definitions - Freeway Facilities

Level of Service	Density (passenger cars per mile per lane)		
	Basic Segment	Weaving Segment	Merge/Diverge Segment
A	≤ 11	≤ 10	≤ 10
B	> 11 to 18	> 10 to 20	> 10 to 20
C	> 18 to 26	> 20 to 28	> 20 to 28
D	> 26 to 35	> 28 to 35	> 28 to 35
E	> 35 to 45	> 35	> 35
F	> 45	Demand Exceeds Capacity	Demand Exceeds Capacity
Source: 2010 *Highway Capacity Manual.*			

LEVEL OF SERVICE STANDARD AND PERFORMANCE CRITERIA

The City of Vallejo General Plan sets "LOS E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit and emergency access performance."

4.15.2 ENVIRONMENTAL SETTING

REGIONAL

The City is located between the inner Bay Area and the Napa Valley, with access by road, rail, and water. Regional vehicular access to the City is provided by Interstate 80 (I-80), Interstate 780 (I-780), State Route 29 (SR-29), and State Route 37 (SR-37). I-80 runs north and south through the City via the Carquinez Bridge on the south to the City of Richmond and north to the City of Cordelia. SR-37 intersects I-80 north of the project site and provides access to points west such as Sonoma County. I-780 is south of the project site and provides access from the east from the City of Benicia. SR-29 at Sonoma Boulevard roughly parallels I-80 and provides northerly access to Napa County.

Regional transit access within the City includes passenger ferry service provided by San Francisco Bay Ferry that travels from the Vallejo Ferry Terminal to and from San Francisco. Bus service is provided by the Solano County Transit (SolTrans) bus service that among other things, links to the Bay Area Rapid Transit (BART) including its El Cerrito del Norte and Walnut Creek stations. Bus service includes the Napa County Transportation and Planning Agency's VINE bus service to Napa and the El Cerrito del Norte BART station. Park-and-ride facilities, bikeways, and pedestrian facilities also are provided at a local level with additional

connections to facilitate regional transit opportunities. The Napa County Airport is approximately six miles to the north.

LOCAL

Roadways

The Propel Vallejo 2040 General Plan (General Plan) identifies functional roadway classifications, which govern engineering design standards and the level of service on roadways.

- ***Freeways*** provide mobility between Vallejo and regional destinations. Freeways are linked to the City's network via ramps, are fully access controlled, and are divided highways with at least two lanes per direction. Freeway capacities depend primarily on the number of through lanes and the presence of auxiliary lanes (lanes connecting an on-ramp to the downstream off-ramps).
- ***Two-Lane Highways*** provide mobility between Vallejo and regional destinations.
- ***Principal Arterials/State Routes*** provide the highest level of mobility for traffic within the City after freeways and link freeways to other arterials, collectors, and local streets. Principal arterial streets typically have four travel lanes and are generally higher-speed roadways, with ½- to 1-mile signalized intersection spacing.
- ***Arterial Streets*** provide mobility for high traffic volumes between parts of the City, linking collectors to principal arterial streets and freeways. These roadways are typically lower-speed and have lower volumes than principal arterials, and provide two to four lanes, and sometimes six lanes. Arterials typically provide more property access points than principal arterials but are more restricted than collectors or local streets.
- ***Collector Streets*** provide connectivity within the City, linking local roads to arterials. Collectors, along with local streets, provide the highest level of access from private property driveways. Collectors typically have lower speeds than arterials with more closely spaced intersections than arterials.
- ***Local Roadways*** provide direct access to property, and typically have higher intersection spacing and lower speeds than other roadway classes.

Roadways that provide primary circulation near the project site are listed below.

- **Interstate 80 (I-80)** is an east-west freeway that extends from Chicago to San Francisco. Within Vallejo, I-80 is six lanes and is oriented in a north-south direction. I-80 provides access to the project site from the north at Columbus Parkway and from the south at Redwood Parkway.
- **Columbus Parkway** is an east-west four-lane arterial that begins at the terminus of SR-37. North of the project site, Columbus Parkway provides access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 45 miles per hour (mph); on-street parking is prohibited on Columbus Parkway.

- **Turner Parkway** is an east-west four-lane arterial that extends from Ascot Parkway to Admiral Callaghan Lane. Turner Parkway would be the primary access roadway to the residential portion of the project site. The posted speed limit is 40 mph; on-street parking is prohibited.
- **Redwood Parkway** is an east-west four-lane arterial between I-80 and Columbus Parkway. Redwood Parkway provides access to the project site at its intersection with Admiral Callaghan Lane. The posted speed limit is 35 mph; on-street parking is prohibited in the project vicinity.
- **Admiral Callaghan Lane** is a north-south four-lane arterial between Columbus Parkway and Turner Parkway and continues as a two-lane arterial between Turner Parkway and Rotary Way, along the project frontage. South of Rotary Way, Admiral Callaghan Lane widens back out to a four-lane arterial before continuing as a residential street south of Redwood Parkway. Admiral Callaghan Lane would provide primary access to the project's commercial center. The posted speed limit is 35 mph; on-street parking is prohibited near the project site.
- **Plaza Drive** is a north-south four-lane roadway between Admiral Callaghan Lane to the north and Turner Parkway to the south. Plaza Drive provides primary access to the existing Costco store. Although there is no posted speed limit, vehicles generally travel at approximately 30 mph. On-street parking is prohibited on Plaza Drive.

Bicycle and Pedestrian Facilities

Bicycle facilities are typically classified as follows:

- ***Bicycle paths*** (Class I) provide a completely separate right-of-way and are designated for the exclusive use bicycles and pedestrians with vehicle cross-flow minimized.
- ***Bicycle lanes*** (Class II) provide a restricted right-of-way and are designated for the use of bicycles for one-way travel with a striped lane on a street or highway. Bicycle lanes are generally a minimum of five feet wide. Vehicle parking and vehicle/pedestrian cross-flow are permitted.
- ***Bicycle routes*** (Class III) provide right-of-way designated by signs or pavement markings for shared use with motor vehicles. These include "sharrows" or "shared-lane markings" to highlight the presence of bicyclists.
- ***Class IV Bikeways*** (Class IV) cycle tracks or "separated" bikeways provide a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic by physical barriers, including but not limited to grade separation, flexible posts, inflexible vertical barriers such as raised curbs, or parked cars.

Within the study area, Class II bicycle lanes are provided on Redwood Parkway east of Admiral Callaghan Lane and on Turner Parkway between Admiral Callaghan Lane and Ascot Parkway. Class III "sharrows" are on Admiral Callaghan Lane north of Turner Parkway. The General Plan identifies Admiral Callaghan Lane between Turner Parkway and Redwood Parkway as a future Class II bike lane facility.

Pedestrian facilities include sidewalks, pathways, crosswalks, and pedestrian signals. Sidewalks are provided along all arterials in the traffic study area including Turner Parkway, Plaza Drive, Rotary Way,

Redwood Parkway, Redwood Street, and on the south side of Columbus Parkway. There are sidewalks on the east side of Admiral Callaghan Lane north and south of the project site.

Transit Facilities

Transit service in the area is provided by the San Francisco Bay Ferry, SolTrans, BART/Amtrak, and the Mare Island Causeway Bridge.

San Francisco Bay Ferry. The San Francisco Bay Ferry/Vallejo Route offers ferry service daily between Vallejo and the San Francisco Ferry Building and San Francisco Pier 41. The Vallejo Ferry Terminal is located at 295 Mare Island Way approximately four miles from the project site. Travel time between Vallejo and San Francisco is approximately 60 minutes and approximately 10 minutes between Pier 41 and the Ferry Building. Parking is available at the Vallejo Ferry Terminal. Seasonal service is also available to Oracle Park for select San Francisco Giants' baseball games.

SolTrans. SolTrans provides local and express bus service to the Solano County cities of Vallejo, Benicia, and Fairfield. Express bus service connects to the Contra Costa County communities of El Cerrito, Pleasant Hill, and Walnut Creek, with regional connections to BART. The following bus routes are proximate to the project site.

- *Route 2* operates from approximately 6:00 AM to 8:30 PM on weekdays and from approximately 6:30 AM to 7:00 PM on weekends. The route connects the Vallejo Transit Center, Sereno Transit Center, Solano Community College and Gateway Plaza. Near the project site, there are stops on Plaza Drive, Turner Parkway, and at the Admiral Callaghan Lane/Target Driveway.
- *Route 7* operates from approximately from 6:00 AM to 9:00 PM on weekdays, from approximately 6:30 AM to 8:00 PM on Saturdays, and from approximately 8:30 AM to 8:00 PM on Sundays. The route connects the Vallejo Transit Center with Gateway Place, and businesses, neighborhoods, and schools along Florida Street and Springs Road. Near the project site, stops are located on Redwood Parkway, Admiral Callaghan Lane, Plaza Drive, and at the Admiral Callaghan Lane/ Target Driveway.
- *Route 20* operates from approximately 8:30 AM to 7:00 PM on weekdays only. It connects the Sereno Transit Center with Sutter Solano Medical Center, Gateway Plaza, and downtown Benicia. In the project area, stops are located on Plaza Drive.
- *Route 38* is a school tripper route that operates on weekday mornings. Between approximately 7:00 AM and 7:30 AM, Route 38 connects multiple residential neighborhoods with Beverly Hills Elementary School, Jesse Bethel High School, and Gateway Plaza. Near the project site vicinity, stops are located on Redwood Parkway, Admiral Callaghan Lane, Plaza Drive, and at Admiral Callaghan Lane/Target Driveway.

SolTrans ADA Paratransit bus service is available to qualified, certified persons with disabilities unable to board a regular SolTrans fixed route bus, access a SolTrans bus stop, or otherwise navigate the regular fixed-route bus system due to a disabling condition as defined by the Americans with Disabilities Act

(ADA). SolTrans Paratransit provides a shared ride, origin to destination bus service by advance appointment. Service operates parallel to the fixed route system, during the same hours and days.

BART/Amtrak. BART and Amtrak connections within Solano County include local routes 1 through 8, and 20. Solano Express routes include Routes Y, 80, and 85, and School Tripper routes include 15/17, and 38.

4.15.3 REGULATORY SETTING

FEDERAL

There are no federal regulations applicable to the proposed project.

STATE

California Department of Transportation

The California Department of Transportation (Caltrans) owns and operates the State highway system, which includes the freeways and State routes within California. In Vallejo, Caltrans maintains the freeways (I-80 and I-780), SR-29 (Sonoma Boulevard), and SR-37. The Caltrans Guide for the Preparation of Traffic Impact Studies (December 2002) provides guidance on the evaluation of traffic impacts to State highway facilities. The document outlines when a traffic impact study is needed and what should be included in the scope of the study. The Guide states the following: "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS."

Complete Streets Act

Assembly Bill (AB) 1358, the California Complete Streets Act, became effective January 1, 2011. AB 1358 places the planning, designing, and building of complete streets into the larger planning framework of the General Plan by requiring jurisdictions to amend their circulation elements to plan for multimodal transportation networks.

REGIONAL

Bay Area

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the Bay Area's regional transportation planning agency and federally designated Metropolitan Planning Organization (MPO). MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every three years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based on a realistic forecast of future revenues, and the

transportation projects taken as a whole must help improve regional air quality. The MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area 2040 (Regional Transportation Plan)

Plan Bay Area 2040 is a State-mandated, integrated long-range transportation and land use plan. As required by Senate Bill (SB) 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a RTP. In the Bay Area, the MTC and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB).

Solano County

Regional Transportation Improvement Program

The Solano Transportation Authority prepares the Regional Transportation Improvement Program (RTIP) which identifies and prioritizes transportation improvement projects, including roadway and freeway capacity and operational improvements, applicable transit enhancements, and pedestrian and bicycle network improvements. The RTIP is submitted to the Metropolitan Transportation Agency, which prioritizes projects for the entire nine-county Bay Area region and ultimately produces the RTP. The current RTP is Plan Bay Area.

Solano Transportation Authority Comprehensive Transportation Plan

The Comprehensive Transportation Plan (CTP) for Solano County identifies, plans, and prioritizes the transportation needs of Solano County through 2030. Solano County's transportation planning agency, the Solano Transportation Authority (STA), as the Transportation Planning and Congestion Management Agency for Solano County, developed the CTP 2030 in collaboration with its many transportation partners and the public. The CTP identifies overall policies as well as specific policies and projects for key plan elements including: arterials, highways, freeways, transit, and alternative modes.

Solano County Congestion Management Program

The Congestion Management Program (CMP) for Solano County is administered by the STA which acts as the State-mandated Congestion Management Agency (CMA). The CMP network in Vallejo consists of I-80, I-780, SR-37, and SR-29 as well as three key arterial segments: Tennessee Street between Mare Island Way and I-80, Curtola Parkway between Lemon Street and Maine Street, and Mare Island Way between Maine Street and Tennessee Street. I-80 is the closest CMP network road to the project site.

LOCAL

Propel Vallejo General Plan 2040 (General Plan)

The Vallejo General Plan provides information about the transportation needs of Vallejo. The Plan also includes Level of Service (LOS) standards for the City. General Plan transportation and traffic policies and actions relevant to the proposed project are listed below.

Policy CP-1.6	*Active Transportation Network*. Promote the health benefits of walking and bicycling by providing a convenient and safe network of bicycle paths and routes, sidewalks, pedestrian paths, and trails, including connections with major destinations such as civic facilities, educational institutions, employment centers, shopping, and recreation areas.
Policy MTC-2.1	*Safety First.* Prioritize pedestrian, bicycle, and automobile safety over traffic flow.
Policy MTC-2.3	*Emergency Response Routes*. Ensure adequate emergency vehicle access in all areas of Vallejo.
Policy MTC-2.4:	*Citywide Mobility*. Maintain a transportation network that provides mobility for all ages and abilities and for all areas of the community.
Policy MTC-2.5	*Street Classification System*. Maintain a street classification system that establishes user mode priorities and associated performance standards metrics for each type of street.
Action MTC-2.5A	Establish performance standards for each street type that includes adequate emergency vehicle use.
Action MTC-2.5B	Set vehicle Level of Service E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit, and emergency access performance, with the prioritization of metrics to be determined by the street type and context.
Action MTC-2.5C	Include the following considerations in establishing performance metrics: i. quality and connectivity of pedestrian facilities, based on best practice design guidelines including the California Manual on Uniform Traffic Control Devices (MUTCD) and the National Association of City Transportation Officials (NACTO) Urban Street Design Guide; ii. quality and connectivity of the bicycle facilities, based on best practice design guidelines including the California MUTCD, Caltrans Highway Design Manual Chapter 1000, and the NACTO Urban Bikeway Design Guide; iii. quality of the transit facilities and service, based on best practice design guidelines, including the NACTO Transit Street Design Guide,

	as well as on the service capacity and frequency as compared to measured or projected demand; adequacy of emergency access provided, as measured by the efficiency of emergency access routes and the presence or absence of barriers along primary routes.
Action MTC-2.5D	Employ traffic management techniques, adjust traffic signal timing, and install speed management to meet performance standards for all modes of transportation.
Action MTC-2.5E	Continue to collect both City and Regional transportation impact fees so that development makes fair share contribution to improvements needed to maintain established standards for all modes of transportation, including for traffic flow, roadway safety, and pavement condition.
Policy MTC-2.7	*Complete Streets*. Increase accessibility for and use of streets by pedestrians, bicyclists, and transit riders.
Action MTC-2.7B	Seek funding to improve sidewalk conditions, including widening of substandard sidewalks and adding street trees and lighting.
Action MTC-2.7C	Establish City regulations to improve walking and biking opportunities in new development, including features such as sidewalks, signage, streetscape improvements, bike lanes, and secured bicycle parking.
Action MTC-2.7D	Adopt the National Association of City Transportation Officials (NACTO) Urban Street Design Guide and Urban Bikeway Design Guide to direct future improvement projects.
Action MTC-2.7E	Factor in bus operational and access needs when considering the location, planning, and design of site improvements, considering such factors as bus operational needs, proximity of building to streets, and provision of sidewalks, supporting an efficient, reliable, and safe transit system accessible to all.
Action MTC-2.7F	Update City regulations to allow use of sidewalk space for uses such as sidewalk dining or merchandise by adjacent businesses on commercial streets with sufficient width.
Policy MTC-2.8	*Transportation Demand Management*. Decrease dependence on single-occupant vehicles by increasing the attractiveness of other modes of transportation. Coordinate with employers and Action MTC-2.8A transit agencies to encourage and promote the use of shuttles, carpools, vanpools, transit passes, variable work hours, telecommuting, and other methods to reduce vehicle miles traveled (VMT).
Action MTC-2.8B	Partner with major employers and local businesses to study the feasibility of creating one or more Transportation Management Associations (TMA)

	for cost-effective provision of transportation services and commute trip reduction strategies in Vallejo's job centers.
Action MTC-2.8C	As part of the site plan approval process, require development to provide services from a menu of transportation demand management (TDM) strategies that will reduce VMT.
Action MTC-2.8E	As part of the General Plan annual review, include discussion of the progress of TDM improvements and programs, based on establishing methods for monitoring progress.
Action MTC-2.8F	Engage in regional planning efforts that include TDM.
Policy MTC-2.9	*Local Transit*. Encourage increased local transit ridership to work, school, shopping, and recreation.
Action MTC-2.9A	Coordinate with transit providers to facilitate local service that is timely, cost-effective, and responsive to community travel patterns and needs.
Action MTC-2.9B	Work with SolTrans to identify and implement public realm improvements that support increased use of public transit, including inviting sidewalks, ADA-compliant curb ramps, signal priorities, and amenities such as sidewalks, benches, shelters, signage, and real-time schedule systems on key routes.
Action MTC-2.9C	Seek funding for para-transit, neighborhood shuttle, pedi-cab, and other alternative transportation services.
Action MTC-2.9D	Provide informational materials to promote walking and bicycling as healthy, affordable, and fun ways to get around Vallejo.
Policy MTC-2.11	*Sustainable Transportation*. Ensure that circulation improvements can be operated and maintained within existing and future resource limitations.
Goal MTC-3	Interconnected Community. Improve connections within and between Vallejo's neighborhoods for all travel modes.
Policy MTC-3.1	*Coordinated Transportation Planning*. Ensure that improvements to the transportation network support a land use pattern that connects the community and facilitates travel among Vallejo’s neighborhoods.
Action MTC-3.1A	Work with Caltrans, Solano County, SolTrans, and the Solano Transportation Authority to identify and seek funding for improvements that make intra-city travel easier, including for transit, bicycles, and pedestrians.
Action MTC-3.1B	Synchronize improvements to the local street network with planned expansion of the County bicycle network and the regional trail system in Vallejo.

Policy MTC-3.2	*Local Transit*. Encourage improvements in citywide transit service that directly connect major destinations in Vallejo, including commercial districts, job centers, and projected growth areas.
Policy MTC-3.4	*Walking, Biking, and Rolling*. Expand the local bicycle and trail network to provide safe, healthy, attractive options for non-motorized travel among destinations in Vallejo, including for wheelchair users.
Policy MTC-3.5	*Walkability*. Promote a well-designed, interconnected, pedestrian-friendly environment in the Downtown/Waterfront District.
Policy MTC-3.6	*Wayfinding*. Emphasize pedestrian access in the Downtown/Waterfront circulation system.
Policy MTC-3.7	*Shared Streets*. Facilitate access to and through the District by alternatives to the automobile.

4.15.4 EXISTING CONDITIONS

EXISTING TRAFFIC VOLUMES

Counts of vehicles, pedestrians, and bicyclists at the traffic study intersections were collected in November 2017 and late August 2019 for weekday AM, mid-day, PM, and Saturday mid-day two-hour peak periods.[1] Local schools were in session for these counts. Based on these counts, the traffic study area peak hours are typically 8:00 – 9:00 AM for the weekday AM peak hour, 1:00 PM to 2:00 PM for the weekday mid-day peak hour, 4:30 PM to 5:30 PM for the weekday PM peak hour, and 12:30 PM to 1:30 PM for the Saturday mid-day peak hour. Peak Hour Factors[2] were applied to modeling to account for the high traffic volumes hours of the day. Peak hour factors also included pedestrian and bicycle activity. Additional counts were taken in July 2019 from 7 AM – 9 AM to capture the AM peak period traffic associated with the existing Costco gas pumps only.

Intersection Levels of Service

Peak hour intersection analysis was conducted for the traffic study area intersections using the applicable intersection analysis methodology. Existing weekday mid-day (MD) (12:00 PM to 2:00 PM), PM (4:00 PM to 6:00 PM), and Saturday mid-day (SA) peak hour operations are summarized in *Table 4.15-3: Intersection Levels of Service – Existing Conditions*. The table shows that all traffic study area intersections are currently operating at an acceptable level of service (LOS E or better) with the exception of the following intersection:

- Redwood Street/Fairgrounds Drive/I-80 WB Ramps (AM peak hour); and
- Plaza Drive/Costco Driveway (Mid-day, PM, and Saturday mid-day peak hours).

[1] The 2019 counts were obtained to support the addition of intersections 15 – 18 to the analysis, as well as to support the addition of an AM peak hour analysis to the study.

[2] The peak hour factor (PHF) is the hourly volume during the maximum-volume hour of the day divided by the peak 15-minute flow rate within the peak hour; a measure of traffic demand fluctuations within the peak hour.

Table 4.15-3: Intersection Levels of Service – Existing Conditions

Intersection Location	Control[1,2]	Peak Hour	Existing Conditions	
			Delay (seconds)[3]	LOS[3]
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	13.8	B
		MD	17.2	B
		PM	24.0	C
		SA	20.4	C
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	14.6	B
		MD	15.1	B
		PM	15.8	B
		SA	17.3	B
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	25.6	C
		MD	21.8	C
		PM	22.8	C
		SA	38.1	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	4.7	A
		MD	7.4	A
		PM	8.9	A
		SA	11.8	B
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.0 (2.4)	A(A)
		MD	1.7 (3.0)	A (A)
		PM	1.9 (5.4)	A (A)
		SA	2.1 (5.0)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.6	A
		MD	13.1	B
		PM	15.6	B
		SA	23.8	C
7. Admiral Callaghan Ln at Rotary Way[4]	AWS	AM	9.0	A
		MD	14.9	B
		PM	17.1	C
		SA	21.1	C
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.1 (4.3)	A (A)
		MD	5.7 (11.7)	A (B)
		PM	5.7 (10.9)	A (B)
		SA	7.1 (13.2)	A (B)
9. Redwood St/Fairgrounds Dr at I- 80 WB Ramps	Signal	AM	**95.3**	**F**
		MD	31.7	C
		PM	36.2	D
		SA	38.8	D
10. Redwood Pkwy/Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	26.5	C
		MD	27.6	C
		PM	26.2	C
		SA	35.9	D
11. Redwood Pkwy at Admiral Callaghan Ln(S)	Signal	AM	8.9	A
		MD	9.9	A
		PM	11.9	B
		SA	11.5	B
12. Plaza Dr. at Gateway Plaza	Signal	AM	48.7	D

Table 4.15-3: Intersection Levels of Service – Existing Conditions

Intersection Location	Control[1,2]	Peak Hour	Existing Conditions	
			Delay (seconds)[3]	LOS[3]
		MD	13.3	B
		PM	12.9	B
		SA	16.8	B
13. Plaza Dr. at existing Costco Driveway	SSS	AM	5.3 (12.0)	A (B)
		MD	**27.0 (97.9)**	**F (F)**
		PM	**21.2 (79.5)**	**F (F)**
		SA	**90.6 (> 150.0)**	**F (F)**
14. Plaza Dr. at Turnover Pkwy	Signal	AM	10.2	B
		MD	13.7	B
		PM	13.4	B
		SA	15.1	B
15. Turner Parkway at Foothill Drive	SSS	AM	2.2 (9.6)	A (A)
		MD	1.9 (12.5)	A (B)
		PM	2 (12.8)	A (B)
		SA	2.1 (14.2)	A (B)
16. Redwood Parkway at Foothill Drive	SSS	AM	1.5 (12.5)	A (B)
		MD	2 (15.3)	A (C)
		PM	2.4 (16.1)	A (C)
		SA	2.1 (18)	A (C)
17. Redwood Parkway at Oakwood Drive	Signal	AM	7.5	A
		MD	10.3	B
		PM	12.2	B
		SA	11.6	B
18. Redwood Parkway/Ascot Parkway	Signal	AM	15.6	B
		MD	15.8	B
		PM	16.6	B
		SA	16.2	B

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop. MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level
4. Note that this intersection is analyzed in the Existing and Existing Plus Project scenarios as an all-way stop, which was the control type in 2017 when most of the traffic counts were taken. It has since been signalized in 2019.

Source: Fehr & Peers, December 2019.

Queues

The 50th and 95th percentile vehicle queues were estimated using SimTraffic 9.0 for all controlled movements at Intersections 4 through 11. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues exceed the storage capacity at the following intersections:

- **Intersection 6:** Admiral Callaghan Lane at Turner Parkway: westbound left and northbound through/right during the Saturday mid-day peak hour.
- **Intersection 7:** Admiral Callaghan Lane at Rotary Way: westbound right during the weekday midday and Saturday mid-day peak hours; westbound left during the weekday PM peak hour; and northbound through/right during the Saturday mid-day peak hour.
- **Intersection 8:** Admiral Callaghan Lane at I-80 EB Ramps: northbound left during all peak hours; and northbound through and through/right during the weekday AM and weekday PM peak hour.
- **Intersection 9:** Redwood Street/Fairgrounds Drive at I-80 WB Ramps: south-westbound left during all peak hours; eastbound right and southbound left during the weekday AM and weekday PM peak hour; and westbound left during the weekday and Saturday mid-day peak hour, westbound through and through/right during the weekday AM peak hour.
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N) at I-80 EB Off-Ramp: southbound right during the weekday AM, weekday PM and Saturday mid-day peak hours; and eastbound left during the weekday AM and Saturday mid-day peak hour.
- **Intersection 11:** Redwood Parkway at Admiral Callaghan Lane (S): northbound left during the three peak hours.

Signal Warrant Analysis

The Project was evaluated for the need to signalize stop-controlled intersections using the California Manual of Uniform Traffic Control Devices (MUTCD) (Caltrans, 2014) and considered existing traffic conditions and those that would occur if the Project is constructed, which are discussed in the impacts section further below. The unsignalized intersection of Intersection #13: Plaza Drive/Costco Driveway currently experiences high levels of delay for vehicles turning on to Plaza Drive. Intersection #13: Plaza Drive/Costco Driveway currently meets peak hour signal warrants during the Weekday Midday, Weekday PM, and Saturday Midday peak hours. The volumes are much lower in the Weekday AM peak hour and as a result the intersection does not meet peak hour signal warrants. Intersection #8: Admiral Callaghan Lane/I-80 Northbound Ramps experiences higher demand in the northbound left movement in the AM peak hour, and as a result meets peak hour signal warrants in this peak hour only. The I-80 Northbound Ramps are planned to be relocated from Intersection #8 as part of the future reconfiguration of the interchange. The unsignalized intersection at Intersection #5: Admiral Callaghan Lane/Target Driveway does not currently meet peak hour signal warrants.

Freeway Segment Levels of Service

Existing I-80 freeway segment operations are summarized in *Table 4.15-4: I-80 Weekday PM Levels of Service – Existing Conditions*. This table indicates that all freeway segments are currently operating at an acceptable level of service (LOS E or better) as set by Caltrans.

Table 4.15-4: I-80 Weekday PM Levels of Service – Existing Conditions

Segment	Existing Conditions		
	Volume	Density[1]	LOS
1. Westbound – East of Columbus Pkwy	3,520	16.4	B
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	4,510	21.6	C
3. Westbound – West of Redwood Pkwy	4,690	31.0	D
4. Eastbound – East of Columbus Pkwy	4,890	29.9	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	2,980	18.9	C
6. Eastbound – West of Redwood Pkwy	5,240	35.0	D

MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Caltrans PeMS Database, September 2018; Fehr & Peers, December 2019.

4.15.5 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA AND THRESHOLDS

Based upon the criteria derived from Appendix G of the State CEQA Guidelines, a project would have a significant impact related to transportation, if it would:

- Conflict with an applicable program plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

City and Caltrans Thresholds

In addition to the State CEQA Guidelines, specific criteria based on the standards of the City of Vallejo and Caltrans (for Caltrans freeway facilities) were used in this EIR. For the purposes of this impact evaluation, consistent with Policy MTC 2.5 and Action MTC 2.5B in the Vallejo General Plan 2040 which sets "LOS E or better as an advisory standard to be considered along with, but not to override, metrics for pedestrian, bicycle, transit and emergency access performance," an impact would be significant if:

1. The project causes the v/c ratio, as calculated with the HCM methodology, to increase by 0.01 or more at a signalized intersection operating at LOS F without the project; or
2. The project causes a stop-controlled intersection to fall to LOS F (for side-street stop-controlled intersections, for the worst side street movement or approach), or adds traffic to a stop-

controlled intersection already operating at LOS F (for side-street stop-controlled intersections, for the worst side street movement or approach), and the California Manual on Uniform Traffic Control Devices peak hour signal warrant is met.

3. The project causes a freeway segment to deteriorate from LOS E or better to F.
4. The project adds more than 50 peak hour vehicles to a freeway segment already operating at LOS E or F without the project.

Issues Not Discussed Further

- Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b).

In accordance with SB 743, the new CEQA Guidelines section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the CEQA Guidelines change the way transportation impacts will be analyzed in environmental documents. With SB 743, the criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shift the focus from vehicle congestion and delay to a reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. VMT is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person. As stated in the Governor's Office of Planning and Research Technical Advisory (2018):

> *SB 743 (Steinberg, 2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. As one appellate court recently explained: "During the last 10 years, the Legislature has charted a course of long-term sustainability based on denser infill development, reduced reliance on individual vehicles and improved mass transit, all with the goal of reducing greenhouse gas emissions. Section 21099 is part of that strategy …" (Covina Residents for Responsible Development v. City of Covina (2018) 21 Cal.App.5th 712, 729.) Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (Id., subd. (b)(1); see generally, adopted CEQA Guidelines, § 15064.3, subd. (b) [Criteria for Analyzing Transportation Impacts].) To that end, in developing the criteria, OPR has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. With the California Natural Resources Agency's certification and adoption of the changes to the CEQA Guidelines, automobile delay, as measured by "level of service" and other similar metrics, generally no longer constitutes a significant environmental effect under CEQA. (Pub. Resources Code, § 21099, subd. (b)(3).)*

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. The City is currently engaged in this process and has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Since the regulations of SB 743 have not been finalized or adopted by the City, delay and LOS are the measures used in this EIR to determine the significance of transportation impacts (see Impact TR-1 discussion, below).

4.15.6 PROJECT IMPACTS AND MITIGATION

TRIP GENERATION

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Because the proposed project includes a new Costco, peak hour estimates consider the daily condition and for the peak one-hour period during the weekday mid-day, the weekday evening commute, and Saturday mid-day when Costco volumes would be the greatest.

Estimates were also created for the peak one-hour period during the weekday morning commute for the residential portion of the project only. Project trip generation for the non-Costco retail and residential portions of the project were estimated using rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition).

Existing With Project Conditions

Trip generation for the proposed Costco was estimated using trip rates derived from counts taken at the existing Costco driveway in November 2017, and at the existing Costco gas station entry in July 2019.[3] The latter counts were taken to verify the gas station trip generation (as a subset of the total Costco trip generation) and to estimate the effect of the expanded number of fueling stations with the proposed project from 16 (at the existing site) to 30 (with the Project).

Trips associated with the Costco are presented as negative trips because they would be removed from the roadway network if the proposed project is constructed. Under the *Existing With Project* and *Near-Term With Project* scenarios, the existing Costco site at 198 Plaza Drive is assumed to remain vacant It is assumed that a reuse/occupancy of the existing Costco site would not occur before 2023 because of the time needed to reconfigure the interior of the structure to accommodate future tenants. The net new trips under these conditions represent the removal of the existing Costco trips and the addition of the new Costco, retail and residential trips. Trip generation estimates for the *Existing With Project Conditions* are presented in *Table 4.15-5: Existing With Project Trip Generation*.

Near Term With Project and Cumulative With Project Conditions

In the *Near-Term With Project and Cumulative With Project Conditions*, the existing Costco site is assumed to be occupied by a new general retail tenant. Future use of the existing Costco site would be

[3] Costco representatives indicate that gas station usage does not vary substantially by season, so the July 2019 counts can be considered a good representation of year-round activity).

deed-restricted and would not allow a bulk warehouse type retail use such as a Sam's Club or other large discount retailers.

Therefore, the net new trips in the Near Term and Cumulative scenarios represent the removal of the existing Costco trips, the addition of retail trips at the existing Costco site, and the addition of Costco, retail, and residential trips at project site. Trip generation estimates for the Near-Term with Project and Cumulative with Project Conditions are presented in *Table 4.15-6: Near Term and Cumulative Project Trip Generation*.

Trip Distribution

Project trip distribution refers to the direction of approach and departure that vehicles would take to access and leave the site. Estimates of regional project trip distribution were developed based on existing travel patterns in the area, a select zone analysis of commercial and residential zones using the Napa/Sonoma travel demand model, and the location of other Costco stores in the region. The project trip distribution is shown in Figure 4.15-1.

Trip Assignment

Project trips were assigned to the roadway network based on the distribution patterns shown in Figure 4.15-1. Trips associated with the existing Costco site were removed from the roadway network and trips associated with the proposed project and the re-use of the existing Costco site (for the near-term and cumulative cases) were added to the network. This results in certain movements having lower volumes in the "With Project" scenario than the "Without Project" scenario.

For the "existing trip assignments," the trips are eliminated due to the existing Costco site being vacated. For the "near-term" and "cumulative cases," the trips include the net change in trips from the vacated Costco and the anticipated general retail use that would later occupy the structure. It should be noted that under the Cumulative Condition roadway network includes changes related to the planned re-construction of the I-80 at Redwood Parkway interchange.

The assignment of project site Costco/retail trips to the three driveways on Admiral Callaghan Lane was based on several factors, including the distribution of proposed uses on the Project site, the regional distribution of trips to/from the north and south, the presence of a traffic signal at the middle driveway, and an evaluation of travel path options for drivers traveling to and from I-80 Westbound. Projected congestion between the project site and the I-80/Redwood Parkway interchange during peak hours may cause some drivers needing to access I-80 westbound to travel to the north to the Columbus Parkway interchange rather than south to Redwood Parkway. An evaluation of competing travel times in the cumulative analysis (included in Chapter 6 of Appendix J to this EIR) was used to estimate the number of drivers who would divert. The volumes at the project driveways are based on this assessment.

Table 4.15-5: Existing With Project Trip Generation

Land Use	Quantity	ITE Code	AM Peak Hour			Weekday Mid-Day Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour			Daily
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Project Site															
New Costco	152 ksf	Custom	ye95	95	190	754	754	1,508	870	870	1,740	896	932	1,828	15,590
Retail	30 ksf	820	55	48	102	48	48	96	53	58	111	75	69	145	1,280
Residential	178 du	210	33	100	133	94	55	150	109	64	173	87	74	161	1,690
Project Site Total Trips			**183**	**243**	**425**	**897**	**858**	**1,755**	**1,032**	**992**	**2,024**	**1,058**	**1,076**	**2,134**	**18,560**
Existing Costco Site															
Existing Costco	125 ksf	Custom	(76)	(76)	(152)	*(618)*	*(618)*	*(1,237)*	*(713)*	*(713)*	*(1,427)*	*(735)*	*(764)*	*(1,499)*	*(12,860)*
Existing Costco Site Total Trips			***(76)***	***(76)***	***(152)***	***(618)***	***(618)***	***(1,237)***	***(713)***	***(713)***	***(1,427)***	***(735)***	***(764)***	***(1,499)***	***(12,860)***
Net New Trips			**107**	**167**	**273**	**279**	**240**	**518**	**319**	**279**	**598**	**323**	**311**	**635**	**5,700**

ksf = thousand square feet; du = dwelling unit

Source: Trip Generation Manual (9th Edition), ITE, 2012; Fehr & Peers, December 2019.

Table 4.15-6: Near Term and Cumulative Project Trip Generation

Land Use	Quantity	ITE Code	AM Peak Hour			Weekday Mid-Day Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour			Daily
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Project Site															
New Costco	152 ksf	Custom	95	95	190	754	754	1,508	870	870	1,740	896	932	1,828	15,590
Retail	30 ksf	820	55	48	102	48	48	96	53	58	111	75	69	145	1,280
Residential	178 du	210	33	100	133	94	55	150	109	64	173	87	74	161	1,690
Project Site Total Trips			**183**	**243**	**425**	**897**	**858**	**1,755**	**1,032**	**992**	**2,024**	**1,058**	**1,076**	**2,134**	**18,560**
Existing Costco Site															
Existing Costco	125 ksf	Custom	*(76)*	*(76)*	*(152)*	*(618)*	*(618)*	*(1,237)*	*(713)*	*(713)*	*(1,427)*	*(735)*	*(764)*	*(1,499)*	*(12,860)*
Retail	125 ksf	820	75	46	121	202	202	403	233	233	465	296	308	605	5,360
Existing Costco Site Net Trips			***(1)***	***(30)***	***(31)***	***(417)***	***(417)***	***(833)***	***(481)***	***(481)***	***(961)***	***(438)***	***(456)***	***(894)***	***(7,500)***
Net New Trips			**182**	**213**	**394**	**480**	**441**	**922**	**552**	**511**	**1,063**	**620**	**620**	**1,239**	**11,060**

ksf = thousand square feet; du = dwelling unit

Source: Trip Generation Manual (9th Edition), ITE, 2012; Fehr & Peers, December 2019.

Approximately two-thirds of inbound vehicle trips were assumed to travel northbound on Admiral Callaghan Lane and enter the site via a right turn, the other third would travel southbound on Admiral Callaghan Lane and enter the site via the left turn pockets at each driveway. The northbound inbound vehicles were distributed almost evenly across the three driveways, with slightly more vehicles assigned to the northern and middle driveways. Half of the southbound inbound vehicles were assigned to the middle driveway, as left-turning vehicles would primarily utilize the signalized intersection. Approximately 40 percent of the southbound inbound vehicle were assigned to the northern driveway and the remaining 10 percent were assigned to the southern driveway.

Approximately two-thirds of outbound vehicle trips were assumed to travel northbound on Admiral Callaghan Lane and exit the site from a right turn, the other third travel southbound on Admiral Callaghan

Lane and exit the site at either the middle or northern driveway. Forty percent of the northbound outbound vehicles were assigned to the middle driveway, and 30 percent assigned to both the northern and southern driveways. Right-turning vehicles would be less likely to show a preference for a signalized intersection; however, the middle driveway would still provide the most direct egress point for a substantial portion of the site. Vehicles can only exit the site from a left turn at the middle or northern driveways. Eighty percent of the southbound outbound vehicles were assigned to the middle driveway, as left-turning vehicles would primarily utilize the signalized intersection. The remaining 20 percent were assigned to the northern driveway.

It is recognized that the actual use of the driveways will vary from day to day and may be different than these assumptions.

IMPACT TR-1	***WOULD THE PROPOSED PROJECT CONFLICT WITH A PROGRAM PLAN, ORDINANCE OR POLICY ADDRESSING THE CIRCULATION SYSTEM, INCLUDING TRANSIT, ROADWAY, BICYCLE, AND PEDESTRIAN FACILITIES?*** ***(SIGNIFICANT AND UNAVOIDABLE)***

EXISTING WITH PROJECT

Existing With Project scenarios were simulated by removing vehicular trips associated with the existing Costco and adding project trips associated with the proposed Costco to the existing peak hour traffic volumes to estimate the *Existing With Project* peak hour traffic volumes.

Existing With Project Intersection Levels of Service

Peak hour intersection operations for the *Existing With Project* scenario are shown in *Table 4.15-7: Intersection Levels of Service – Existing With Project*.

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	13.8	B	11.6	B
		MD	17.2	B	16.9	B
		PM	24.0	C	24.7	C
		SA	20.4	C	20.3	C
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	14.6	B	13.5	B
		MD	15.1	B	15.4	B
		PM	15.8	B	16.4	B
		SA	17.3	B	18.5	B
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	25.6	C	23.5	C
		MD	21.8	C	23.4	C
		PM	22.8	C	17.8	B
		SA	38.1	D	24.7	C
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	4.7	A	4.9	A
		MD	7.4	A	7.7	A
		PM	8.9	A	9.8	A
		SA	11.8	B	11.4	A
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.0 (2.4)	A (A)	1.1 (2.6)	A (A)
		MD	1.7 (3.0)	A (A)	1.6 (4.1)	A (A)
		PM	1.9 (5.4)	A (A)	1.9 (5.1)	A (A)
		SA	2.1 (5.0)	A (A)	1.8 (5.0)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.6	A	7.8	A
		MD	13.1	B	17.7	B
		PM	15.6	B	20.8	C
		SA	23.8	C	18.0	C
7. Admiral Callaghan Ln at Rotary Way[4]	AWS	AM	9.0	A	11.1	B
		MD	14.9	B	**156.1**	**F**
		PM	17.1	C	**153.2**	**F**
		SA	21.1	C	**103.2**	**F**
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.1 (4.3)	A (A)	2.5 (4.5)	A (A)
		MD	5.7 (11.7)	A (B)	5.3 (12.9)	A (B)
		PM	5.7 (10.9)	A (B)	**14.5 (>180)**	**B(F)**
		SA	7.1 (13.2)	A (B)	**8.6 (54.4)**	**B(F)**
9. Redwood St/Fairgrounds Dr at I-80 WB Ramps	Signal	AM	**95.3**	**F**	**97.3**	**F**
		MD	31.7	C	**>180**	**F**
		PM	36.2	D	**>180**	**F**
		SA	38.8	D	**>180**	**F**
10. Redwood Pkwy/Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	26.5	C	26.9	C
		MD	27.6	C	35.3	D
		PM	26.2	C	48.7	D
		SA	35.9	D	**150.0**	**F**

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	8.9	A	9.2	A
		MD	9.9	A	12.2	B
		PM	11.9	B	25.6	C
		SA	11.5	B	**>180**	**F**
12. Plaza Dr at Gateway Plaza	Signal	AM	48.7	D	44.3	D
		MD	13.3	B	31.9	C
		PM	12.9	B	11.1	B
		SA	16.8	B	10.6	B
13. Plaza Dr at Costco Driveway	SSS	AM	5.3 (12.0)	A (B)	4.4 (10.7)	A (B)
		MD	**27.0 (97.9)**	**F (F)**	3.4 (11.0)	A (B)
		PM	**21.2 (79.5)**	**F (F)**	3.3 (12.0)	A (B)
		SA	**90.6 (>150.0)**	**F (F)**	2.9 (12.0)	A (B)
14. Plaza Dr at Turner Pkwy	Signal	AM	10.2	B	14.0	B
		MD	13.7	B	33.6	C
		PM	13.4	B	7.3	A
		SA	15.1	B	8.5	B
15. Turner Pkwy/Foothill Drive	SSS	AM	2.2 (9.6)	A (A)	1.8 (10.2)	A (B)
		MD	1.9 (12.5)	A (B)	1.9 (13)	A (B)
		PM	2 (12.8)	A (B)	2 (12.2)	A (B)
		SA	2.1 (14.2)	A (B)	2.1 (13.9)	A (B)
16. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM	1.5 (12.5)	A(B)	1.4 (12.9)	A (B)
		MD	2 (15.3)	A (C)	1.9 (18.6)	A (C)
		PM	2.4 (16.1)	A (C)	2.4 (20.5)	A (C)
		SA	2.1 (18)	A (C)	2.5 (21.6)	A (C)
17. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM	7.5	A	7.4	A
		MD	10.3	B	9.8	A
		PM	12.2	B	11.7	B
		SA	11.6	B	11.2	B
18. Redwood Parkway at Ascot Parkway	Signal	AM	15.6	B	15.8	B
		MD	15.8	B	17.8	B
		PM	16.6	B	18.5	B
		SA	16.2	B	17.9	B
19. Turner Parkway at Western Residential Project Driveway	Signal	AM	-	-	6.6	A
		MD			5.6	A
		PM			5.8	A
		SA			5.6	A
20. Turner Parkway at Eastern Residential Project Driveway	SSS	AM	-	-	0.4 (8.9)	A (A)
		MD			0.1 (9.5)	A (A)
		PM			0.1 (9.3)	A (A)
		SA			0.1 (9.6)	A (A)
21. Admiral Callaghan Lane at Southern Project Driveway	SSS	AM	-	-	1.9 (4.0)	A (A)
		MD			**48.8 (122.6)**	**E (F)**
		PM			**54.6 (130.3)**	**F (F)**

Table 4.15-7: Intersection Levels of Service – Existing With Project

Location	Control[1,2]	Peak Hour	Existing Conditions[3]		Existing With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		SA			31.3 (48.0)	D (E)
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	2.6 69.2 **86.1** 41.3	A E **F** D
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.3 (6.7) **8.1 (50.8)** **20.2 (166.2)** **12.8 (85.4)**	A (A) **A (F)** **C (F)** **B (F)**
24. Redwood Parkway at I-80 Westbound Ramps [Future intersection: Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-
25. Redwood Parkway at I -80 Eastbound Ramps [Future intersection: Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates a below-standard service level. Shaded indicates a significant impact.
4. Note that this intersection is analyzing in the Existing and Existing Plus Project scenarios as an all-way stop, which was the control type in 2017 when most of the traffic counts were taken. It has since been signalized in 2019.

Source: Fehr & Peers, December 2019.

Based on the significance criteria set forth in this EIR, the proposed project would cause seven intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required:

- **Intersection 7:** Admiral Callaghan Lane at Rotary Way – In all but the AM peak hour, the worst approach operates at LOS B without the Project and the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F with the Project. As noted above, this intersection was analyzed as an all-way stop because that was the control type in 2017, but the intersection has since had a signal installed.
- **Intersection 8:** Admiral Callaghan Lane/I-80 EB Ramps – In the Saturday mid-day and weekday PM peak hours, the worst approach operates at LOS B without the Project and operates at LOS F with the Project. Signal warrants are met.

- **Intersection 9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp – In the Saturday mid-day peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection 11:** Redwood Parkway/Admiral Callaghan Lane (S) – In the Saturday mid-day peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.
- **Intersection 21:** Admiral Callaghan Lane/ Southern Project Driveway – In the weekday mid-day and weekday PM peak hours, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.
- **Intersection 22:** Admiral Callaghan Lane/Middle Project Driveway – In the weekday PM peak hour, the intersection operates at unacceptable LOS F with the Project.
- **Intersection 23:** Admiral Callaghan Lane/ Northern Project Driveway – In all but the AM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.

Note that intersection #13: Plaza Drive/Costco Driveway operates deficiently under existing conditions but would improve to acceptable operations under *Existing With Project Conditions* due to the removal of the existing Costco trips. This intersection serves as the primary access driveway for the existing Costco. Under *Existing With Project Conditions*, the existing Costco was removed from the analysis and no new tenant is assumed to occupy the space.[4]

At intersection #7, the peak hour signal warrants are not met under *Existing Conditions* in all four peak hours but would be met under *Existing With Project Conditions*. This intersection was analyzed as an all way stop under *Existing With Project Conditions*, because it had not yet been signalized when most of the traffic counts were taken in 2017. A signal was installed in 2019.

At intersection #8 signal warrants are met during the Weekday AM peak hour under *Existing* and *Existing with Project Conditions* and are not met in the other three peak hours in *Existing Conditions* but would be met under *Existing with Project Conditions*. At intersection #21 and intersection #22, peak hour signal warrants are met in all peak hours under *Existing With Project Conditions*. However, as described in Chapter 3, these two project driveways are not proposed to be signalized.

[4] Prior to 2023, it is not anticipated the current Costco building would be occupied. The site would be deed restricted to limit to restrict bulk retail warehouse type uses such as a Sam's Club or large discount retailers. Additionally, time needed to reconfigure the interior to accommodate anticipated future tenants is anticipated and would extend the time until the site is occupied. Therefore, it is assumed that no occupancy would occur preceding the 2023 year used for near-term analysis.

Existing With Project Queues

The following discussion on vehicle queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk. Vehicle queues would exceed the storage capacity at the following intersections:

- **Intersection 4*:** Admiral Callaghan Lane at Vallejo Corners: westbound left during weekday PM, weekday mid-day and Saturday mid-day peak hours.
- **Intersection 6*:** Admiral Callaghan Lane at Turner Parkway: westbound left during the weekday PM and Saturday mid-day peak hours, westbound shared left/right during weekday PM, weekday mid-day and Saturday mid-day peak hours, westbound right during the Saturday mid-day peak hour.
- **Intersection 7:** Admiral Callaghan Lane at Rotary Way: northbound through during the weekday mid-day and weekday PM peak hours, northbound shared through/right, southbound through, and westbound right during the PM, weekday mid-day and Saturday mid-day peak hours, southbound left during the weekday PM and Saturday mid-day peak hour.
- **Intersection 8:** Admiral Callaghan Lane at I-80 EB Ramps: northbound left and through during weekday PM, weekday mid-day and Saturday mid-day peak hours, northbound shared through/right during the weekday mid-day and weekday PM peak hours, southbound through during the Saturday mid-day peak hour, southbound shared through/right during the weekday PM and Saturday mid-day peak hour.
- **Intersection 9:** Redwood Street/Fairgrounds Drive at I-80 WB Ramps: south westbound left in all peak hours, westbound left and westbound through during the weekday PM, weekday mid-day and Saturday mid-day peak hours, south westbound right during Saturday mid-day peak hour, southbound left in the weekday AM, weekday PM, Saturday mid-day peak hours, southbound right in the weekday PM peak hour, eastbound left in the weekday AM and weekday PM peak hour, eastbound right in the weekday PM peak hour,
- **Intersection 10:** Redwood Parkway/Admiral Callaghan Lane (N) at I-80 EB Off-Ramp: northbound through during the weekday PM and Saturday mid-day peak hours, westbound through and westbound through/right during the weekday AM peak hour, southbound left turn during Saturday mid-day peak hour, southbound right during all peak hours, eastbound left, and eastbound through during the weekday PM, weekday mid-day and Saturday mid-day peak hours.
- **Intersection 11:** Redwood Parkway at Admiral Callaghan Lane (S): northbound left in all peak hours. northbound shared through/right during weekday PM and Saturday mid-day peak hours,

westbound through and westbound shared through/right during the weekday PM and Saturday mid-day peak hours.

Project Gas Station Vehicle Queuing

The gas station would have ten feeder lanes for the 30 proposed fueling station and a bypass lane available for the feeder lanes. The existing Vallejo Costco gas station provides 16 fueling stations in eight feeder lanes. Observations during the weekday AM and PM peak periods in July 2019, showed that queues varied from one to three vehicles per feeder land and did not spill-back to the primary entry driveway to the store. The proposed project would provide vehicle queuing space of about three vehicles per feeder lane, plus space for a single-entry queue for vehicles to select the shortest lane as they enter the site.

The proposed project's gas station would be able to serve more customers per hour, resulting in potentially shorter queues because of the increased number of fueling stations (30 compared to 16 existing; an increase of approximately 47%). For these reasons, it is expected that gas station queues at the Project site will be contained within the feeder lanes and gas station site.

Existing With Project Freeway Segment Levels of Service

Table 4.15-8: I-80 Weekday PM Levels of Service – Existing With Project, shows that all freeway segments would experience an increase in density. However, all segments would continue to operate at an acceptable level of service (LOS E or better) as set by Caltrans. Therefore, potential impacts on freeway segments are considered less than significant and no mitigation is required.

Table 4.15-8: I-80 Weekday PM Levels of Service — Existing With Project

Segment	Existing Conditions			Existing With Project		
	Volume	Density	LOS	Volume	Density	LOS
1. Westbound – East of Columbus Pkwy	3,520	16.4	B	3,552	16.6	B
2. Westbound –Redwood Pkwy and Columbus Pkwy	4,510	21.6	C	4,668	22.4	C
3. Westbound – West of Redwood Pkwy	4,690	31.0	D	4,786	31.6	D
4. Eastbound – East of Columbus Pkwy	4,890	29.9	D	4,918	30.2	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	2,980	18.9	C	3,154	20.0	C
6. Eastbound – West of Redwood Pkwy	5,240	35.0	D	5,352	36.0	E

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Fehr & Peers, December 2019

Existing With Project Traffic on Foothill Drive

The traffic analysis determined that few if any commercial project trips with origins or destinations to the south or east would use Foothill Drive to travel to or from the project site. This is due to several factors including the following:

- Travel times for routes using Foothill Drive would be longer due to travel path lengths and the 25 mile per hour (mph) speed limit on Foothill Drive versus 40 mph on Turner Parkway and Ascot Parkway, and 35 mph on Redwood Parkway and Admiral Callaghan Lane;
- Signal related delays on westbound Redwood Parkway at Admiral Callaghan Lane would discourage outbound southbound commercial project trips from using Foothill as a bypass of Admiral Callaghan congestion; and
- Signal-related delays on westbound Turner Parkway at Admiral Callaghan Lane and on southbound Admiral Callaghan Lane at the middle project driveway would discourage inbound commercial project trips from using Foothill as an alternative to northbound Admiral Callaghan Lane.

The residential project trips also would be discouraged from using Foothill Drive due to the speed limit and Redwood Parkway signal delay considerations. However, due to the residential project driveways' proximity to Foothill Drive, it is possible that some residential project trips may choose to use Foothill Drive to travel to and from the east. Given the estimated 30 percent distribution of project trips to and from the east, and the expected small number of these trips that would choose Foothill Drive, it was determined that the project trip assignment to Foothill Drive is expected to be negligible, less than 20 trips in any peak hour. Twenty or fewer trips on Foothill Drive trips would constitute an increase in peak hour volumes of 11% to 21% relative to existing condition volumes, and 10% to 17% relative to cumulative condition volumes. This would result in a maximum of one additional trip every three minutes on Foothill Drive in the peak hours, and therefore is not anticipated to cause a noticeable change in the traffic flow or operations of the roadway. This effect is considered less than significant, and no mitigation is required.

Mitigation Measures:

MM TR-1: **Roadway Improvements.** Prior to the issuance of occupancy permits, the applicant shall construct, to the satisfaction of the Public Works Director, the following roadway improvement:

Admiral Callaghan Lane at Turner Parkway – Add a northbound right-turn pocket lane and modify the geometry of the westbound approach to provide one right-turn lane, one left-turn lane and one left-turn pocket.

MM TR-2: **Initial Signal Timing Study.** Prior to the issuance of Occupancy Permits, the City shall initiate a signal timing study for the proposed traffic signal and the existing traffic signals. The timing study shall include the same traffic signals included in the Transportation Impact Analysis prepared for the project. This study is to assist the City in optimizing

traffic flow in the project vicinity and provide a baseline for a post-occupancy signal coordination study.

MM TR-3: **Post Costco Occupancy Signal Coordination Study.** Within 3 months of occupancy of the Costco store (or as adjusted by the Public Works Director), the applicant shall fund and prepare, to the satisfaction of the Public Works Director, a signal timing and coordination study to confirm the EIR's traffic analysis and further optimize traffic flow in the project vicinity. The study shall include the same intersections noted in the Transportation Impact Analysis, so that refined signal timings and coordination based on actual traffic volumes and observed conditions can be implemented if necessary. Upon the Public Works Director's approval of the study, the City shall update signal timing based on the results of this study, if necessary.

While the proposed mitigation would improve traffic flow and reduce delays in the impact area, the impacts would remain significant and unavoidable in one or more peak hours studied, for intersections #7, #9, #10, #11, #21, #22, and #23. Impacts at Intersection #8 (Admiral Callaghan Lane at I-80 EB Ramps) would be reduced to less than significant with implementation of signal coordination.

Impacts at these intersections would remain significant and unavoidable because no other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and *Existing With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

NEAR-TERM (2023) CONDITIONS

Published forecasts from the February 2016 In-N-Out traffic analysis, Vallejo General Plan EIR, and March 2015 Chick-Fil-A traffic analysis were used to develop and validate background traffic growth rates for the "Near-Term" traffic scenarios. Based on this data, existing traffic counts were increased by six percent (one percent annual growth) to account for traffic growth from projects outside the immediate traffic study area that could add through traffic to the area. In addition, the In-N-Out project traffic was directly assigned to the traffic study area network using the trip assignment in the In-N-Out traffic analysis. The

removal of traffic from the existing Costco and addition of the new project trips, plus those retail trips from the reuse of the existing Costco site were added to the *Near-Term No Project* peak hour traffic volumes to estimate *Near-Term With Project* peak hour traffic volumes.

Near-Term With Project Intersection Levels of Service

The "Near-Term" scenario includes the installation of the new signal at the intersection of Admiral Callaghan Lane at Rotary Way. Additionally, this scenario assumes that Admiral Callaghan Lane is widened to two lanes in each direction along the project site frontage.

Peak hour intersection operations for the *Near-Term No Project* and *Near-Term With Project* scenarios are provided in *Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project*. Based on the significance criteria set forth in this EIR, the project would cause four intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required.

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	18.6	B	17.7	B
		MD	18.5	B	19.7	B
		PM	21.8	B	25.2	C
		SA	28.4	C	39.2	D
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	16.1	B	15.0	B
		MD	15.7	B	16.0	B
		PM	16.6	B	17.4	B
		SA	22.5	C	30.0	C
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	20.3	C	19.0	B
		MD	29.9	C	22.0	C
		PM	35.7	D	25.1	C
		SA	65.3	E	41.4	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	5.3	A	4.9	A
		MD	8.0	A	10.9	B
		PM	9.3	A	9.4	A
		SA	62.9	E	11.5	B
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.1 (2.8)	A (A)	1.2 (2.8)	A (A)
		MD	1.6 (3.8)	A (A)	3.5 (4.8)	A (A)
		PM	1.7 (4.6)	A (A)	1.7 (5.4)	A (A)
		SA	**28.3 (>180)**	**D (F)**	2.0 (4.9)	A (A)
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	6.9	A	8.9	A
		MD	13.3	B	25.2	C
		PM	16.2	B	19.5	B
		SA	38.6	D	20.7	C
7. Admiral Callaghan Ln at Rotary Way	Signal	AM	9.3	A	8.0	A
		MD	**92.8**	**F**	30.9	D
		PM	**76.4**	**F**	21.4	C
		SA	21.8	C	69.7	E

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
8. Admiral Callaghan Ln at I-80 EB Ramps	SSS	AM	2.3 (4.7)	A (A)	2.4 (6.1)	A (A)
		MD	7.7 (15.1)	A (C)	17.4 (42.4)	C (E)
		PM	9.1 (19.6)	A (C)	16.9 (60.8)	B (E)
		SA	6.3 (11.6)	A (B)	16.8 (35.3)	C (E)
9. Redwood St/ Fairgrounds Dr at I-80 WB Ramps	Signal	AM	**96.8**	**F**	**91.0**	**F**
		MD	37.3	D	**>180**	**F**
		PM	53.6	D	**>180**	**F**
		SA	53.9	D	**>180**	**F**
10. Redwood Pkwy/ Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	10.1	B	28	C
		MD	33.5	C	**>180**	**F**
		PM	34.7	C	**>180**	**F**
		SA	41.3	D	**>180**	**F**
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	10.1	B	10.1	B
		MD	11.1	B	**>180**	**F**
		PM	16.9	B	**>180**	**F**
		SA	13.7	B	**>180**	**F**
12. Plaza Dr at Gateway Plaza	Signal	AM	52.7	D	51.3	D
		MD	12.9	B	23.6	C
		PM	13.1	B	10.6	B
		SA	19.5	B	12.5	B
13. Plaza Dr at Costco Driveway	SSS	AM	5.9 (13.2)	A (B)	5.6 (13.2)	A (B)
		MD	**34.3 (128.9)**	**D (F)**	5.3 (16.5)	A (C)
		PM	**33.2 (130)**	**D (F)**	5.3 (18.1)	A (C)
		SA	**131 (>180)**	**F (F)**	8.2 (33.5)	A (D)
14. Plaza Dr at Turner Pkwy	Signal	AM	10.4	B	35.3	D
		MD	14.2	B	66.3	E
		PM	13.9	B	21.4	C
		SA	16.0	B	62.2	E
15. Turner Parkway at Foothill Drive	SSS	AM	2.2 (9.8)	A (A)	1.9 (10.4)	A (B)
		MD	2 (13.8)	A (B)	2 (13.8)	A (B)
		PM	2 (13.3)	A (B)	2 (12.7)	A (B)
		SA	2.2 (14.8)	A (B)	2.2 (14.5)	A (B)
16. Redwood Parkway/Foothill Drive	SSS	AM	1.7 (13.1)	A (B)	1.6 (13.6)	A (B)
		MD	2.7 17.3)	A (C)	2.8 (24)	A (C)
		PM	2.7 (16.2)	A (C)	2.7 (22.6)	A (C)
		SA	3.3 (19.1)	A (C)	3.6 (29.3)	A (C)
17. Redwood Parkway at Oakwood Drive	Signal	AM	7.8	A	7.6	A
		MD	10.8	A	10.5	A
		PM	12.5	B	12.3	B
		SA	11.9	B	11.8	B
18. Redwood Parkway at Ascot Parkway	Signal	AM	15.4	B	15.8	B
		MD	16.1	B	18.0	B
		PM	16.9	B	19.1	B
		SA	16.6	B	18.6	B
19. Turner Pkwy at Western Residential Project Driveway	Signal	AM	-	-	6.6	A
		MD			5.4	A
		PM			5.6	A

Table 4.15-9: Intersection Levels of Service — Near-Term Without and With Project

Location	Control[1,2]	Peak Hour	Near-Term Without Project[3]		Near-Term With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		SA			5.5	A
20. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM MD PM SA	-	-	0.4 (8.8) 0.1 (9.8) 0.1 (9.7) 0.1 (10.1)	A (A) A (A) A (A) A (B)
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (3.8) 7.0 (9.0) 3.8 (9.0) 21.6 (29.0)	A (A) A (A) A (A) C (D)
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	3.1 15.7 11.2 29.5	A B B C
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (7.2) 9.7 (49.6) **10.6 (73.7)** 6.9 (38.8)	A (A) A (E) **A (F)** E (E)
24. Redwood Parkway at I -80 Eastbound Ramps [Future intersections Cumulative (240) cases only]	Signal	Am MD PM SA	-	-	-	-
25. Redwood Parkway at I -80 Eastbound Ramps [Future intersections Cumulative (2040) cases only]	Signal	AM MD PM SA	-	-	-	-

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019.

Based on the City's significance thresholds, the following four intersections are significantly impacted in the *Near-Term With Project Condition* and mitigation is required:

- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In all but the AM peak hour, the intersection operates at LOS D without the Project and operates at LOS F with the Project.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S) – In all but the AM peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.

- **Intersection #23:** Northern Project Driveway/Admiral Callaghan Lane - In the weekday PM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.

Near-Term Queues

The following discussion on vehicles queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Vehicle queues exceed the storage capacity at the following intersections in the *Near-Term Without Project Conditions*:

- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: northbound through and northbound through/right during the weekday AM peak hour, westbound right turn during all peak hours.
- **Intersection #8:** Admiral Callaghan Lane/I-80 EB Ramps: northbound left during the weekday AM, weekday mid-day, and Saturday mid-day peak hours, northbound through and northbound through/right during the weekday AM peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound right during the weekday PM, weekday mid-day and Saturday mid-day peak hours, westbound through/right during the weekday AM peak hour, south westbound left, southbound right and southbound left during all peak hours.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: eastbound left and eastbound through in the weekday AM peak hour, southbound right during all peak hours.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left turn during all peak hours.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk. Vehicle queues exceed the storage capacity at the following intersections in the *Near-Term With Project Conditions*:

- **Intersection #4*:** Admiral Callaghan Lane/Vallejo Corners: westbound left during the weekday mid-day, weekday PM, and Saturday mid-day peak hours.
- **Intersection #7*:** Admiral Callaghan Lane/Rotary Way: northbound shared through/right during the weekday AM and weekday mid-day peak hour, southbound left during the Saturday mid-day peak hour, southbound through and westbound right during all three peak hours.

- **Intersection #8*:** Admiral Callaghan Lane/I-80 EB Ramps: northbound left turn and northbound through during all peak hours, northbound shared through/right during the weekday AM and weekday mid-day peak hours, southbound through and shared through/right during Saturday mid-day peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound through and eastbound shared left/through during the weekday mid-day, weekday PM and Saturday mid-day peak hours, westbound left, and southbound left during all peak hours, westbound through during the weekday AM and Saturday mid-day peak period, south westbound left during the weekday AM, weekday mid-day, and weekday PM peak hours, south westbound right and southbound through during the weekday PM and Saturday mid-day peak hours
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: northbound through and northbound right during the weekday mid-day, weekday PM and Saturday mid-day peak hours, eastbound left, and southbound right during all peak hours, southbound left during the Saturday mid-day peak hours, eastbound through during the weekday AM, weekday PM and Saturday mid-day peak period.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left during all peak hours, northbound shared through/right, westbound through, and westbound shared through/right during all peak hours, southbound left/through/right during the Saturday mid-day peak hour.

Near-Term With Project Freeway Segment Levels of Service

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term, shows that all freeway segments would experience an increase in density. However, all segments would continue to operate at an acceptable level of service (LOS E or better) as set by Caltrans. Impacts would be less than significant, and no mitigation is required.

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term

Segment	Near-Term Without Project			Near-Term With Project		
	Volume	Density	LOS	Volume	Density	LOS
1. Westbound – East of Columbus Pkwy	3,550	16.6	B	3,582	16.7	B
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	4,650	22.3	C	4,794	23.0	C
3. Westbound – West of Redwood Pkwy	4,580	30.3	D	4,676	30.9	D
4. Eastbound – East of Columbus Pkwy	4,970	30.6	D	4,998	30.8	D
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	3,070	19.5	C	3,244	20.6	C

Table 4.15-10: I-80 Weekday PM Levels of Service – Near-Term

Segment	Near-Term Without Project			Near-Term With Project		
	Volume	Density	LOS	Volume	Density	LOS
6. Eastbound – West of Redwood Pkwy	5,150	33.4	D	5,262	35.2	E

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Fehr & Peers, December 2019

MITIGATION MEASURES

Implementation of Mitigation Measures TR-1 through TR-3, would be required under the *Near-Term With Project* Condition.

Similar to the *Existing With Project Conditions* above, impacts at these four intersections under the *Near Term With Project Conditions* remain significant and unavoidable after implementation of mitigation because no other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and E*xisting With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

PEDESTRIAN, BICYCLE, AND TRANSIT

Pedestrian and Bicycle Access

Pedestrian access to the residential portion of the Project is provided via sidewalks along Turner Parkway as well as an eight-foot-wide concrete pathway for non-motorized travel would be provided along the southerly side of Turner Parkway to connect the residential and retail portions of the sites and provide connectivity for residents and the commercial uses. Pedestrians wishing to cross to the north side of Turner Parkway at a protected crossing to access commercial and retail uses would use the proposed traffic signal at the western residential project driveway.

Currently, no sidewalks are provided along Admiral Callaghan Lane along the project frontage. A continuous sidewalk would be provided on the east side of the roadway, connecting to the existing sidewalks to the north and south, as part of the Admiral Callaghan Lane widening which would be constructed in conjunction with the project. As part of widening Admiral Callaghan, the project will provide dedicated bicycle lanes on each side of the road along the project frontage. The project design includes a sidewalk along the project frontage to serve pedestrian travel along Admiral Callaghan Lane and access to and from the project site.

The project site plan (refer to Figure 3-8) shows sidewalks within the residential portion of the project, with periodic cut-outs for parking, and designated pedestrian routes within the Costco/retail portion of the site.

Within the study area, Class II bicycle lanes are provided on Redwood Parkway east of Admiral Callaghan Lane and on Turner Parkway between Admiral Callaghan Lane and Ascot Parkway. Class III "sharrows" are on Admiral Callaghan Lane north of Turner Parkway. The General Plan identifies Admiral Callaghan Lane between Turner Parkway and Redwood Parkway as a future Class II bike lane facility. While the project's bicycle trip generation has not been estimated, it is expected that some bicyclists would travel by bicycle to and from the project site. As noted, Admiral Callaghan Lane would be widened along the project frontage and would include sidewalks and bicycle lanes in each direction. The proposed bicycle lanes contribute to a portion of the City's General Plan bicycle network and are consistent with the City's General Plan 2040 goals and policies regarding bicycle circulation**.**

Potential impacts on pedestrian and bicycle access are less than significant no mitigation is required.

Transit Access

Transit service in the area is provided by the San Francisco Bay Ferry, SolTrans, and BART/Amtrak. On Turner Parkway, there is an existing bus stop pull-out for westbound buses. It is expected that some customers, employees, and residents would travel by bus to and from the project site. As described in Section 4.15.1, several SolTrans bus routes – including Routes 2, 7, 20 and 38 -- serve the area surrounding the project site. According to the route maps, the closest bus stop to the project site is on eastbound Turner Parkway just east of Admiral Callaghan. The existing bus stop consists of a pole that is located close to the intersection of Admiral Callaghan. SolTrans has indicated that a new bus pull-out on eastbound Turner Parkway east of the Admiral Callaghan Lane intersection would be needed to better serve residents, employees and customers of the project. SolTrans staff has noted that cars making the right turn from Admiral Callaghan are often narrowly avoiding the bus that is stopping.[5] With the implementation of Mitigation Measure TR-4, potential impacts on transit access and circulation are considered less than significant.

[5] Patricia Carr, General Services Manager, SolTrans Solano County Transit, personal communication, July 23, 2019.

Mitigation Measure:

MM TR-4: **New Bus Pull-Out.** Prior to issuance of occupancy permits, the applicant shall, to the satisfaction of the Planning & Development Services Director**,** coordinate with SolTrans and construct a new bus pull-out on eastbound Turner Parkway East of Admiral Callaghan Lane. The Project applicant will construct a bus pull-out and concrete pad per Soltrans' and the City's specifications. Soltrans will provide, and the applicant will install, signage, a shelter, lighting, and trash receptacle.

With the implementation of Mitigation Measure TR-4 potential impacts on transit access are reduced to less than significant because the project would be providing safer access to public transit along the project frontage.

IMPACT TR-2	***WOULD THE PROPOSED PROJECT SUBSTANTIALLY INCREASE HAZARDS DUE TO A GEOMETRIC DESIGN FEATURE (E.G., SHARP CURVES OR DANGEROUS INTERSECTIONS) OR INCOMPATIBLE USES (E.G., FARM EQUIPMENT)?*** ***(LESS THAN SIGNIFICANT IMPACT)***

For the purposes of this impact evaluation, an impact would be significant if the project site access design does not provide adequate sight distance and does not conform to City street design standards as described in Section 15.60.030 of the Vallejo Municipal Code.

No obstacles to site distance are expected to result from the construction of the proposed project. Existing roads surrounding the project are generally straight and generally void of visual obstructions. Additionally, the project does not include any hazardous design features such as sharp curves or dangerous intersections. Future improvements would be required to meet City of Vallejo roadway design standards. Improvement Plans for the proposed street improvements would be reviewed by City staff, including Fire Department staff, prior to construction. This impact is considered less than significant, and no mitigation is required.

IMPACT TR-3	***WOULD THE PROPOSED PROJECT RESULT IN INADEQUATE EMERGENCY ACCESS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

For the purposes of this impact evaluation, an impact would be significant if the project design impedes emergency access to the site. Several factors determine whether a project has sufficient access for emergency vehicles, including:

1. Number of access points (both public and emergency access only)
2. Width of access points
3. Width of internal roadways

The site plan provides three vehicle access points on Admiral Callaghan Lane for the proposed commercial center, and two vehicle access points on Turner Parkway for the residential development. If one of these driveways were blocked or obstructed, emergency vehicles would have an alternative route to access the site. Based on preliminary site plan information, project driveways and drive aisles provide a minimum of 24-feet clear travel area which is sufficient for emergency vehicle access and circulation. Improvement Plans require review and approval by the City of Vallejo Fire Department prior to construction. The City Fire Department reviews the plans for adequate emergency access for emergency vehicles. As a result, no impediments related to emergency vehicle access are identified. This impact is considered less than significant, and no mitigation is required.

4.15.7 CONCLUSION

EXISTING WITH PROJECT

Under the *Existing With Project* scenario, the proposed project would cause seven intersections to operate at a deficient level of service during at least one peak hour. Implementation of mitigation measures TR-1 and TR-2, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these intersections would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

It is noted that peak hour signal warrants are met at intersection #7 under both *Existing* and E*xisting With Project Conditions*, and the intersection was signalized in 2019 (the *Existing* and *Existing With Project* analyses assumed the all-way stop control that was in place when most of the traffic counts were taken in 2017). The intersection is projected to operate acceptably with signalization in the weekday AM, mid-day and PM peak hours. In the Saturday mid-day peak hour, the intersection is projected to operate with less delay with signalization, but still at an unacceptable level of service.

EXISTING WITH NEAR-TERM

The proposed project would cause four intersections to operate at a deficient level of service during at least one peak hour. Implementation of mitigation measures TR-1 through TR-3, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact

area. However, impacts at these intersections would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections; however, this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

PEDESTRIAN, BICYCLE, AND TRANSIT ACCESS

The project adds sidewalk and bicycle lanes to Admiral Callaghan Land and an internal pedestrian and bicycle pathway connecting the residential and commercial areas of the project. The residential area includes internal bicycle and pedestrian pathways as well. Potential impacts on pedestrian and bicycle access are considered less than significant.

Potential impacts on transit access and circulation are reduced to less than significant with the implementation of mitigation measure TR-4 which requires the construction of a new bus pull-out on eastbound turner parkway in coordination with SolTrans.

4.15.8 CUMULATIVE IMPACTS

The project's impacts in association with existing and cumulative growth are evaluated in traffic scenarios addressed in this section. The cumulative analysis identifies future traffic conditions in 2040, which could be expected to result from "reasonably foreseeable" (or "cumulative") projects in the traffic study area both without and with the proposed project.

CUMULATIVE (2040) CONDITIONS

Published forecasts from the February 2016 In-N-Out study, the Vallejo General Plan EIR, and the 2015 Chick-Fil-A study were used to develop background traffic growth rates for Year 2040 scenarios. Based on this information, existing traffic counts were increased by 23 percent (one percent annual growth) to account for traffic growth from other regional and local sources.

Under Cumulative conditions, it was assumed that the existing Costco site would be vacated by Costco but occupied by a new retail tenant. The removal of the existing Costco site trips, addition of the new retail trips on that site, and the addition of the new project trips were added to the Cumulative peak hour traffic volumes to estimate the Cumulative With Project peak hour traffic volumes.

The planned reconfiguration of the I-80 at Redwood Parkway interchange is assumed for the *Cumulative No Project* and *Cumulative With Project* scenarios. This reconfiguration removes the eastbound I-80 hook

ramps on Admiral Callaghan Lane; relocates Fairgrounds Drive to the west of the westbound I-80 ramps intersection; and reconstructs the two ramp intersections.

As a condition of approval, the applicant is required to pay the Solano County Regional Transportation Impact Fee (as part of the County Public Facilities Fee) at the time building permits are issued. The fees collected are transferred to Solano County and the funds are managed by the Solano Transportation Authority. These fees are used to fund regional capital transit and roadway improvement projects. These regional transit and County road projects are expected to benefit all County residents and workers, both those that are already in the County and those that will come to the County as a result of new development. These projects include ramp improvements to the Redwood Parkway/Interstate 80 interchange; for both for eastbound and westbound directions.[6,7] However, the timeframe for the construction of these improvements are currently unknown and the construction of the interchange improvements is outside of the control of the City of Vallejo.

Additionally, the new interchange ramp intersection were assumed to be signalized and coordinated with the signal timings for City intersections along Admiral Callaghan Lane. This coordination would optimize the traffic flow along Admiral Callaghan Lane and through the Redwood Parkway/I- 80 interchange. Admiral Callaghan Lane is assumed to be widened to two lanes in each direction along the project frontage in the *Cumulative With Project* scenario because this is a planned condition of approval for the project.

Trip Generation

This scenario assumes that the existing Costco site would be vacated by Costco but occupied by a new retail tenant. The net new trips under this scenario represents the removal of the existing Costco trips, the addition of retail trips at the existing Costco site, and proposed project trips: commercial center, relocated Costco store, and residential development. Trip generation estimates for the *Cumulative With Project* Conditions are presented in *Table 4.15-6: Near Term and Cumulative Project Trip Generation*.

Cumulative (Year 2040) Intersection Levels of Service

Peak hour intersection operations for the Cumulative and Cumulative With Project case are shown in *Table 4.15-11: Intersection Levels of Service – Cumulative***.** Based on the significance criteria set forth in this EIR, the project would cause eight intersections to operate at a deficient level of service during at least one peak hour. Impacts on these intersections are considered significant and mitigation is required:

- **Intersection #6:** Admiral Callaghan Lane/Turner Parkway – In the Saturday mid-day peak hour, the intersection operates at LOS B without the Project and operates at LOS F with the Project.
- **Intersection #7:** Admiral Callaghan Lane/Rotary Way – In all but the AM peak hour, the intersection operates at LOS D or better without the Project and operates at LOS F with the Project.

[6] Technical Memo to Solano County Transportation Authority, Table 1, prepared by Fehr and Peers, January 2019.
[7] Redwood Parkway – Fairground Drive Improvement Project, Final EIR/EA, prepared by California Department of Transportation and Solano County Transportation Authority, June 2015.

- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps – In weekday AM and mid-day peak hours without the Project, the intersection operates at LOS E or better and operates at LOS F with the Project. In the weekday PM and Saturday mid-day peak hours, the intersection operates at LOS F without the Project and the delay increases with the addition of Project traffic.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S) – In the AM peak hour, the intersection operates at LOS E without the Project and LOS F with the Project. In the Saturday mid-day peak hour, the intersection operates at LOS F without the Project and the delay increases with the addition of Project traffic.
- **Intersection #21:** I-80 NB Ramp/Redwood Parkway – In the weekday mid-day and Saturday mid-day peak hours, the intersection operates at LOS E or better without the Project and operates at LOS F with the Project.
- **Intersection #22:** Admiral Callaghan Lane at Middle Project Driveway – in the Saturday mid-day peak hour, the intersection operates at LOS F.
- **Intersection #23:** Admiral Callahan Lane/Northern Project Driveway – In all but the AM peak hour, the unsignalized intersection meets peak hour signal warrants and the worst approach operates at LOS F.
- **Intersection #25:** I-80 NB Ramp/Redwood Parkway – In the weekday mid-day and Saturday mid-day peak hours, the intersection operates at LOS E of better without the Project and operates at LOS F with the Project.

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
1. Admiral Callaghan Ln at Columbus Pkwy	Signal	AM	12.4	B	13.3	B
		MD	21.1	C	21.2	C
		PM	27.8	C	30.4	C
		SA	26.5	C	28.7	B
2. Admiral Callaghan Ln at Auto Club Dr	Signal	AM	11.7	B	7.5	A
		MD	19.3	B	19.9	B
		PM	18.8	B	20.7	C
		SA	26.4	C	36.5	D
3. Admiral Callaghan Ln at Plaza Dr	Signal	AM	21.2	C	20.3	C
		MD	29.8	C	22.7	C
		PM	38.8	D	25.9	C
		SA	60.2	E	50.3	D
4. Admiral Callaghan Ln at Vallejo Corners	Signal	AM	5.4	A	5.5	A
		MD	9.0	A	9.7	A
		PM	10.9	B	11.7	B
		SA	12.4	B	43.1	D
5. Admiral Callaghan Ln at Target Driveway	SSS	AM	1.3 (4.6)	A (A)	1.3 (2.7) 1.5 (4.3)	A (A)

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		MD	1.7 (3.8)	A (A)	1.7 (6.2)	A (A)
		PM	1.8 (5.0)	A (A)	**52.5 (>180)**	A (A)
		SA	1.9 (5.7)	A (A)		**F (F)**
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	8.2	A	15.3	B
		MD	13.7	B	41.8	E
		PM	15.6	B	27.9	C
		SA	17.7	B	**117.4**	**F**
7. Admiral Callaghan Ln at Rotary Way	Signal	AM	7.2	A	9.7	A
		MD	11.7	B	**75.0**	**F**
		PM	11.7	B	**96.4**	**F**
		SA	34.1	D	**>180**	**F**
8. Admiral Callaghan Ln at I- 80 EB Ramps	SSS	AM	0.9 (1.5)	A (A)	0.8 (1.2)	A (A)
		MD	2.3 (2.7)	A (A)	8.9 (13.9)	A (B)
		PM	2.4 (9.0)	A (A)	12.4 (20.0)	B (C)
		SA	10.4 (17.9)	B (C)	**45.8 (130.6)**	**E (F)**
9. Redwood St/Fairgrounds Dr at I-80 WB Ramps	Signal	AM	65.6	E	**152.0**	**F**
		MD	12.3	B	**103.0**	**F**
		PM	**89.8**	**F**	**123.8**	**F**
		SA	**98.2**	**F**	**155.4**	**F**
10. Redwood Pkwy/ Admiral Callaghan Ln (N) at I-80 EB Off-Ramp	Signal	AM	34.6	C	41.6	D
		MD	39.6	D	59.9	E
		PM	37.3	D	68.1	E
		SA	58.8	E	74.2	E
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	76.6	E	**149.2**	**F**
		MD	**>180**	**F**	**125.6**	**F**
		PM	**>180**	**F**	**154.1**	**F**
		SA	**153.1**	**F**	**>180**	**F**
12. Plaza Dr at Gateway Plaza	Signal	AM	25.7	C	25.1	C
		MD	14.3	B	11.3	B
		PM	14.5	B	10.9	B
		SA	27.8	C	13.6	B
13. Plaza Dr at Costco Driveway	SSS	AM	5.7 (13.6)	A (B)	5.4 (13.6)	A (B)
		MD	**110.3 (>180)**	**F (F)**	9.4 (32.9)	A (D)
		PM	**80.8 (>180)**	**F (F)**	7.6 (28.2)	A (D)
		SA	**>180 (>180)**	**F (F)**	**33.3 (166.3)**	**D (F)**
14. Plaza Dr at Turner Pkwy	Signal	AM	10.0	B	10.4	B
		MD	14.4	B	12.2	B
		PM	36.5	D	12.1	B
		SA	16.1	B	13.1	B
15. Turner Parkway at Foothill Drive	SSS	AM	2.4 (10.2)	A (B)	2.1 (11)	A (B)
		MD	2.3 (15.4)	A (C)	2.3 (17.5)	A (C)

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		PM SA	2.3 (15.9) 2.6 (18.5)	A (C) A (C)	2.3 (16.9) 2.7 (21.6)	A (C) A (C)
16. Redwood Parkway at Oakwood Drive	SSS	AM MD PM SA	1.7 (14.4) 2.9 (20.6) 3.0 (20.5) 3.6 (24.2)	A (B) A (C) A (C) A (C)	1.6 (15.1) 3.3 (28.8) 3.4 (31.8) 4.4 (42.4)	A (B) A (D) A (D) A (E)
17. Redwood Parkway Oakwood Drive	Signal	AM MD PM SA	7.9 11.2 13.9 13.7	A A B B	7.8 11.1 13.8 14	A A B B
18. Redwood Parkway at Ascot Parkway	Signal	AM MD PM SA	16.2 16.8 18.2 17.5	B B B B	16.6 18.7 20.6 20.2	B B B B
19. Turner Pkwy at Western Residential Project Driveway	Signal	AM MD PM SA	-	-	6.4 5.3 5.5 5.4	A A A A
20. Turner Pkwy at Eastern Residential Project Driveway	SSS	AM MD PM SA	-	-	0.4 (8.9) 0.1 (10.0) 0.1 (10.0) 0.1 (10.4)	A (A) A (B) A (B) A (B)
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM MD PM SA	-	-	1.4 (3.9) **30.4 (52.1)** **40.2 (80.3)** **65.9 (153.4)**	A (A) **D (F)** **E (F)** **F (F)**
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM MD PM SA	-	-	4.1 25.2 45.6 **96.6**	A C D **F**
23. Admiral Callaghan Ln at Northern Project Driveway	SSS	AM MD PM SA	-	-	1.6 (7.5) **9.0 (72.4)** **18.1 (>180)** **76.5 (>180)**	A (A) **A (F)** **C (F)** **F (F)**
24. I-80 SB Ramp at Redwood Pkwy	Signal	AM MD PM SA	21.5 15.6 23.2 43.6	C B C D	36.0 62.7 58.5 45.2	D E E D
25.1-80 SB Ramp at Redwood Parkway	Signal				39.3 **80.1** 66.2	D **F** E

Table 4.15-11: Intersection Levels of Service – Cumulative

Location	Control[1,2]	Peak Hour	Cumulative[3]		Cumulative With Project[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
		AM MD PM SA	30.3 21.6 19.7 47.9	C C B D	**175.4**	**F**

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019

Cumulative Queues

The following discussion on vehicle queues is provided for informational purposes only as there are no specific thresholds for queuing. It should be noted that the instance of a queue exceeding available storage is not in itself a significant impact based on the significance criteria, but rather a condition reflecting the performance of individual movements at an intersection. Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. The following list shows those intersections with capacity that would be exceeded on a Cumulative basis Without the Project.

- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: westbound right turn during all three peak hours, southbound left and southbound through during the Saturday mid-day peak hour.
- **Intersection #8:** Admiral Callaghan Lane/I-80 EB Ramps: southbound through in the Saturday mid-day peak hour.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: westbound through during all peak hours, southbound left during the weekday AM, weekday PM and Saturday mid-day peak hour, eastbound right and westbound through/right during the weekday AM and weekday PM peak hours, and eastbound left during the Saturday mid-day peak hour.
- **Intersection #10:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: southbound right, westbound through, and westbound through/right during all three peak hours, eastbound left during the Weekday mid-day peak hour.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): shared eastbound through/right and northbound left turn during all three peak hours, eastbound through during the weekday

mid- peak and PM hour, westbound through and shared westbound through/right during the weekday mid-day and Saturday mid-day peak hours.

Vehicle queues in the 95th percentile are projected to exceed the storage capacity for certain movements at the intersections listed below. The 95th percentile queues are those that are projected to occur during only 5% or less of the entire peak hour. Intersections that are not significantly impacted based on delay and LOS, as evaluated above, are identified with an asterisk.

- **Intersection #4*:** Admiral Callaghan Lane/Vallejo Corners: westbound right during the Saturday mid-day peak hour, westbound left during the weekday mid-day, weekday PM, and Saturday midday peak hours.
- **Intersection #5*:** Admiral Callaghan Lane/Target driveway: northbound through and northbound through/right during the Saturday mid-day peak hour.
- **Intersection #6:** Admiral Callaghan Lane/Turner Parkway: northbound through during the Saturday mid-day peak hour, northbound through/right during the weekday PM and Saturday mid-day peak hours, westbound left and shared westbound left/right during the weekday midday and Saturday mid-day peak hours.
- **Intersection #7:** Admiral Callaghan Lane/Rotary Way: northbound through during the weekday AM, weekday mid-day and Saturday mid-day peak hours, northbound shared through/right, westbound right and southbound through during all three peak hours, southbound left during the weekday PM and Saturday mid-day peak hours.
- **Intersection #8*:** Admiral Callaghan Lane/I-80 EB Ramps: northbound through and northbound through/right during the Saturday mid-day peak hour, southbound through during all peak hours.
- **Intersection #9:** Redwood Street/Fairgrounds Drive/I-80 WB Ramps: eastbound left and through during all three peak hours, southbound left during the weekday AM, weekday mid-day and weekday PM peak hour, southbound right during the weekday mid-day peak hour.
- **Intersection #10*:** Redwood Parkway/Admiral Callaghan Lane (N)/I-80 EB Off-Ramp: southbound left during the weekday AM and weekday PM peak period, southbound right during all peak hours, eastbound left during the Saturday mid-day peak hour.
- **Intersection #11:** Redwood Parkway/Admiral Callaghan Lane (S): northbound left during the weekday AM and Saturday mid-day peak hour, northbound through/right during the weekday ASM, weekday PM and Saturday mid-day peak hour, shared eastbound through/right and northbound left, westbound through, and westbound shared through/right during all three peak hours, eastbound through during the weekday PM peak hour.

Cumulative Signal Warrant Analysis

The unsignalized intersection #13 at Plaza Drive/Costco Driveway experiences high levels of delay for vehicles turning on to Plaza Drive. The intersection meets peak hour signal warrants during the weekday mid-day, weekday PM, and Saturday mid-day peak hours studied under Cumulative No Project conditions.

Under Cumulative with Project conditions, this intersection meets peak hour signal warrants during the Saturday peak hour only. This intersection does not meet peak hour signal warrants in the weekday AM peak hour under Cumulative and Cumulative with Project conditions.

The unsignalized intersection #5 Admiral Callaghan Lane/Target Driveway and #8Admiral Callaghan Lane/I-80 EB Ramps do not meet peak hour signal warrants in any of the peak hours studied under Cumulative and Cumulative with Project conditions.

The unsignalized intersection #20 Turner Parkway/Eastern Residential Project Driveway does not meet signal warrants in any of the peak hours studied under Cumulative with Project conditions. Intersection #23: Admiral Callaghan Lane/Northern Project Driveway and Intersection #21: Admiral Callaghan Lane/Southern Project Driveway experience high levels of delay for vehicles turning on to Admiral Callaghan Lane, these intersections meet peak hour signal warrants during all three peak hours studied under Cumulative with Project conditions.

Cumulative Freeway Segment Levels of Service

As identified in *Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative,* with the addition of project traffic, all freeway segments would experience an increase in density. Five segments are forecasted to continue to operate at an acceptable level of service (LOS E or better), as set by Caltrans. One segment, eastbound I-80 west of Redwood Parkway, is expected to operate at a deficient level of service (LOS F) with and without the proposed project. Approximately 194 vehicles would be added to segment with the addition of project traffic. Based on the significance criteria set forth in this EIR, this is a cumulative considerable and significant project impact. As such, implementation of Mitigation Measure TR-4 which in which the applicant would contribute payment of transportation impact fees towards roadway projects, including freeway improvements, in Solano County would be required. However, because no mainline freeway capacity projects are currently planned to be funded by the fee, and because the project applicant and the City of Vallejo do not control the funding, prioritization and construction of freeway improvement projects, this impact would remain significant and unavoidable.

Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative

Segment	Cumulative			Cumulative With Project		
	Volume	Density	LOS	Volume	Delay	LOS
1. Westbound – East of Columbus Pkwy	4,220	19.7	C	4,271	19.9	C
2. Westbound – Between Redwood Pkwy and Columbus Pkwy	5,410	25.9	C	5,554	26.6	D
3. Westbound – West of Redwood Pkwy	5,630	38.7	E	5,726	39.7	E
4. Eastbound – East of Columbus Pkwy	5,870	39.4	E	5,921	40.0	E

Table 4.15-12: I-80 Weekday PM Freeway Levels of Service — Cumulative

Segment	Cumulative			Cumulative With Project		
	Volume	Density	LOS	Volume	Delay	LOS
5. Eastbound – Between Redwood Pkwy and Columbus Pkwy	3,580	22.7	C	3,754	23.9	C
6. Eastbound – West of Redwood Pkwy	6,290	Demand Exceeds Capacity	**F**	6,484	Demand Exceeds Capacity	**F**

1. Density Reported in Passenger Cars per Mile Per Lane

Source: Fehr & Peers, December 2019.

Cumulative Mitigation Summary

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project, identifies the level of service with and without the implementation of mitigation measures TR-1, through TR-3. The proposed mitigation does not improve the LOS or delay at impacted intersections #6, #7, #9, #11 and # 21 to an acceptable level. Intersection delays improve at some of these intersections, but the vehicle spillback from intersections #9, and #10 causes intersections #6, #7, #21, #23 and #25 to fail despite the improvements provided by the mitigations. Intersection #25 has no feasible mitigation. However, improvements at upstream intersections due to the proposed mitigations alleviate queue spillback and improve operations to an acceptable level in the weekday mid-day peak hour, and intersection delays are improved but not to an acceptable level in the Saturday mid-day peak hour. The improvements at intersections #6, #7, and #22 improve operations at intersection #18 to an acceptable level.

With the proposed mitigations, the impact at intersection #18 is reduced to a less than significant level. Intersection impacts at intersections #6, #7, #9, and #11, #21, #23 and #25 are significant and unavoidable. Potential impacts at these intersections are considered cumulatively considerable and significant because the intersections would operate at an unacceptable level-of-service and continue to operate at an unacceptable level with mitigations.

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project

Location	Control[1,2]	Peak Hour	With Project[3]		With Mitigation[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
6. Admiral Callaghan Ln at Turner Pkwy	Signal	AM	15.3	B	11.4	B
		MD	41.8	**E**	33.5	C
		PM	27.9	**C**	46.5	D
		SA	**117.4**	**F**	**>180**	**F**
7. Admiral Callaghan Ln at Rotary Way	Signal	AM	9.7	A	10.2	B
		MD	**75**	**F**	**91.3**	**F**
		PM	**96.4**	**F**	**112.7**	**F**
		SA	**>180**	**F**	**>180**	**F**

Table 4.15-13: Mitigated Intersection Level of Service – Cumulative With Project

Location	Control[1,2]	Peak Hour	With Project[3]		With Mitigation[3]	
			Delay (seconds)	LOS	Delay (seconds)	LOS
9. Redwood St at Fairgrounds Dr & I-80 WB Ramps	Signal	AM	**152.0**	**F**	121.4	F
		MD	**103.0**	**F**	**96.6**	**F**
		PM	**123.8**	**F**	**115.8**	**F**
		SA	**155.4**	**F**	**101.3**	**F**
11. Redwood Pkwy at Admiral Callaghan Ln (S)	Signal	AM	**149.2**	**F**	**149.3**	**F**
		MD	**125.6**	**F**	**114.1**	**F**
		PM	**154.1**	**F**	**146.6**	**F**
		SA	**>180**	**F**	**121.4**	**F**
21. Admiral Callaghan Ln at Southern Project Driveway	SSS	AM	1.4 (3.9)	A (A)	1.5 (5.7)	A (A)
		MD	**30.4 (52.1)**	**D (F)**	**38.2 (69.1)**	**D (F)**
		PM	**40.2 (80.3)**	**E (F)**	**42.5 (90.1)**	**E (F)**
		SA	**65.9 (153.4)**	**F (F)**	**64.3 (88.7)**	**F (F)**
22. Admiral Callaghan Ln at Middle Project Driveway	Signal	AM	4.1	A	2.9	A
		MD	25.2	C	32.9	C
		PM	45.6	D	58.2	E
		SA	**96.6**	**F**	66.8	E
23. Admiral Callaghan Lan at Northern Project Driveway	Signal	AM	1.6 (7.5)	A (A)	1.5 (7.2)	A (A)
		MD	**9.0 (72.4)**	**A (F)**	**11.0 (76.2)**	**B (F)**
		PM	**18.1 (>180)**	**C (F)**	**26.1 (172.5)**	**D (F)**
		SA	**76.5 (>180)**	**F (F)**	**48.8 (140.6)**	**E (F)**
25. I-80 SB Ramp at Redwood Pkwy	Signal	AM	39.3	D	42.2	D
		MD	**80.1**	**F**	79.5	E
		PM	66.2	E	70.4	E
		SA	**175.4**	**F**	**86.3**	**F**

Notes:

1. Signal = signalized intersection; AWS=all-way stop; SSS=side street stop; MD = weekday mid-day (12:00 PM to 2:00 PM); PM = evening (4:00 PM to 6:00 PM); SA = Saturday mid-day (12:00 PM to 2:00 PM).
2. For side-street stop-controlled intersections, two service levels are listed: Average intersection LOS (LOS for worst side-street movement)
3. **Bold** indicates below-standard service level. Shaded indicates a significant impact.

Source: Fehr & Peers, December 2019

Mitigation Measures:

Implement Mitigation Measures TR-1, TR-2, and TR-3.

Implementation of mitigation measures TR-1 through TR-3, which include the construction of a right turn pocket on northbound Admiral Callaghan Lane/Turner Parkway and signal timing coordination along Turner Parkway would improve traffic flow and reduce delays in the impact area. However, impacts at these seven intersections under *Cumulative With Project Conditions* would remain significant and unavoidable. No other feasible mitigation measures have been identified which would further mitigate the impacts. The project area is located in a developed urban area and insufficient right-of-way exists to

add capacity to the City of Vallejo intersections which are significantly impacted. Caltrans has prepared an interchange improvement plan for the I-80/Redwood Parkway interchange which will improve operations at the I-80 ramp intersections and, as discussed earlier, the project will pay regional transportation fees towards the funding of this project. However; this Caltrans project is not yet fully funded, and the timing and construction of those improvements are outside the control of the City of Vallejo and there is no guarantee that these improvements would be implemented. Therefore, those improvements cannot be considered feasible mitigation for the *Existing With Project* impacts at those I-80/Redwood Parkway interchange intersections.

4.15.9 CUMULATIVE CONCLUSION

The proposed mitigation does not improve the LOS or delay at impacted intersections #6, #7, #9, #11 and #17 to an acceptable level. Intersection delays improve at some of these intersections, but the vehicle spillback from intersections #9 and #10 causes intersections #6, #7, #17, #19 and #21 to fail despite the improvements provided by the mitigations. Intersection #21 has no feasible mitigation. However, improvements at upstream intersections due to the proposed mitigations alleviate queue spillback and improve operations to an acceptable level in the weekday mid-day peak hour, and intersection delays are improved but not to an acceptable level in the Saturday mid-day peak hour. The improvements at intersections #6, #7, and #18 improve operations at intersection #18 to an acceptable level.

With the implementation of the proposed mitigation measures, the impact at intersections, #8 and #18 are reduced to a less than significant level under cumulative conditions. Intersection impacts at intersections #6, #7, #9, and #11, #17, #19 and #21 are significant and unavoidable after mitigation measure have been applied.

4.15.10 REFERENCES

California Department of Transportation. http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf

California Natural Resources Agency. http://resources.ca.gov/ceqa/docs/update2018/proposed-regulatory-text.pdf

City of Vallejo. http://www.ci.vallejo.ca.us/living/transportation/highways

City of Vallejo. http://www.ci.vallejo.ca.us/common/pages/DisplayFile.aspx?itemId=28704

Fehr and Peers, December 2019. Transportation Impact Analysis – Fairview at Northgate

Metropolitan Transportation Commission and Association of Bay Area Governments. http://2040.planbayarea.org/cdn/farfuture/u_7TKELkH2s3AAiOhCyh9Q9QlWEZIdYcJzi2QDCZuIs/1510696833/sites/default/files/2017-11/Final_Plan_Bay_Area_2040.pdf

Vallejo General Plan 2040

Vallejo General Plan 2040 EIR

4.16 UTILITIES AND SERVICE SYSTEMS

This section of the Environmental Impact Report (EIR) addresses the proposed project's potential impacts on certain utilities and services including water, wastewater, stormwater, and solid waste. The analysis in this section has been prepared in accordance with §15064.5 of the State CEQA Guidelines, which considers the potential impacts on water, wastewater, stormwater, and solid waste disposal resource. This section describes the demand and availability of these resources within the project study area, and the applicable regulations that govern those resources. The following analysis of the potential environmental impacts related to utilities and service systems is derived from the following sources and agencies. Modeling assumptions and output results for water and wastewater are included in Appendix K of this EIR.

- Propel Vallejo 2040 General Plan.
- Propel Vallejo General Plan 2040 and Sonoma Boulevard Specific Plan Draft EIR.
- Fairview at Northgate – Potable Water Demand Projections.
- Cooke Property Sewer Evaluation.
- Sanitary Sewer Capacity Calculations.
- Correspondence with service providers and agencies.

4.16.1 ENVIRONMENTAL SETTING

The proposed project is located within a suburban and urban environment in the City of Vallejo (City). The proposed project is bound on the north by Turner Parkway, to the east by Foothill Drive with a residential area, to the south by Sundance Apartments and Avery Greene Honda, and to the west by Admiral Callaghan Lane and I-80. Currently the proposed Project area encompasses approximately 51.3 acres of undeveloped vacant land.

Public utilities and service systems are generally provided by City Agencies including the City Water Department, The City of Vallejo Sanitation and Flood Control District, and the City Recycling and Solid Waste Division. Private business, such as Pacific Gas & Electric Company (PG&E), AT&T, Dish, and Comcast, provide services for natural gas and electricity and telecommunications services. Each service department and associated utility are discussed individually below.

Water

The City derives its water supply from five water rights and from four sources and treats the water at three treatment plants. The four sources include the Solano Project Water (Lake Berryessa), State Water Project (SWP)/Vallejo Permit Water [California (Sacramento) Bay Delta], Lakes Frey and Madigan, and Lake Curry (not currently accessible for water system supply). Vallejo's five water rights and the associated water entitlement are summarized below, and *Table 4.16-1: Purchased/Imported Water*

Supplies shows the volume of water from the three major sources. Total annual right or safe yield is 14,011 million gallons per year (MG/yr) or 42,998-acre-feet per year (af/yr).

- **Solano Project.** Solano Project Water is delivered from Lake Berryessa via the Putah South Canal to either Cordelia where it is pumped into Vallejo or the Travis WTP, or via Solano Irrigation District's distribution system to an intertie in Green Valley. The majority of Vallejo's Solano Project water entitlement is delivered to Fleming Hill WTP from the United States Bureau of Reclamation (USBR) terminal reservoir via the Cordelia reservoir. Entitlements from the Solano Project is 4,757 MG/yr or 14,598 af/yr.
- **State Water Project**. SWP water is diverted from the Sacramento-San Joaquin Delta and conveyed through the North Bay Aqueduct (NBA) and to the Cordelia Forebay, through the Cities of Cordelia and Jameson and to the Fleming Hill Water Treatment Plant (WTP). A portion of SWP water is diverted to supply Travis Air Force Base. The City executed a Water Contract for Water Supply from North Bay Aqueduct with Solano County Water Agency (SCWA). In the agreement, the City is allocated annual allotments of SWP water, commonly referred to as "Table A allotment." The City's Table A allotment was accelerated in 2009 to its ultimate amount of 1,825 million gallons per year (MG/yr) or 5,600 af/y starting in 2010. The City's current water contract with SCWA runs through 2035 with provisions for extensions. All member units to the SWP contract share in the same curtailment percentage as declared by the State of California for any given water year. The annual right may be exceeded in a given year due to available carryover from previous years.
- **Vallejo Permit Water**. Vallejo holds an Appropriative Water Rights License (No. 997848) with the State Water Resources Control Board (SWRCB), issued August 1966, pre-dating the construction of the SWP. This water supply is commonly referred to by the City as "Permit Water." Permit Water is pumped from Barker Slough and delivered through the NBA and is separate from the City's SWP Table A allotment. SCWA is the managing wholesaler for purchase of Permit Water. The license allows for a maximum diversion of 31.52 cfs or about 7,429 MG/yr. Conveyance of Vallejo Permit Water through the NBA is limited by this contract to a maximum of 5,633 MG/yr. Since the limitation is not based on a physical capacity constraint of the NBA, an additional 1,790 MG could be available upon execution of an amendment to the existing agreement between DWR and SCWA.
- **Lakes Frey and Madigan.** Lakes Frey and Madigan are located in northern Solano County. The City owns both lakes and the surrounding land. Water flows from the Lakes via a City gravity pipe system to the Green Valley WTP. Safe yield from Lake Madigan and Frey is 196 MG/yr. The City has chosen to reduce this amount by one third to 130 MG/yr due to the lack of alternative water sources for the Lakes system. Water from Lakes Frey and Madigan are supply sources for the Lakes customers only and not included to City supply.
- **Lake Curry.** Lake Curry is the largest lake in the Vallejo Lakes System and is located in southern Napa County. The City owns the lake and surrounding land. Lake Curry has a storage capacity of 3,487 MG, and has a safe yield of 1,222 MG/yr. However, Lake Curry is not currently being used or planned to be used in the near future as a drinking water source, although lake water is being used for voluntary in-stream flow into Suisun Creek.

Table 4.16-1: Purchased/Imported Water Supplies

Water Supply Source	Volume (MG)	
	2015 Supply	Total Annual Right or Safe Yield
State Water Project	2,092	1,825
Vallejo Permit Water	1,261	7,429
Solano Water Project	2,667	4,757
Total	**6,020**	**14,011**
Source: UWMP, 2015.		

The City Urban Water Management Plan (UWMP), provided details on the 2015 Citywide demand for potable and raw water accounting for single-family, multi-family, commercial, agriculture, other uses, as well as transfers/sales/exchanges, and water losses throughout the system. The UWMP also projected demand for potable and raw water for these uses through the year 2040. *Table 4.16-2: City of Vallejo Water Demand and Projected Water Demand*, shows these uses and associated demands.

Table 4.16-2: City of Vallejo Water Demand and Projected Water Demand

Use Type	Yearly Water Use (MG)					
	2015	2020	2025	2030	2035	2040
Single-Family	2,166	2,591	2,515	2,428	2,365	2,281
Multi-Family	574	610	602	593	590	590
Commercial	727	835	806	770	738	707
Agricultural Irrigation	410	584	571	547	518	485
Other	126	123	126	128	130	134
Sales/Transfers/Exchanges to other Agencies	883	2,599	2,783	2,738	2,783	2,783
Losses	963	950	711	496	483	466
Total (MG)	**5,849**	**8,291**	**8,114**	**7,746**	**7,608**	**7,447**
Source: 2015 City of Vallejo Urban Water Management Plan.						

The City Urban Water Management Plan (UWMP) provides the projected water supply from 2020 to 2040. The supply is derived from purchased or imported water and surface water from the State water project, Vallejo permit water, the Solano project, or Lake Frey and Lake Madigan. From 2020 to 2040 the project supply is consistent year over year. *Table 4.16-3: City of Vallejo Project Water Supply 2020-2040 (MG)*, provides these volumes.

Table 4.16-3: City of Vallejo Project Water Supply 2020-2040 (MG)

Water Supply	State Water Project	Years	
		2020-2040	
		Reasonably Available Volume	Total Right or Safe Yield
Purchased or Imported Water	Permit Water	1,466	1,825
Purchased or Imported Water	Solano Project	5,633	5,633
	Total:	**7,099**	**7,508**

Source: UWMP, 2015.
Abbreviation: MG – Million Gallons.

Wastewater

Wastewater services for the City are provided by Vallejo Flood and Wastewater District (VFWD). The service area of the VFWD includes the City limits and the unincorporated lands within the City Sphere of Influence (SOI). VFWD is an independent special district that was formed in 1952 to collect and treat wastewater and provide stormwater and flood control services to the Vallejo community. In order to meet the demands on the wastewater treatment plant and storm drain system as the City grows, the VFWD imposes sewer and storm drain user fees. The District Code includes General Provisions under Title 1, provisions for the Sanitary Sewer System under Title 4, and provisions for Sewer Laterals under Title 5. Sanitary Sewer Connection Fees are found under Chapter 4.04; Sanitary Sewer User Fees are in Chapter 4.08; and Non-Domestic Sewer Use Regulations are in Chapter 4.12.

The VFWD provides service for more than 120,000 residents in its service area. Wastewater is treated at the Ryder Street treatment plant before it is discharged after treatment to San Francisco Bay. The District owns 436 miles of sewer main and 226 miles of stormwater main and channel, operates 36 wastewater pump stations together with nine stormwater pump stations, operates a secondary treatment wastewater treatment plant and manages biosolids disposal through District-owned land on Tubbs Island in Sonoma County. On an average day, the VFWD treats approximately 10 million gallons per day (mgd) of wastewater conducted through the sewer network from residential, commercial, and other uses that generates sewage requiring treatment.

The Vallejo Waste Water Treatment Plan (WWTP) has a dry weather capacity of 15.5 mgd and a wet weather capacity of 60 mgd. As of 2015 VFWD's dry weather flow was approximately 10 mgd and has been decreasing due to low flow fixtures and a reduction of inflow and infiltration into the collection system. Treatment consists of conventional secondary treatment with trickling filters, short-term aeration, chlorination, and dechlorination before treated effluent is discharged to the Carquinez Strait (City of Vallejo, 2015, 2019).

Stormwater Drainage

Stormwater drainage facilities with the City are provided by the VFWD. The VFWD provides flood control protection services for Vallejo and operates and maintains over 250 miles of storm drainage piping, more than 10,000 catch basins, and nine stormwater pump stations within the city. The VFWD also protects land and residents from flooding damage through its storm drain system. Several of the storm drain systems and basins drain into Lake Dalwigk, which serves as a valuable marsh habitat for birds, amphibians, and other wildlife. Stormwater on the project site generally drains to the northwest to the existing culvert system under Turner Parkway and it is then conducted downstream to the outflow to the San Francisco Bay. Stormwater from the southerly portion of the project site and adjacent areas flows into the existing drainage system that parallels the southern project boundary. Stormwater from here is conducted through a culvert under Admiral Callaghan Lane and I-80 and eventual outfall to the San Francisco Bay.

Solid Waste

Solid Waste services in the City are provided by Recology, and service within the City is mandatory. Recology also offers recycling service for multi-family units, debris box service, and garbage and recycling collection for commercial businesses. Recology provides residential curbside pickup that includes household hazardous waste, yard waste, recycling, waste, and used oil and filters. Commercial business and multi-tenant dwelling services also are provided. These services include pickup of cardboard, recycling, cooking oil and food, and paper pickups. Lastly, Recology also provides construction and demolition services (Recology, 2019), which would handle waste construction materials such as concrete, wood, and other materials.

In 2017, Vallejo's per capita solid waste disposal rate for residents was 2.25 pounds per day (ppd);[4] which is 3.75 ppd better than the state average of 6ppd (Calrecycle, 2016). CalRecycle reports that in 2017 a total of 99,004 tons of solid waste from Vallejo was disposed at 17 different landfills (Calrecycle, 2017). Nearly 99 percent (98.9 percent, 97,991 tons) of Vallejo's solid waste in 2017 went to two of those facilities: Potrero Hills Landfill (94,753 tons) and Recology Hay Landfill (3,238 tons) (Calrecycle, 2017).

Recology Hay Landfill

The Recology Hay Landfill is located in Vacaville, California. It has a permitted throughput capacity of 2,400 tons per day. Its remaining permitted capacity is 30,433,000 cubic yards. It has an estimated "cease operation date" of January 1, 2077 (Calrecycle, 2019a).

Potrero Hills Landfill

The Potrero Hills Landfill is located in Suisun City, California. It has a permitted throughput capacity of 4,330 tons per day. Its remaining permitted capacity is 13,872,000 cubic yards. It has an estimated "cease operation date" of February 14, 2048 (Calrecycle, 2019b).

Electricity and Natural Gas

Electricity and natural gas is provided by Pacific Gas & Electric Company (PG&E). PG&E maintains utility lines within and adjacent to the project site. There are existing overhead power lines on the westerly side of Admiral Callaghan Lane. Electrical utilities also are undergrounded along the southern right-of-way of Turner Parkway. Underground natural gas lines pipelines also are located within the project site and nearby areas. The existing gas line on the project site is to be relocated. The pipelines, as well as smaller distribution lines, provide service to the adjacent and surrounding uses.

Telecommunications

Cable and Internet Services within the City are provided by AT&T, Direct TV, Dish, and Comcast. All four service providers offer service within the City of Vallejo and more specifically to properties adjacent to the project site. Additionally, the City has an extensive 40 Gigabit fiber optic network across the City – known as VallejoNET - and has partnered with Inyo Networks, a competitive local exchange carrier (CLEC), who manages, operates and sales retail broadband internet service to business across the City.

4.16.2 REGULATORY SETTING

FEDERAL

Federal Safe Drinking Water Act

The Safe Drinking Water Act, 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 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

California Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, which was passed in California in 1969 and amended in 2013, the State Water Resources Control Board (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. Vallejo is overseen by the San Francisco Bay Area RWQCB.

California Urban Water Management Planning Act

Through the Urban Water Management Planning Act of 1983, the California Water Code requires all urban water suppliers within California to prepare and adopt an Urban Water Management Plan (UWMP) and update it every five years. This requirement applies to all suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre-feet1 of water annually. The Act is intended to support conservation and efficient use of urban water supplies. The Act requires that total project water use be compared to water supply sources over the next 20 years in five-year increments, that planning occur for single and multiple dry water years, and that plans include a water recycling analysis that incorporates a description of the wastewater collection and treatment system within the agency's service area along with current and potential recycled water uses.

Sustainable Groundwater Management Act (2014)

The Sustainable Groundwater Management Act of 2014 (SGMA) consists of three legislative bills, Senate Bill (SB) 1168 (Pavley), AB 1739 (Dickinson), and SB 1319 (Pavley). The legislation provides a framework for long-term sustainable groundwater management across California. Under the roadmap laid out by the legislation, local and regional authorities in medium and high priority groundwater basins will form Groundwater Sustainability Agencies that oversee the preparation and implementation of a local Groundwater Sustainability Plan. Local stakeholders have until 2017 to organize themselves in Groundwater Sustainability Agencies. Groundwater Sustainability Plans will have to be in place and implementation will begin sometime between 2020 and 2022. Groundwater Sustainability Agencies will have until 2040 to achieve groundwater sustainability.

California Senate Bills 610 and 221

SB 610 and SB 221 amended State law to (1) ensure better coordination between local water supply and land use decisions and (2) confirm that there is an adequate water supply for new development. Both statutes require City and County decision-makers to receive detailed information regarding water availability prior to approval of large development projects. SB 610 requires the preparation of a Water Supply Assessment (WSA) for certain types of projects subject to the California Environmental Quality Act (CEQA). Projects that would be required to prepare a WSA include, but are not limited to, residential development of more than 500 dwelling units and shopping center or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor area.

Water Conservation in Landscaping Act of 2006 (AB 1881)

The Water Conservation in Landscaping Act of 2006 (AB 1881) required the State Department of Water Resources to update the State Model Water Efficient Landscape Ordinance (WELO) 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 (MO). In accordance with AB 1881, Vallejo adopted its Landscape Ordinance in Chapter 16.71 of the Municipal Code, Water Efficient Landscape Requirements.

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 California Department of Water Resources (DWR), updated the Model Ordinance in 2015 (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.

Local agencies had until December 1, 2015 to adopt the Ordinance or adopt their own ordinance, which must meet or exceed effectiveness. The Vallejo City Council adopted an ordinance on February 9, 2016, amending Municipal Code 16.71, Water Efficient Landscape Ordinance, to incorporate updates consistent with the State Model Water Efficient Landscape Ordinance.

State Water Resources Control Board

On May 2, 2006 the SWRCB adopted a General Waste Discharge Requirement (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than one mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows (SSOs) by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged here or elsewhere into the system, to prevent sanitary sewer waste from entering the storm sewer system, and to develop a Sanitary Sewer Master Plan. The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system.

The SWRCB has delegated authority to nine RWQCBs to enforce these requirements within their region. The San Francisco Bay RWQCB issues and enforces NPDES permits in Vallejo. NPDES permits allow the RWQCB to regulate where and how the waste is disposed, including the discharge volume and effluent limits of the waste and the monitoring and reporting responsibilities of the discharger. The RWQCB is also charged with conducting inspections of permitted discharges and monitoring permit compliance.

California Integrated Waste Management Act

California's Integrated Waste Management Act of 1989, AB 939 (Sher), subsequently amended by SB 1016 (Wiggins), set a requirement for cities and counties throughout the State to divert 50 percent of all solid waste from landfills by January 1, 2000 though source reduction, recycling, and composting. To help achieve this, the Act required that each city and county prepare and submit a Source Reduction and Recycling Element. AB 939 also established the goal for all California counties to provide at least 15 years of on-going 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 a jurisdiction's population. The California Integrated Waste Management Board was replaced by the California Department of Resources Recycling and Recovery (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. In 2014, the statewide residential per capita disposal rate was 4.5 pounds per resident per day, and the statewide employee per capita disposal rate was 10.6 pounds per employee per day.

Mandatory Commercial Recycling – AB 341

In 2011, AB 341 was passed that sets a State policy goal of not less than 75 percent of solid waste that is generated to be source reduced, recycled, or composted by the year 2020. CalRecycle was required to submit a report to the legislature by January 1, 2014 outlining the strategy that will be used to achieve this policy goal.

California Solid Waste Reuse and Recycling Access Act of 1991

The California Solid Waste Reuse and Recycling Access Act require areas in development projects to be set aside for collecting and loading recyclable materials. The Act required CalRecycle (formerly the California Integrated Waste Management Board) to develop a model ordinance for adoption by any local agency relating to 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, providing for adequate areas in development projects for the collection and loading of recyclable materials.

Mandatory Commercial Organics Recycling – AB 1826

In October of 2014 Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. Greenhouse gas (GHG) emissions result from the decomposition of organic wastes in landfills. Mandatory recycling of organic waste is aimed at helping achieve California's aggressive recycling and GHG emission goals. The implementation schedule began in January 2016 and as of January 1, 2019, businesses that generate 4 cubic yards or more of commercial solid waste per week shall arrange for organic waste recycling services. In addition, future regulations include the following:

- Fall 2020: After receipt of the 2019 annual reports submitted on August 1, 2020, CalRecycle shall conduct its formal review of all jurisdictions.
- Summer/Fall 2021: If CalRecycle determines that the statewide disposal of organic waste in 2020 has not been reduced by 50 percent of the level of disposal during 2014, the organic recycling requirements on businesses will expand to cover businesses that generate two cubic yards or

more of commercial solid waste per week. Additionally, certain exemptions, previously discussed, may no longer be available if this target is not met.

LOCAL REGULATIONS

City of Vallejo Urban Water Management Plan (UWMP)

The City provides water delivery to over 3,000 services, therefore requiring the preparation and adoption of a UWMP. Therefore, in compliance with the Urban Water Management Planning Act, the City of Vallejo Public Works Department, Water Division – the water service retailer for Vallejo - adopted its 2015 UWMP in November 2016. The UWMP evaluates if the City's ability to meet future water demands of its customers and analyzes projected water supply and demand to address normal, single-dry, and multiple-dry year conditions. The UWMP was prepared as part of regional-wide planning efforts through the Solano County Water Agency (SCWA) and coordination with neighboring communities the Cities of Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville and Vallejo; the Solano Irrigation and Maine Prairie Water Districts; and Reclamation District 208.

Propel Vallejo 2040 General Plan

The VGP provides guidance on development and patterns of future growth and also includes goals, policies, and actions that would help to reduce demands on utilities provide guidance for meeting the demands of future growth within the City. The following goals, policies, and actions regarding utilities and notably, water conservation from the General Plan would help ensure that the proposed project would be within existing utilities infrastructure service capacity and help minimize the need to construct expanded or new facilities:

Policy NBE-1.14:	Water Conservation. Promote water conservation through a range of proactive City efforts.
Action NBE-1.14A:	Continue the Community-wide Water Conservation Program, including free residential water use surveys and audits, and water-use efficiency education in local schools.
Action NBE-1.13B:	Continue to provide water customers with information on conservation techniques, services, devices, and rebates (including greywater use), including online and through in-person community outreach.
Action NBE-1.14C:	Update the Green Building Standards Code to require the use of low flow plumbing fixtures, low volume irrigation systems, and drought-tolerant plant palettes.
Action CP-1.15A	Require new development to incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City of Vallejo Municipal Ordinance.

Action CP-1.15B	Encourage new development to incorporate low impact development (LID) strategies, such as rain gardens, filter strips, swales, and other natural drainage strategies, to the greatest extent feasible, in order to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, reduce localized flooding, and reduce pollutants close to their source.
Action CP-1.15C	Consult with appropriate regional, State, and federal agencies to monitor water quality and address local sources of groundwater and soil contamination, including possible underground storage tanks, septic tanks, and industrial uses, as necessary, to achieve State and federal water quality standards.
Action CP-1.15D	Require new development to connect to the Vallejo Sanitation and Flood Control District sewer system for treatment of wastewater rather than septic systems, which are not allowed.
Action NBE-1.4A	Collaborate with GVRD, Vallejo Sanitation & Flood Control District (VSFCD), and other partners to evaluate creek conditions and restoration opportunities, and to develop policies covering setbacks from creeks, damage prevention, stewardship, nuisance abatement, public access, and other community and environmental concerns.
Action NBE-1.4C	Work with VSFCD and GVRD, as appropriate, to maintain Lake Chabot, Lake Dalwigk, and other detention basins for stormwater management and for public recreational use.

City of Vallejo Municipal Code

The City of Vallejo Municipal Code is a primary tool that shapes the form and character of physical development in Vallejo. The Municipal Code includes various directives pertaining to water supply and conservation issues. Most such directives are found in Title 11 – Water – which includes Subtitle I – Municipal Water System, and Subtitle II – Miscellaneous Water Regulations. In addition, the Municipal Code includes regulations pertaining to Solid Waste. Title 7, Public Health, Safety and Welfare and Title 12, and Buildings and Construction, include regulations relevant to solid waste resources. Selected chapters in the Municipal Code pertaining to utilities and services systems are listed below:

- Chapter 7.44 - Accumulation and Transportation. This Chapter describes the responsibilities of every owner, proprietor, manager, or other person having charge or control of any commercial/industrial premises or residential premises within the city with respect to solid waste.
- Chapter 7.48 - Collection. This Chapter describes responsibilities of the franchisee for collecting all solid waste, recyclables and green waste placed in compliance with this chapter from each residential, and/or, commercial/industrial business premises in accordance with a schedule which has been approved by the Public Works Director.

- Chapter 7.53 - Construction and Demolition Debris Recycling Ordinance. The purpose of Chapter 7.53 is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989, commonly referred to as AB 939 Chapter 7.06, Refuse and Garbage Collection Service Areas.
- Chapter 11.08 - Municipal Water System General Rules. The rules and regulations herein contained are adopted to govern the general operation of the Vallejo municipal water system to provide an efficient and economical water supply.
- Chapter 11.54 - Wasteful Water Use Prohibition Ordinance. This regulation mandates that it is unlawful for any customer to intentionally wastewater and prohibits 1) runoff from properties for more than fifteen minutes, 2) use of potable water to wash sidewalks, driveways, parking lots, cars, boats, or trailers without a hose with a shutoff nozzle, and 3) use of potable water for dust control where nonpotable or recycled water is available.
- Chapter 12.41 - Stormwater Management and Discharge Control. This regulation is intended to protect and enhance the water quality within Vallejo's watercourses, water bodies, and wetlands and carry out the conditions specified in the MRP that requires appropriate source control measures, site design measures, and stormwater treatment measures for new development and redevelopment projects within the city.
- Chapter 12.50 - Green Building Code. Chapter 12.50 adopts and incorporates by reference the California Green Building Code as amended and appearing in the 2013 California Building Standards Code, and all its appendices, California Code of Regulations Title 24, Part 11, except such portions as are deleted, modified or amended; as the city green building code.
- Chapter 16.71 - Water Efficient Landscaping Requirements–. This regulation meets the requirements of the State's WELO and requires submittal of a landscape documentation package for new or rehabilitated landscapes ranging in size from 1,500 to 5,000 square feet (depending on the project). The landscape documentation package must include a water-efficient landscape worksheet, soil management report, landscape design plan, irrigation design plan, and a grading design plan with the goal of minimizing water irrigation rates and maximizing water irrigation efficiency.
- Chapter 16.74 – Energy and Water Conservation Regulations. Section 16.74.030 - Water conservation guidelines, specifies all vegetation and landscaping required by the zoning regulations shall employ drought-resistant species.
- Action CP-1.15D - Require new development to connect to the Vallejo Sanitation and Flood Control District sewer system for treatment of wastewater rather than septic systems, which are not allowed.

Vallejo's Water Shortage Response Plan

The Water Shortage Contingency Plan for Vallejo was adopted on February 28, 2006 by Council Resolution No. 06-62 N.C.20.

The City employs a five-stage water-shortage response plan that is triggered at prescribed levels. Water shortage stages are monitored, reported and acted upon according to the plan set out in the reduction measuring mechanism for each stage. The five stages and corresponding percent reduction in water consumption are: Stage I – prudent water use; Stage II – up to 10 percent reduction; Stage III – up to 20 percent reduction; Stage IV – up to 35 percent reduction; and Stage V – 50 percent or more reduction. Each stage consists of specific prohibitions, regulations, fines, penalties and rate structure to encourage the appropriate level of water conservation.

In dry years, the City reduces its demand internally, by implementing system-wide efficiencies within the City's distribution system. This results in 1 percent, 2 percent, and 3 percent demand reductions in single dry year, second dry year, and third dry year sequences, respectively. The City achieves these demand reductions by reducing its operational use of water, such as by limiting or eliminating water line flushing, etc. These demand reductions occur before drought-response measures are implemented and required of the City's water customers.

4.16.3 STANDARDS OF SIGNIFICANCE

In accordance with State CEQA Guidelines, the effects of a project are evaluated to determine whether they would result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts that are identified. The criteria used to determine the significance of impacts may vary depending on the nature of the project. According to Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact related to utilities and service systems, if it would:

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

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

4.16.4 PROJECT IMPACTS AND MITIGATION

IMPACT UT-1	***WOULD THE PROPOSED PROJECT, REQUIRE OR RESULT IN THE RELOCATION OR CONSTRUCTION OF NEW OR EXPANDED WATER, OR WASTEWATER TREATMENT OR STORM WATER DRAINAGE, ELECTRIC POWER, NATURAL GAS, OR TELECOMMUNICATIONS FACILITIES OR EXPANSION OF EXISTING FACILITIES, THE CONSTRUCTION OR RELOCATION OF WHICH COULD CAUSE SIGNIFICANT ENVIRONMENTAL EFFECTS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The proposed project site is surrounding by existing urban development on all sides as well as two roadways that provide access to major residential and commercial sites. To the north is Turner Parkway and the Gateway Plaza Commercial Center, to the east Hunter Ranch subdivision, to the south are the Quail Ridge Condominiums and other commercial uses, and to the west is Admiral Callaghan Lane. Public utility lines including, water, sewer, storm water drainage, electric, natural gas, and telecommunication lines have been extended through the area to serve the surrounding land uses.

The City Water Department and VFWD have reviewed the project plans and determined that the existing offsite water and sewer mains have adequate capacity to serve the project and that no offsite improvements, including those to increase the service capacity of existing facilities are required. The proposed project would require extension of service lines into the project site to provide services to the proposed new residences and proposed commercial development. All service line extensions within the proposed project boundaries are considered a part of the proposed project and would occur within areas that would be disturbed as part of project implementation. Within the western portion of the project site there is an existing PG&E utility easement and gas pipeline and an existing sewer line. These utilities are currently located on the project site under the proposed Costco building pad. The proposed project would realign the PG&E gas pipeline to the western edge of the property. The new alignment would be underground along the southern and western property boundary and would not be located under any proposed structures. The existing sewer line would be relocated to receive flows from the residential, Costco, and other commercial uses and would be located within the proposed commercial area. The relocated sewer line would be outside all building footprints. Additionally, all realignment would occur within the overall development footprint and is within the scope of the proposed project. The portion of the sewer line no longer in use would be abandoned in place. As such, the impacts associated with disturbance, construction, and operations of these lines and facilities in these areas are considered within the applicable chapters of this EIR. Figure 3-24 in Chapter 3, Project Description, shows proposed sewer alignments. No impacts to resources beyond those already disclosed in the respective chapters would occur.

As discussed above, existing service lines already serve surrounding uses and are typically located in current City right-of-way such as streets, sidewalks, medians. As part of the proposed project, improvements are planned to both Admiral Callaghan Lane and Turner Parkway. During ground-

disturbing and excavation activities to prepare these locations for the proposed roadway improvements, the underground improvements for utility service lines and facilities needed to provide services to the project site would be made. This would minimize or eliminate the need for off-site improvements outside the existing footprint of the proposed project and impacts in this regard would be less than significant.

Stormwater water will first be captured within the proposed bio-retention basin on the northerly side of the proposed project site. The stormwater drainage infrastructures have been designed to capture and retain stormwater flows and release overtime. As part of this design, the open space area also will function as a detention basin during large storm cycles. The outfall 52-inch culvert would restrict flows and only release water as the capacity of the downstream system allows. This will ensure that increased offsite stormwater flows do not occur and would not require the expansion of enlargement of existing offsite stormwater systems.

IMPACT UT-2	***WOULD THE PROPOSED PROJECT, HAVE SUFFICIENT WATER SUPPLIES AVAILABLE TO SERVE THE PROJECT AND REASONABLY FORESEEABLE FUTURE DEVELOPMENT DURING NORMAL, DRY AND MULTIPLE DRY YEARS? (LESS THAN SIGNIFICANT IMPACT)***

The City's current water supply exceeds current yearly water demand within the City. The projected water demand through year 2040 also is less than the projected supply through that year. According to the City UWMP, the projected reasonably available water volume between years 2020 to 2040 is projected to be 11,952 million gallons per year (mg/y) over the twenty-year horizon. The reasonably available volume assumes a 99% allocation from the source and is based on a normal water year allocation. The total right or safe yield is expected to be slightly greater at approximately 12,346 mg/y through 2040. For the purpose of this analysis; however, the reasonably available water volume is used.

In 2015 total City demand for water is approximately 5,849 mg/y. Yearly water demand is anticipated to reach 7,447 mg/y in 2040, which is an increase of approximately 27%. As discussed above in 2040, the City's total reasonable supply is approximately 11,952 mg/y, which is 4,505 mg/y greater than projected City demand in 2040.

Regarding dry and multiple dry years, the City projects that water supplies would be adequate for Citywide demand except for in the third consecutive dry year. *Table 4.16-4: Single Dry Year Supply and Demand Comparison* and *Table 4.16-5: Multiple Dry Years Supply and Demand Comparison*, shows the projected water supplies in comparison to demands from years 2020 through 2040.

Table 4.16-4: Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply totals	10,840	10,840	10,840	10,840	10,840
Demand Totals	8,400	8,168	7,782	7,638	7,469
Difference	2,439	2,671	3,057	3,202	3,371
Source: UWMP, 2015.					

Table 4.16-5: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
First Year	Supply totals	10,466	10,466	10,466	10,466	10,466
	Demand totals	8,280	8,056	7,678	7,536	7,371
	Difference	2,166	2,390	2,769	2,910	3,076
Second Year	Supply totals	10,446	10,446	10,446	10,446	10,446
	Demand totals	8,117	7,903	7,536	7,398	7,237
	Difference	2,329	2,543	2,911	3,048	3,209
Third Year	Supply totals	7,395	7,395	7,395	7,395	7,395
	Demand totals	8,173	7,955	7,584	7,445	7,283
	Difference	(778)	(560)	(189)	(50)	113
Source: UWMP, 2015.						

As shown in the tables above, in most cases, the City has sufficient water supplies available to meet dry water year conditions. In 2040 the available water supply is anticipated to be adequate. The City's 2015 UWMP concludes:

> *However, in the third year of a multiple-dry year scenario, the City expects a shortfall of between 50 and 778 MG between 2020 and 2035 due to expected curtailment of Permit Water[1]. Under all other dry water year conditions, the City's projected water supply is approximately 10,000 MG/yr throughout the UWMP planning horizon. The City is fortunate to have a conservative total water supply volume such that City customers will have a reduced likelihood of being subject to severe rationing and mandatory water conservation due to water supply curtailments during the studied drought conditions.*
>
> *In summary, the City's combined projected water supplies are anticipated to be sufficient to meet projected future demands during normal, single-dry and multiple-dry water year conditions.[2]*

Water demand generated by the proposed project were based on methodologies provided in the 2015 UWMP but were customized refinements and assumptions to account for the proposed Costco store. This was done to more accurately predict projected project demand to assist in both current and future planning needs. For irrigation it was assumed that 15 percent of the commercial land and park area would be irrigated using the Model Water Efficient Landscaping Ordinance (MWELO) AB 1881 as well as Title 24 water efficiency requirements. *Table 4.16-6: Proposed Project Water Demand with Costco*, shows the project water demand from the proposed project. The table is based on the number units including the number of total dwelling units, the number of water meters proposed for the local commercial spaces, the proposed Costco warehouse, and the area covered by the other uses (irrigation and open space).

[1] Vallejo Permit Water refers to the Appropriative Water Rights License (No. 997848) with the State Water Resources Control Board (SWRCB.
[2] City of Vallejo Urban Water Management Plan, Page 7-7.

Different units are used because different inputs are needed for the annual demand factor. The projected water demand for each use and total project water demand is then calculated.

Table 4.16-6: Proposed Project Water Demand with Costco

Proposed Land Use	Quantity, Units[a]	Adjusted Annual Demand Factor	Projected Water Demand AF/y[c]
Single Family Residential	178 DU	84 hundred cubic feet (CCF)/dwelling unit (DU)[b]	34.3
Commercial[d]	4 water meters	449 CCF/water meter[b	4.1
Costco	1 Warehouse	4,027,820 gal/warehouse	12.4
Commercial Irrigation[e]	3.3 Acres	1.55 acre-ft/acre	5.1
Park Irrigation[f]	1.3 acres	3.44 acre-ft/acre	4.5
Open Space	0 water meters	--	--
		Losses[g]	7
		Total	**67**

(a) Land use data based on Overall Site Plan, dated September 2018.
(b) From City's 2015 UWMP Appendix B. Baseline Demands are adjusted for plumbing code and appliance standards; implementation of demand management measures, real cost of water, and water loss management.
(c) AFY = Acre-feet per year.
(d) Provided by Costco on January 14, 2019.
(e) Assumes irrigation of 15 percent of commercial area will be irrigated and used MAWA non-residential values from Attachment A.
(f) Used MAWA special landscape values from Attachment A.
(g) Losses assumed to be 10 percent of supply based on Table 26 in 2015 UWMP Appendix B.
(h) Includes unaccounted-for water at 10 percent of supply.

The UWMP notes that population growth for the City was anticipated to be approximately 121,032 by the year 2020. According to the City the 2010 Census recorded the City population was 117,798. In 2018, the California Department of Finance (CDOF), the population was approximately 119,544, an increase of approximately 1,746 people or approximately 194 people per year. This results in a nine year growth increase of approximately 1.5% (CDOF, 2018). Considering the average yearly growth rate stays consistent over the next six years, this would result in an estimated increase in 2020 City population of 1,164 people by 2025, for a total population of 120,708, which would be approximately 3,514 people less than anticipated under the UWMP, which anticipated a 2025 population of 124,222. Additionally, the proposed project is accounted for in the General Plan and consistent with the planned land use designations. The proposed project water demand would account for approximately 0.6% of the single and two-dry year total water supply and in each of these scenarios, which results in a remaining surplus of over 2,000 AF/y. While in a third consecutive dry year scenario, the proposed residents and commercial uses of the project would result in additional demand.

The City UWMP identifies water conservation, or demand management, as management methods available to reduce water use, thereby reducing water supply needs for the City. are water conservation measures based on the California Urban Water Conservation Council's (CUWCC) best management practices for water conservation.

The measures include:

- Waste Water Prohibition
- Metering
- Conservation Pricing
- Public Education and Outreach
- Residential Plumbing Retrofit Program
- Large Landscape Conservation Programs and Incentives
- High-Efficiency Clothes Washer Rebates
- Public Information Programs
- School Education Programs
- Conservation Programs for Commercial, Industrial and Institutional (CII) Customers
- Wholesale Agency Programs
- Residential Ultra-Low-Flush Toilet Programs
- System Water Audits, Leak Detection and Repair[3]
- Water Conservation Program Coordination and Staffing Support

It should be noted that the 2015 UWMP used the projected development and population growth under the former General Plan, not the Propel Vallejo 2040 General Plan. The water supply analysis in the Propel Vallejo 2040 General Plan EIR concluded that buildout of the General Plan would not result in a significant impact on water supply as a result of known available water supplies, the City's water shortage contingency planning, and implementation of General Plan goals and policies. The proposed project is consistent with the land use designations identified in the Propel Vallejo 2040 General Plan for the project site. Per the Propel Vallejo 2040 General Plan EIR, the City's water shortage contingency plan includes a five-stage response plan which is triggered at prescribed levels. Water shortage stages are monitored, reported, and acted upon according to the plan set out in the reduction-measuring mechanism for each stage. Each stage consists of specific prohibitions, regulations, fines, penalties and rate structure to encourage the appropriate level of water conservation. The City's analysis of available supply and demand has indicated that the City is not anticipated to have to implement any conservation above Stage II. Following the guidelines set forth in the City's UWMP, in instances where water demand has exceeded 90 percent of available supply, Stage II water shortage requirements are necessary.

In dry years, the City reduces its demand internally, by implementing system-wide efficiencies within the City's distribution system. This results in 1 percent, 2 percent, and 3 percent demand reductions in single

[3] Effectiveness is measured by monitoring the change in the percent of unaccounted water for the entire water system. Between the years 2005 and 2010, unaccounted water was reduced from 22 percent to 14 percent of gross water use. This is equivalent to a reduction of 732 MG per year. Water loss between 2010 and 2015 remained nearly constant, slightly increasing from 14 percent to 16 percent of total water use and remaining around 950 MG to 960 MG. Source: City of Vallejo UWMP, 2015 (page 9-13)

dry year, second dry year, and third dry year sequences, respectively. The City achieves these demand reductions by reducing its operational use of water, such as by limiting or eliminating water line flushing, etc. These demand reductions occur before drought-response measures are implemented and required of the City's water customers.

Reduction of water demand, as necessary, has been shown to be readily achievable in Vallejo. Vallejo currently is required to conserve 16 percent compared to 2013 in accordance with the SWRCB's emergency regulations to achieve 25 percent water savings statewide. Vallejo's reports to the SWRCB show that the cumulative amount saved from June 2015 through February 2016 (as compared to 2013) is 18.7 percent, which betters the conservation standard set by the SWRCB by 2.7 percent.

The following goals, policies, and actions included in the General Plan were identified as those measures that would help ensure that new development and redevelopment projects would not have an adverse impact on water supply:

- Goal NBE-1: *Beautiful City*. Preserve and enhance the natural, historic, and scenic resources that make Vallejo special.
- Policy NBE-1.14: *Water Conservation*. Promote water conservation through a range of proactive City efforts.
- Action NBE-1.14A: Continue the Community-wide Water Conservation Program, including free residential water use surveys and audits, and water-use efficiency education in local schools.
- Action NBE-1.14B: Continue to provide water customers with information on conservation techniques, services, devices, and rebates (including greywater use), including online and through in-person community outreach.
- Action NBE-1.14C: Update the Green Building Standards Code to require the use of low flow plumbing fixtures, low volume irrigation systems, and drought-tolerant plant palettes.
- Goal EET-4: *Sustainable Economic Development*. Pursue economic development that enhances equitable local wealth growth, improves quality of life, and respects the natural environment.
- Action EET-4.2A: Continue to incorporate sustainable design elements such as solar panels and water-efficient landscaping into the construction of City-owned and operated facilities.
- Goal CP-1: *Healthy Community*. Promote the health of All Vallejoans
- Policy CP-1.13: *Clean Water*. Provide a safe, adequate water supply citywide.
- Action CP-1.13A: Periodically assess the need to repair or replace aging water supply infrastructure and incorporate upgrades and improvements into the Capital Improvement Plan Program as needed.
- Action CP-1.13D: Continue to provide information on water conservation best practices to residents and businesses in Vallejo.

As discussed in Chapter 4.6, Greenhouse Gas, mitigation measures to reduce energy use are required as part of the proposed project. Mitigation Measure GHG-11 includes water efficiency measures that aim to reduce energy use through reduce water consumption. The water efficiency measures identified for the project include:

- To the extent feasible, project developers shall landscape to preserve natural vegetation and maintain watershed integrity. This measure shall be verified prior to building permit issuance.
- The project shall use native species and drought-tolerant species for a minimum of 50 percent of the ornamental plant palette in non-turf areas for all retail, common, and public areas, and residential front-yard landscaping to minimize water demand.
- Use recycled water for landscape irrigation where available. This measure shall be verified prior to building permit issuance.

It is expected that through continued water conservation efforts, even if recent population increases triple to the previously anticipated levels, the effects of the potential shortfall would be reduced. Therefore, impacts in this regard are less than significant and mitigation requiring additional water conservation designs standards and regulations would not be required.

IMPACT UT-3	***WOULD THE PROPOSED PROJECT RESULT IN A DETERMINATION BY THE WASTEWATER TREATMENT PROVIDER WHICH SERVES OR MAY SERVE THE PROJECT THAT IT HAS ADEQUATE CAPACITY TO SERVE THE PROJECT'S PROJECTED DEMAND IN ADDITION TO THE PROVIDER'S EXISTING COMMITMENTS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The proposed project would be served by the VFWD. The proposed project would tie into existing sewer lines that conduct wastewater to the VFWD. The existing sewer lines are undergrounded and generally conduct wastewater to the northwest and then in a westerly direction to Marine World Parkway, then southerly to Mare Island Way and then southwesterly to the wastewater treatment plant near the intersection of Solano Avenue. Wastewater flows from the proposed project could be accommodated by the existing lines. With the exception of temporary construction activities needed to tie into the existing lines that would occur within the proposed project footprint, or within previously disturbed rights-of-way, no additional work or disturbance outside the scope of the proposed project would occur. A portion of the existing sewer line within the proposed project would be relocated. The new line would be constructed on the southerly and easterly sides of the proposed Costco, extend northerly through the parking lot and tied into the existing 18-inch diameter pipeline running through the property. All realignment efforts would be within the project footprint and within the scope of the proposed project. As such, the impacts associated with disturbance, construction, and operations of these lines and facilities in these areas are considered within the applicable chapters of this EIR. Impacts in this regard would be less than significant.

Wastewater from the proposed project would be conducted to the VFWD through existing sewer lines. The proposed project was modeled for wastewater discharge for average dry water flow (ADWF), peak sanitary flow (PSF), and peak wet weather flow (PWWF). Considering the sum discharge of wastewater from the proposed residential, commercial, and Costco, the hydraulic performance for the proposed project and indicates it is anticipated to increase the District's ADWF by 53,712 gpd, PSF by 146,005 gpd, and PWWF by 24,888 gpd and the proposed project would not result in new or increased sanitary sewer overflows within the District's modeled system. Additionally, based on these calculations the existing treatment plant would have adequate capacity to serve the proposed project. The VFWD has remaining capacity of approximately 5 mgd, of which the proposed project would require approximately 1.07%. The City and VFWD reviewed the sewer capacity study prepared for the project and concurred that the sewer infrastructure has adequate capacity for the project. The VFWD would not require expansion as a result of the proposed project, and therefore, impacts in this regard would be less than significant.

In accordance with the General Plan goals, policies, and actions listed above in the regulatory setting and because future development under the proposed project would not exceed the capacity of the wastewater treatment system, the future development under the proposed project would not result in a determination that the wastewater treatment facility does not have adequate capacity to serve the proposed project's demand. Therefore, the proposed project would have a less-than-significant impact on wastewater treatment capacity.

IMPACT UT-4	***WOULD THE PROPOSED PROJECT GENERATE SOLID WASTE IN EXCESS OF STATE OR LOCAL STANDARDS, OR IN EXCESS OF THE CAPACITY OF LOCAL INFRASTRUCTURE, OR OTHERWISE IMPAIR THE ATTAINMENT OF SOLID WASTE REDUCTION GOALS?*** ***(LESS THAN SIGNIFICANT IMPACT)***

The Recology Hay Landfill is located in Vacaville, California. It has a permitted throughput capacity of 2,400 tons per day with a remaining permitted capacity of 30,433,000 cubic yards. It has an estimated "cease operation date" of January 1, 2077 (Calrecycle, 2019a). According to Calrecyle data, in 2017, the landfill took in a total of approximately 712,789 tons, which calculates to approximately 1,953 tons per day. This volume is anticipated to be similar in 2019.

The Potrero Hills Landfill is located in Suisun City, California. It has a permitted throughput capacity of 4,330 tons per day. Its remaining permitted capacity is 13,872,000 cubic yards. It has an estimated "cease operation date" of February 14, 2048 (Calrecycle, 2019b). According to Calrecyle data, in 2017, the landfill took in a total of approximately 999,287 tons, which calculates to approximately 2,737 tons per day. This volume is anticipated to be similar in 2019.

Based on communication with Recology and the calculation provided in *Table 4.16-7: Solid Waste Generation and Disposal*, below, the existing disposal sites (Potrero Hills Landfill and Hay Landfill) there would be the adequate capacity to serve the proposed project. Taken in sum, the landfills have a remaining capacity of 2,040 tons/day, of which the proposed project would require approximately 2.29

tons/day, which is 0.1% of remaining capacity. The landfills would not require expansion as a result of the proposed project, and therefore, impacts in this regard would be less than significant.

Table 4.16-7: Solid Waste Generation and Disposal

Project Use	Units	Solid Waste Generation Rate	Solid waste Generated	Potrero Hills Daily Capacity	Hay Landfill Daily Capacity
Residential	178 units	12.23lb/house-hold /day	2,176 lbs or 1.08 tons / day	4,330 tons/day capacity	2,400 tons/day capacity -
Commercial	179,688 square feet	13lb/1,000sf/day	2,335 lbs or 1.16 ton / day		
Open Space and Parks	5.7 acres	--	100 lbs or .05 ton/day*		
Total:			**2.29 tons/day**	**Remaining Daily Capacity**	
				1,593 tons/day	**447 tons/day**

Source: CalRecycle, 2019c.
*Calrecycle does not provide recreational area waste generation rates. The 100 lbs per day is based on worst case estimate.

IMPACT UT-5

WOULD THE PROPOSED PROJECT COMPLY WITH FEDERAL, STATE, AND LOCAL MANAGEMENT AND REDUCTION STATUTES AND REGULATIONS RELATED TO SOLID WASTE?

(LESS THAN SIGNIFICANT IMPACT)

Project implementation would generate solid waste during construction and operation. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. As part of the City's project permitting and approval process and prior to approval of any construction activities that would occur as a part of the proposed project, all future builders on the project site would be required to complete and have approved the City of Vallejo Construction and Demolition (C&D) Waste Management Plan (WMP) and Disposal report. In addition, and to aid in the diversion/recycling process, during construction the project site would have separate waste containers/bins/dumpsters for mixed C&D waste and separate containers/bins/dumpsters for non-recyclable garbage. Upon completion of construction activities, the applicant would be required to supply the City with receipts for all disposal activity. The City would complete a final inspection and verify if the diversion rate met expectations; fines could be imposed.

To meet the required goals and standards regarding waste generation and disposal, the proposed project would comply with all applicable state and local requirements related to waste reduction both during construction and during operation of the project. During both construction and operation of the proposed project, all requirements of the 1989 California Integrated Waste Management Act (AB 939) which

requires attainment of specific waste diversion goals. The proposed project would conform to the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, which requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. In addition, the proposed project would be required to and would conform to the requirements of AB 939, SB 1016, AB 341, and AB 1826. While waste materials from the City are conducted to 17 different landfills, it is anticipated that both construction and operational waste will primarily use the Protreo Hills and Hays Landfill. As discussed above, there would be the adequate capacity to serve increased demand of the proposed project. Therefore, as the proposed project would comply with federal, State, and local statutes and regulations including waste reduction measures, waste diversion, and inclusion of recycling programs, the proposed project would not conflict with any of these programs. Impacts would be less than significant in this regard.

4.16.5 CONCLUSION

The proposed project would not result in significant impacts to utilities and service systems. Existing service lines within the project site to be relocated and those within the adjacent off-site areas that would be extended into the proposed project site will occur in areas that are proposed to undergo ground disturbance. Therefore, impacts in these areas are already quantified within the EIR. Additionally, off-site tie in locations are anticipated to be within existing right-of-way and easements. These types of areas are typically highly disturbed or developed. Lastly, the utility providers have adequate capacity to serve the proposed project. Impacts in these regards are less than significant.

4.16.6 Cumulative Impacts

Water

Current water supply exceeds current yearly water demand within the City and projected water demand through year 2040 would be less than the projected supply. Yearly water demand is anticipated to reach 7,447 mg/y in 2040, which is an increase of approximately 27%. In 2040, the City's total reasonable water volume is anticipated to be approximately 11,952 mg/y, which would be 4,505 mg/y greater than projected City demand. This demand accounts for other projects that would use the same water supplies as the proposed project. While the population in the City of Vallejo is expected to continue to increase, the City is also working to incorporate water efficiency measures that will allow them to reduce per-capita water usage. Because there is adequate water supply and treatment capacity to serve projected demand under present per capita demand rates, the project would not require new water supply contracts to be secured. While the project would contribute to overall demand for treated water, the project would not require new or expanded water supply entitlements. Lastly, the proposed project would include all required water conservation measures as would be expected of all future projects prior to approval within the City. This would help ensure that cumulative impacts associated with water supply are less than significant.

Wastewater

Based on information in the Propel Vallejo 2040 General Plan EIR, the estimated net increased wastewater generation rate from the buildout of development planned for in the General Plan would be approximately 2.89 mgd. The General Plan EIR determined that the increase in wastewater generation would be well within the currently available excess dry weather design flow capacity of greater than 5.0 mgd and construction of expanded or new wastewater treatment facilities would not be required. The proposed project is anticipated to contribute approximately an average daily volume of 53,712 gpd of wastewater to the 2.89 mgd total. Therefore, impacts would be less than significant.

Solid Waste

The proposed project in conjunction with past, present and likely foreseeable future projects in the vicinity would likely utilize the Potrero Hills or Hay landfill. Both landfills have substantial capacity and are expected to serve projected demand through the lifecycle of the landfills. In addition, all other projects considered on a cumulative basis also would be required to undergo site-specific environmental and CEQA review. In addition, through the planning process, all other projects would be required to comply with waste reduction strategies both for construction and during operation of the project. It is anticipated that impacts would be less than significant and would be less than cumulatively considerable.

4.16.7 REFERENCES

California Department of Finance Table E-1. Available:

Calreycle, 2016 – California's 2016 Per Capita Disposal Rate Estimate. Available: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/ Accessed: February 22, 2019.
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CalRecycle, 2017 – Jurisdiction Disposal by Facility – With Reported Alternative Daily Cover (ADC) and Alternative Intermediate Cover (AIC). Available: https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility. Accessed: January 31, 2019.

Calrecycle, 2019a – SWIS Facility Detail – Recology Hay Road (48-AA-0002). Available: https://www2.calrecycle.ca.gov/swfacilities/Directory/48-AA-0002/ Accessed: January 31, 2019.

Calrecycle, 2019b – SWIS Facility Detail – SWIS Facility Detail – Potrero Hills Landfill (48-AA-0075). Available: https://www2.calrecycle.ca.gov/swfacilities/Directory/48-AA-0075/ Accessed: January 31, 2019.

Department of Water Resources, 2015- Model Water Efficient Landscape Ordinance Available: https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance Accessed on April 5, 2016.

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5.0 OTHER CEQA REQUIRED TOPICS

5.1 INTRODUCTION

Section 15126 of the State CEQA Guidelines require that all phases of a project must be considered when evaluating its impact on the environment, including planning, acquisition, construction, and operation. Further, the evaluation of significant impacts must consider direct and reasonably foreseeable indirect effects of the project over the short-term and long-term. As part of this analysis, the EIR must identify, to the extent relevant, (1) significant environmental effects of the proposed project, (2) mitigation measures proposed to minimize significant effects, (3) significant environmental effects that cannot be avoided if the proposed project is implemented, (4) significant irreversible environmental changes that would result from implementation of the proposed project, (5) growth-inducing impacts of the proposed project, and (6) alternatives to the proposed project.

Chapter 4, "Environmental Setting, Impacts, and Mitigation Measures," and Sections 4.1 through 4.16 provide a comprehensive presentation of the proposed project's environmental effects, proposed mitigation measures, and conclusions regarding the level of significance of each impact both before and after mitigation.

Chapter 6, Alternatives, presents a comparative analysis of alternatives to the proposed project. The other CEQA-required analyses described above are presented below.

5.2 SIGNIFICANT AND UNAVOIDABLE IMPACTS

Section 15126.2(b) of the State CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed project on various aspects of the environment are discussed in detail in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures. The analysis in Chapter 4.2 Air Quality and Chapter 4.15 Transportation, concluded there would be significant and unavoidable impacts associated with (i) exceeding operational NO_x emissions (project level and cumulative) and (ii) traffic impacts at seven intersections (project level) and seven intersections and one freeway segment on I-80 (cumulative) associated with the proposed project, respectively. Mitigation measures have been identified to reduce potential impacts to the maximum extent practicable, but some impacts would remain significant and unavoidable.

5.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

Under CEQA, an EIR must analyze the extent to which a project's primary and secondary effects would generally commit future generations to the allocation of nonrenewable resources and to irreversible

environmental damage (State CEQA Guidelines Section 15126.2(c); 15127). Specifically, Section 15126.2(c) states:

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 highway 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.

Generally, a project would result in significant irreversible environmental changes if:

- The primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve a large commitment of nonrenewable resources;
- The project would involve uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The proposed irretrievable commitments of nonrenewable resources are not justified (e.g., the project involves the wasteful use of energy).

Implementation of the proposed project would result in the long-term commitment of resources of the project site to developed land uses. The proposed project would likely result in or contribute to the following irreversible environmental changes:

- Conversion of existing undeveloped land, approximately 51.3 acres, to developed uses, thus precluding other alternative land uses in the future.
- Increased ambient noise associated with an increase in traffic.
- Irreversible consumption of goods and services associated with future residents.
- Degradation of air quality associated with project construction and operation.
- Irreversible consumption of energy and natural resources associated with construction and operation of the project, as well as by the future residential population.

Development of the proposed project would result in the dedication of the project site to commercial and residential uses, thereby precluding other conflicting uses for the lifespan of the project. Restoration of the site to pre-developed conditions would not be feasible given the degree of disturbance, the urbanization of the site, and the level of capital investment.

The State CEQA Guidelines also require a discussion of the potential for irreversible environmental damage caused by an accident associated with the proposed project. While the project could result in the use, transport, storage, and disposal of hazardous wastes during construction and operation, as described in Chapter 4.7, Hazards & Hazardous Materials, all activities would comply with applicable state and federal laws related to hazardous materials, which significantly reduce the likelihood and severity of accidents that could result in irreversible environmental damage.

Implementation of the proposed project would result in the long-term commitment of resources to development of the site into commercial and residential uses. The most notable significant irreversible impacts are a reduction in natural vegetation for wildlife communities; increased generation of pollutants; and the commitment of non-renewable and / or slowly renewable natural and energy resources, such as lumber and other forest products, mineral resources, fossil fuels, and water resources during construction activities. Operations associated with future uses would also consume natural gas and electrical energy. These irreversible impacts, which are unavoidable consequences of urban growth, are described in detail in the appropriate technical sections of this Draft EIR (see Chapters 4.1 through 4.15).

5.4 GROWTH INDUCING IMPACTS

As required by Section 15126.2(d), an EIR must discuss ways in which a proposed project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. The EIR must also discuss the characteristics of the project that could encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. Growth can be induced in a number of ways, such as through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through the establishment of policies or precedents that directly or indirectly encourage additional growth.

In general, a project may foster growth in a geographic area if the project removes an impediment to growth (e.g., the establishment of an essential public service, the provision of new access to an area, a change in zoning or general plan approval) or economic expansion occurs in response to the project (e.g., changes in revenue base, employment expansion etc.).

The project would involve the construction of 178 residential units, a 152,138 sf Costco, and 27,500 sf for new local commercial on a project site of approximately 51.3 acres. The project would not extend new roads or infrastructure to any adjacent properties where such facilities are not currently available. The project would not remove any barriers to growth in the surrounding area.

Construction of the proposed project would generate temporary employment opportunities for construction workers, heavy equipment operators, engineers, surveyors, building inspectors, and several other types of workers related to construction activities. After completion of project construction, these construction jobs would be relocated to other areas in the region as the demand arose. Operation of the proposed project would require new employees and would result in new permanent employment growth related to staff hired operate the businesses, maintain the grounds, and provide services to both the commercial and residential portions of the project. The proposed Costco is anticipated to require approximately 330 employees, of which 60 will be new employees, because most of the existing 270 employees at the existing Costco are anticipated to relocate to the new store approximately 0.75 miles away. The new local commercial uses are anticipated to generate approximately 32 new jobs. This would total approximately 92 new commercial employees. In addition, new interim and very short-term jobs would be generated by the residential uses. This increase, however, has a limited duration and would include persons needed for home repairs, landscaping, maintenance, etc.; work which is intermittent in nature and does not constitute full-time employment. Overall, the number of people needed to fill full

and part-time labor demand would not create a substantial increase in population in Solano County or within the City of Vallejo such that a substantial demand in new housing or infrastructure would occur.

The elimination of physical or regulatory obstacles to growth is considered a growth-inducing effect. A physical obstacle to growth often involves a lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas that are not currently provided with these services, would be expected to support new development. Similarly, the elimination or change to a regulatory obstacle, including existing growth and development policies, could result in new growth.

Implementation of the proposed project would not result in the elimination of growth obstacles. The storm drainage system for the proposed project would include on-site detention and would not add capacity to existing off-site infrastructure that would be used by additional projects. The wastewater plan for the proposed project would direct flows to existing infrastructure at Turner Parkway but would not add capacity to the existing system for additional projects. Improvements to off-site storm drainage and wastewater systems are not planned and improvements would only be made to on-site systems to safely convey water to existing infrastructure. Improvements may be made by the City or others regardless of whether the proposed project is developed, but these improvements would not be required to serve the proposed project. The proposed project also would not require an enlargement of capacity for the existing water conveyance infrastructure in the area. Therefore, the proposed project would not encourage growth by adding water conveyance capacity to the area.

5.5 EFFECTS FOUND NOT TO BE SIGNIFICANT

In accordance with the California Environmental Quality Act (CEQA) Guidelines §15128, this section briefly describes the potential impacts found to be less than significant that do not require mitigation. In the course of this evaluation, certain impacts of the proposed project were found to be less than significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type. The effects determined not to be significant are not required to be included in primary analysis sections of the Draft Environmental Impact Report (EIR).

AGRICULTURAL RESOURCES

Would the project:

AG-a) Convert Prime Farmland, Unique Farmland, or 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. The proposed project site has not been historically used for agricultural purposes such as growing crops, but has been used for grazing although not in recent decades. The project site does not possess prime classified soils for agricultural production, and the site is not located within an area of Prime, Unique, or Statewide Importance Farmland as identified by the California Department of Conservation's Important Farmland Series Mapping and Monitoring Program.

AG-b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?

No Impact. The proposed project site is not under a current Williamson Act contract. Therefore, project implementation would not result in conflicts with existing agricultural zoning.

AG-c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

No Impact. See discussions AG-a and AG-b, above.

MINERAL RESOURCES

Would the project:

MR-a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

No Impact. A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance and is intended to help maintain any quarrying operations and protect them from encroachment of incompatible uses. The project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State since no mineral resources are either identified to exist by the City's General Plan, or located within any "Critical Mineral Resource Overlay" area, on or near the proposed project site.

MR-b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, specific plan or other land use plan?

No Impact. The proposed project would not result in the loss of availability of a locally-important mineral resource recovery site delineated on a City's General Plan, specific plan or other land use plan. No impact has been identified.

WILDFIRE

Would the project:

WF-a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

WF-b) Due to Slope, Prevailing Winds, and Other Factors, Exacerbate Wildfire Risks, and Thereby Expose Project Occupants to, Pollutant Concentrations from a Wildfire or the Uncontrolled Spread of a Wildfire?

WF-c) Require the Installation or Maintenance of Associated Infrastructure (Such As Roads, Fuel Breaks, Emergency Water Sources, Power Lines or Other Utilities) That May Exacerbate Fire Risk or That May Result In Temporary or Ongoing Impacts to The Environment?

WF-d) Expose People or Structures to Significant Risks, Including Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes?

No Impact. The project would have no impact associated with thresholds WF-a through WF-d above. The 51.3-acre site is located within an urban area and is predominantly surrounded by residential and commercial uses. The proposed project is not designated as a moderate, high, or very high wildfire Risk Area within the Vallejo General Plan 2040 (Map NBE-4). The nearest mapped fire hazard severity zones are moderate and high zones approximately 0.6 miles to the northeast across Columbus Parkway. The project site is located within a Local Responsibility Area (LRA) in which primary fire protective services are provided by the local jurisdiction. The nearest State Responsibility Area (SRA) is located approximately 2.0 miles to the east Columbus Parkway. The project site has experienced some nuisance fires due to unauthorized encampments on the site but were extinguished by the fire department before threatening any adjacent uses. In addition, construction of the proposed project would result in the construction of residential and commercial uses that would take the place of most of the undeveloped areas. This would reduce the potential for grass fires and reduce the susceptibility to nuisance fires.

The City and Solano County coordinate for response in emergency situations. The City and the County have adopted separate but consistent Emergency Operations Plans used for pre-emergency planning and emergency response to natural and humanmade disasters. Additionally, the Vallejo Fire Department offers Citizens Emergency Response Training (CERT) to community members for disaster preparedness. The City has also adopted an Emergency Operations Plan, which includes standard operating procedures for hazards, including urban/wildland interface fires. The Plan identifies the responsibilities of City personnel and coordination with other agencies to ensure the safety of Vallejo citizens in the event of a fire, geologic, or other hazardous occurrence.

6.0 ALTERNATIVES TO THE PROPOSED PROJECT

6.1 INTRODUCTION

The California Environmental Quality Act (CEQA) requires that "an Environmental Impact Report (EIR) shall describe a range of reasonable alternatives to the project, or to the location of the project. The alternatives should feasibly attain most of the basic objectives of the project, avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives" (State CEQA Guidelines Section 15126.6). The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but these effects may be discussed in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]). The EIR is not required to consider every conceivable alternative to a project but is guided by a rule of reason. An EIR is not required to consider alternatives which are infeasible. Section 15126.6[d]) states that the EIR must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. Key provisions of the State CEQA Guidelines on alternatives (Section15126.6(a) through (f)) are summarized below to explain the foundation and legal requirements for the alternatives analysis in the Draft EIR.

- "The 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" (Section15126.6(b)).
- "The specific alternative of 'no project' shall also be evaluated along with its impact" (Section15126.6(e)). "The no project analysis shall discuss the existing conditions at the time the Notice of Preparation (NOP) is published, and at the time the environmental analysis is commenced, as well as what would reasonably be 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" (Section15126.6(e)(2)).
- "The range of alternatives required in an EIR is governed by a 'rule of reason' that require 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" (Section15126.6(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)" (Section15126.6(f)(1)).

- For alternative locations, "only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR" (Section15126.6(f)(2)(A)).
- "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Section15126.6(f)(3*)).*

The lead agency is responsible for selecting this range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. This Chapter describes four Alternatives to the proposed project. These alternatives include the No Project Alternative, Existing Zoning Alternative, All Housing Alternative, and Wetland Preservation Alternative. The four alternatives are discussed in more detail below.

Alternatives were developed based on the following: information provided by the project applicant, and the City; input received from comments on the NOP; and feedback received from members of the community. At first, a larger group of alternatives was developed and after an initial review, the alternative was either retained for further analysis or discarded. Among the factors that may be taken into account when addressing the feasibility of alternatives, as described in Section 15126.6(f)(1) of the CEQA Guidelines, are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the project proponent could reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose effects could not be reasonably identified, whose implementation is remote or speculative, and that would not achieve the basic project objectives. The alternatives that were selected for additional consideration were chosen in accordance with the above-listed CEQA Guidelines, represent a reasonable range of alternatives, are feasible, and will encourage discussion in a manner to foster meaningful public participation and informed decision making.

PROJECT OBJECTIVES

As discussed above, one of the evaluation criteria for the alternative discussion is the ability of a specific alternative to attain most of the basic project objectives. The basic project objectives as listed in Chapter 3, Project Description are as follows:

1. Implement the objectives of the General Plan to leverage public infrastructure investment to catalyze a mix of new housing, commercial, retail, and recreational development in an opportunity area;
2. Develop a project in an opportunity area with an appropriate mix of uses to serve the needs of the public, including housing needs.
3. Develop a project in an opportunity area that is compatible with the density, intensity, scale and uses of surrounding development;

4. Develop a project in an opportunity area that is economically feasible and supports the extraordinary costs of required project infrastructure and physical features without imparting undue strain on existing public facilities, services or finances;
5. Develop a project that is sensitive to the environmental conditions of the site and surroundings by identifying and conserving a portion of the onsite natural resources to the extent feasible through project design;
6. Develop a project in an opportunity area that includes a pedestrian-friendly residential neighborhood with cohesive design that includes active and passive recreational opportunities and bike/pedestrian circulation amenities for future residents and users of the commercial space;
7. Develop a project that minimizes visual conflicts by including a thoughtful landscaping and planting plan that is compatible with surrounding development;
8. Develop a project in an opportunity area that enhances amenities and recreational opportunities for residents and visitors to the area;
9. Support economic development by developing a vacant, under-developed site with a project that provides a broad range of retail goods and services, retains a major source of sales tax revenue, generates significant additional sales tax revenues, and creates jobs for city residents.

Per Section 15126.6 (b) of the State CEQA Guidelines, the discussion of alternatives shall focus on alternatives to a project, or its location that are capable of avoiding or substantially lessening significant impacts of a project, even if the alternatives would impede to some degree the attainment of the project objectives or would be more costly. This alternatives analysis; therefore, focuses on project alternatives that could avoid or substantially lessen environmental impacts of the proposed project related to the environmental categories listed in Appendix G of the State CEQA Guidelines.

This project alternatives discussion consists of four project alternatives:

Alternative 1: No Project Alternative

As previously stated, the No Project Alternative is a required alternative that evaluates what potential impacts would or would not occur if the proposed project does not proceed and no action is taken with regard to the proposed development.

Alternative 2: Existing Zoning Alternative

Alternative 2 was developed to focus on impacts that would occur if no zoning map amendment was proposed. This alternative evaluates what development could occur if existing zoning, Pedestrian Shopping and Service District, were to remain.

Alternative 3: All Housing Alternative

This alternative was specifically developed to address a potential land use concept that would reduce potential traffic impacts. Impacts on traffic operations, specifically at the I-80/Redwood Parkway interchange, were the only potential impacts associated with the proposed project that were identified

as Significant and Unavoidable. As such, this alternative was included in the range of alternatives that could potentially reduce one or more significant impacts associated with the project.

Alternative 4: Wetland Preservation Alternative

This alternative was included in the range of alternatives as a way to reduce potential wetland impacts. While wetland impacts associated with the proposed traffic were determined to be less than significant with the incorporation of mitigation measures, impacts on wetland habitat were the only sensitive habitat adversely affected by the proposed project. As such, this alternative was developed to consider a land use concept that would eliminate filling of wetland habitat.

6.2 ALTERNATIVES CONSIDERED BUT REJECTED

The analysis of alternatives to the proposed project must also address "whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location" (CEQA Guidelines, Section 15126.6(f)(2)(A). Only those locations that would avoid or substantially lessen any of the significant effects of the project need be considered. If no feasible alternative locations exist, the agency must disclose the reasons for this conclusion (Section 15126.6(f)(2)(B). In this case, while it is feasible that an alternative site could be selected for the project, an alternative site would entail either the same or new significant environmental effects as the proposed project site. For example, development of the project on any suitable alternative site in or around the City may not avoid or substantially lessen the project's air quality or GHG impacts because emission-related impacts would occur no matter where the development is located. Additionally, these impacts could be worse if the alternative site is located further away from a major transportation corridor or in areas with existing unacceptable traffic levels. Moreover, an alternative site that is adjacent to undeveloped lands would likely result in greater impacts on aesthetics and utilities than the proposed project site, which is surrounded by existing development.

Furthermore, viable alternative locations for the project are limited to those that would feasibly attain most of the project objectives. There are no other appropriately located and sufficient sized lots in Vallejo along a major transportation corridor that would satisfy the project objectives and eliminate or reduce impacts from the proposed project. The proposed project would offer a commercial and retail development in proximity to a major transportation corridor. Furthermore, the applicant has indicated that it does not own other lands in Vallejo that could feasibly meet these project objectives. Additionally, the other vacant properties within the City are not adequately sized, are not in suitable locations (specifically adjacent to I-80), and would not be reasonable to acquire within a reasonable time frame.

In developing the proposed project and alternatives, consideration was given to the density of development that could meet project objectives and reduce significant impacts. Many of the anticipated significant impacts would result from the intensity of the development proposed.

Comments received during the NOP process suggested that an access driveway off Turner Parkway for the commercial area would help alleviate congestion on Admiral Callaghan. A driveway in this location was considered during the initial site planning process but was removed from further consideration for the following reasons:

- Existing culverts under Turner parkway would require the proposed access driveway to be located too close to the Admiral Callaghan intersection resulting in potentially unsafe intersection geometries;
- Removing and relocating the existing culverts would result in additional wetland habitat impacts; and
- The existing median on Turner Parkway would restrict ingress and egress to right turn in and right turn out movements. While the median could be modified, allowing these new turning movements could potentially create traffic congestion at other locations along Turner Parkway away from the project site.

Other proposed alternatives suggested by the public during the Notice of Preparation scoping period included:

- Developing an ice rink or a performing arts center on the project site;
- Develop a public park on the project site; and
- Developing an office park.

These alternatives were not considered for further evaluation because these developments would not leverage the economic opportunities (i.e., tax revenue) that the City is seeking by developing in an Opportunity Area along a major transportation corridor. Additionally, this type of development would not be expected to provide the financial return required to support the necessary infrastructure improvements.

6.3 COMPARISON OF PROJECT ALTERNATIVES

Per the State CEQA Guidelines Section15126.6(d), additional significant effects of the alternatives are discussed in less detail than the significant effects of the project as proposed. For each alternative, the analysis below describes each alternative, analyzes the impacts of the alternative as compared to the proposed project, identifies significant impacts of the proposed project that would be avoided or lessened by the alternative, assesses the alternative's ability to meet most of the project objectives, and evaluates the comparative merits of the alternative and the proposed project. The following sections provide a comparison of the environmental impacts associated with each of the project alternatives, as well as an evaluation of each project alternative to meet the project objectives.

6.4 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

Consistent with State CEQA Guidelines Section15126.6, the No Project Alternative assumes that the existing land uses and condition of the project site at the time the NOP was published (October 2018) would continue to exist without changes. The setting of the project site at the time the NOP was published is described as part of the existing conditions throughout Chapter 4 of this Draft EIR with respect to individual environmental issues and forms the baseline of the impact assessment of the proposed project.

The No Project Alternative assumes the proposed project would not be implemented and land uses and other improvements would not be constructed. The existing project site would remain unaltered and in

its current condition. All infrastructure improvements identified in the proposed project including water, wastewater, drainage, and roadway improvements would not be constructed. Because the project site would remain unchanged, few or no environmental impacts would occur. This alternative serves as the baseline against which the effects of the proposed project and other project alternatives are evaluated. Under this alternative none of the proposed improvements would occur and the project site would remain undeveloped.

- None of the impacts associated with the project would occur.
- No economic growth as per the General Plan would occur.
- No environmental protection of any of the onsite wetlands would occur.
- Existing nuisance uses such as unauthorized encampments, use of off-road vehicles, unauthorized access, and fire hazards associated with the site would likely continue.

IMPACTS COMPARED TO PROJECT IMPACTS

An evaluation of the potential environmental impacts of the No Project Alternative, as compared to those of the proposed project, is provided below.

Aesthetics

Under the No Project Alternative, the onsite topography, vegetation, and offsite view corridors would not be modified from their existing state. Visual impacts from offsite views, as well as the change in character/quality of the site (i.e., new residential development) as seen from the residents to the east would be eliminated. Although determined to be less than significant for the proposed project, incremental increases in light and glare impacts associated with the proposed project would be avoided under this alternative. Therefore, under this alternative, impacts regarding aesthetics, light, and glare would be eliminated compared to the proposed project.

Air Quality

Under this alternative, short-term construction and long-term operational air emissions would not occur as no construction would take place, no project operations would be established, and no project-related traffic or stationary source emissions would be generated by the new structures. Significant and unavoidable air quality impacts associated with NO_z emissions under the proposed project would be avoided under this alternative. Air quality impacts associated with the No Project Alternative would be less than the proposed project.

Biological Resources

Under the No Project Alternative, the site would not be developed with commercial and residential development and avoid potential impacts to biological resources, including special-status species and sensitive habitats. In addition, implementation of the No Project Alternative would avoid the placement of 2.25 acres of permanent fill materials within identified wetlands. Direct impacts to biological resources

that would result from the proposed project would not occur under the No Project Alternative; therefore, impacts on biological resources would be less than the proposed project.

Cultural Resources and Tribal Cultural Resources

Under the No Project Alternative, no impacts would occur with respect to existing and/or undiscovered cultural resources because ground disturbance from the construction of the proposed project and supporting infrastructure would not occur. However, even in the undisturbed state, cultural resource sites will remain vulnerable to human disturbance or destruction. In addition, it is possible that cultural resources sites may also be altered over time due to weather conditions. If these sites are not fully documented, information from these sites could be lost. Nonetheless, the potential for direct impacts to cultural resources associated with the No Project alternative are less than the proposed project.

Geology/Soils

Because no development would occur under this alternative, soil disturbance associated with grading and building activities would not occur. No new buildings, roads, utilities, or other infrastructure would be constructed on the project site, thus, there would be no impacts associated with landslides, soil stability, or slopes as would occur under the proposed project. Therefore, compared to the proposed project, geology and soil impacts would be eliminated under this alternative.

Greenhouse Gas Emissions

This alternative would not result in greenhouse gas generation because the site would remain in an undeveloped condition. The No Project Alternative would not result in any uses that would result in the emission of greenhouse gases. As a result, although the proposed project would result in emission of greenhouse gasses, impacts under this alternative would be incrementally reduced and would remain less than significant.

Hazards and Hazardous Materials

Under the No Project Alternative, the existing environmental conditions, including those that may be defined as either adverse or significant, would remain. No petroleum products associated with a gas station would be on the project site under this alternative. Fire hazards from nuisance activities would remain as currently existing on the proposed project site, including the ability to fight fires with existing water flow that does not currently meet standards. This alternative would not introduce new people or structures to an area susceptible to wildfires, and under this alternative, public health and safety impacts related to project construction and operations would also not occur. Impacts would be less than the proposed project.

Hydrology and Water Quality

The No Project Alternative would avoid potential short-term and long-term impacts to water quality because grading and construction activities would not occur. Additionally, the No Project Alternative would not result in new development and water quality impacts from runoff from parking lots and other

hardscaped surfaces would not occur. Therefore, potential impacts to downstream and other waters would be less than those impacts identified under the proposed project.

Land Use

The No Project Alternative would have no impacts to land use as the project site would remain in its current state and existing land uses would persist. Therefore, the existing General Plan designations – Retail/Entertainment on the western portion of the property and Mix of Housing Types on the eastern portion of the property would remain. Continuation of the current use of the land would not conflict with any land use plan or policy, or conflict with any habitat or community conservation plan. Impacts in this regard would be less compared to the proposed project.

Noise

With no commercial or residential development occurring onsite, no new noise would be generated by construction, operations, or traffic generated by the proposed Costco, commercial site, or residences. Hence, noise-sensitive land uses in the vicinity of the project site would not experience any change in noise levels. Therefore, short-term and long-term noise impacts would be less when compared to that of the proposed project.

Energy Conservation

This Alternative would result in no energy use because of the site would remain in an undeveloped condition. As a result, energy use would be eliminated compared to the proposed project.

Population and Housing

The No Project Alternative would have no impacts to population and housing within the City. Under the No Project Alternative there would be no housing growth, and growth rates and the demand for additional housing would not increase. This alternative; however, would not provide any residential units to help meet the ABAG RHNA goal of 1,362 units. Nonetheless, the overall impacts would be similar to the proposed project because neither alternative would displace existing residents or require the construction of replacement housing elsewhere.

Public Services

Under the No Project Alternative, the existing conditions would continue to prevail. This alternative would not develop the proposed project site; therefore, there would not be an increased demand for public services including fire protection and emergency medical services, law enforcement, schools, and other general governmental services. Because no development would occur, there would be no need for additional services to be provided. Although some demand for law enforcement patrols and fire department support on the undeveloped project site would remain, impacts would be substantially less than the proposed project.

Recreation

Similar to the proposed project, the No Project Alternative would not result in an increased use of any area recreational facilities and would, therefore, not require construction of new or expansion of any other existing recreational facilities. Impacts would be eliminated compared to the proposed project.

Transportation and Traffic

This alternative would not result in direct changes to average daily vehicle trips (ADT) as no development is proposed. This alternative would not result in impacts on the intersections and roadway segments surrounding the proposed project, some of which need improvements, particularly by year 2040. Furthermore, no change in circulation patterns would occur, as there would be no development to create the need for changes in circulation patterns. Overall, the No Project Alternative would result in fewer impacts to traffic and circulation compared to the proposed project because additional traffic would not be generated. The following intersections are projected to operate unacceptably under Year 2040 Cumulative Conditions without the project and are evaluated in greater detail in Chapter 4.15, Transportation:

- Intersection #5: Admiral Callaghan Lane/Target Driveway
- Intersection #8: Admiral Callaghan/Commercial Driveway
- Intersection #13: Plaza Drive/Costco Driveway

Under the No Project Alternative there would be no improvements to Admiral Callaghan Lane along the project frontage. This section of Admiral Callaghan Lane along the project frontage does match the street improvements of other segments of this roadway. Improvement to this segment, including widening, have been a part of the City's Capital Improvement Program for approximately 20 years.

Utilities

Under the No Project Alternative, the existing conditions, including those that may not meet current standards or are not adequate to serve existing conditions, would continue on the project site. This alternative would not develop the proposed project site, therefore, there would not be an increased demand for utility and service systems including wet (water/sewer) and dry (electrical, gas, cable, telephone) utilities. Because no development would occur, there would be no need for additional services to be provided. While this alternative would not increase the demand, this alternative would not provide the infrastructure improvements that would occur under the proposed project. When compared to the proposed project, this alternative would not introduce new demand on utility and service systems; however, it would also not alleviate the existing condition that the wet utility services do not meet current standards. Nonetheless, impacts would be less than the proposed project.

CONCLUSION

Avoid or Substantially Lessen Project Impacts

The No Project Alternative would eliminate the majority of potentially significant impacts associated with the environmental categories discussed. As documented throughout Chapter 4.1 through Chapter 4.16 of

this Draft EIR, all impacts of the proposed project would be less than significant after mitigation, with the exception of operational air quality from NO_z emissions and traffic which would result in significant and unavoidable impacts at seven intersections and one freeway segment. The proposed project would not result in any other significant unavoidable impacts.

Attainment of Project Objectives

The "No Project" alternative fails to meet all of the stated objectives for the proposed project as described in Section 6.1 of this Chapter.

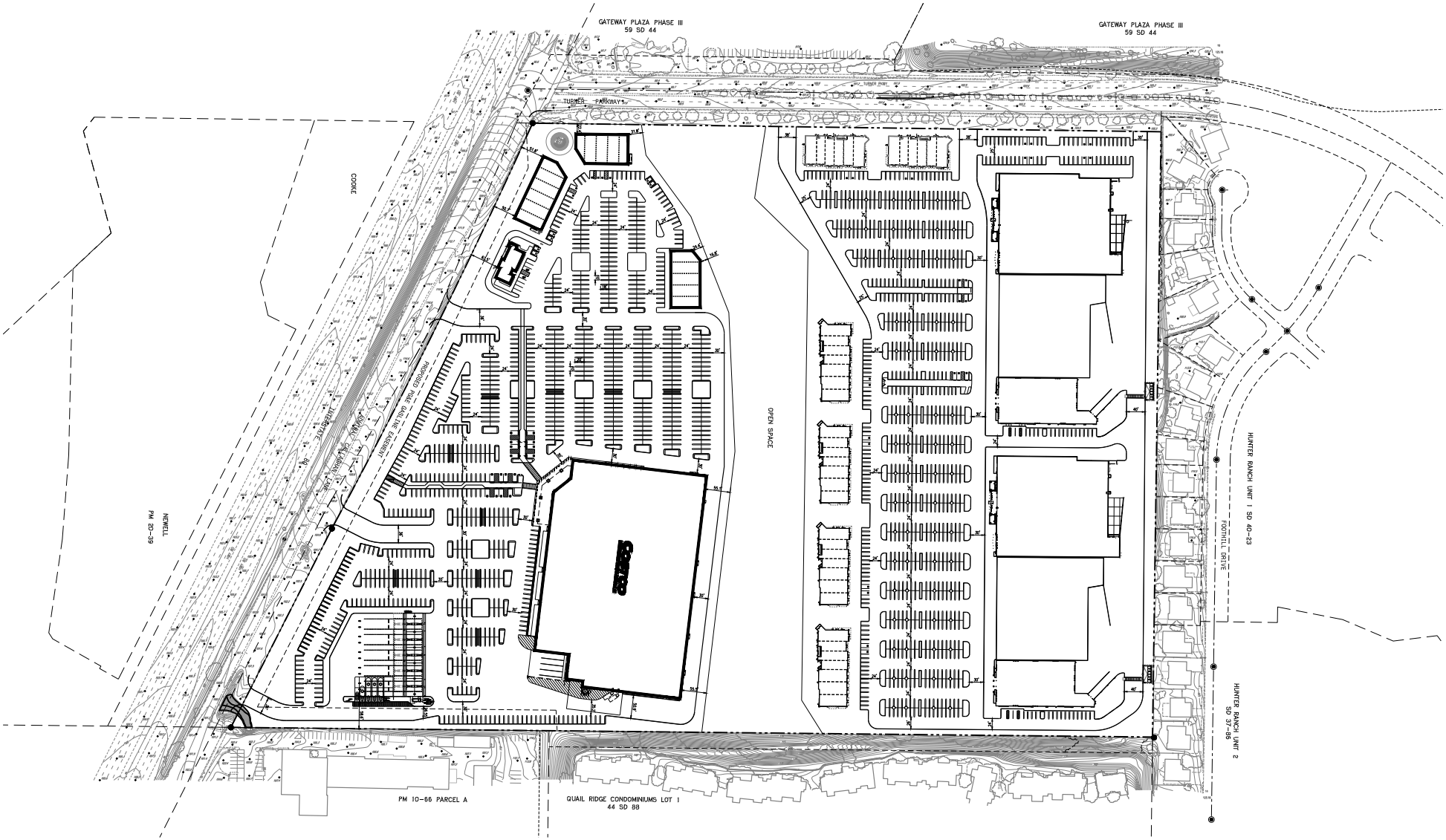
Comparative Merits

Under the "No Project" alternative, no physical changes would occur on the project site, and there would not be a potential for new environmental impacts to occur. The "No Project" alternative would not allow the project to move forward at this time; however, it would not preclude development at a future date. The "No Project" alternative is considered overall environmentally superior to the proposed project, as it would significantly reduce or eliminate the majority of short-term, long-term, and cumulative impacts in all categories when compared to the proposed project.

6.5 ALTERNATIVE 2 – EXISTING ZONING ALTERNATIVE

Under this alternative the project site would be developed under the existing zoning and no zone change would be proposed. Under the Existing Zoning Alternative all 51.3 acres of the project site would remain zoned Pedestrian Shopping and Service District. This alternative would develop approximately 500,000 total square feet of commercial and retail space with approximately 1,850 parking spaces. This would be an increase of 320,300 square feet of commercial area compared to the proposed project. A conceptual site plan is shown in **Figure 6-1: Existing Zoning Alternative**. Development under this alternative would be similar to the type of commercial development in Gateway Plaza located across Turner Parkway from the project site. Building height for larger stores would be approximately 30 to 35 feet and smaller stores would likely be 15 to 20 feet in height.

The overall layout of this alternative would include the same 5.7-acre open space corridor in the central portion of the site which would preserve wetland areas onsite. This alternative also assumes that Costco would relocate to the project site in the same location as the proposed project. Unlike the proposed project; however, this alternative would not include any residential component and no housing would be included. Driveway access to the project site from Admiral Callaghan Lane and Turner Parkway would be the same as the proposed project. The same PG&E natural gas and sewer utility line relocation would be required under this alternative as compared to the proposed project.



LEGEND:
500,000± Sf of RETAIL AND COMMERCIAL

Source: MaKay and Somps, 2019

FIGURE 6-1: Existing Zoning Alternative
Fairview at Northgate Project

Not to scale

Kimley»Horn

IMPACTS COMPARED TO PROJECT IMPACTS

An evaluation of the potential environmental impacts of the Existing Zoning Alternative, as compared to those of the proposed project, is provided below.

Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur under the proposed project would similarly occur with the Existing Zoning Alternative. Comparatively, the construction-related impacts to the visual character/quality of the project site and its surroundings would be similar to the proposed project because both would result in development that replaces undeveloped land. The construction duration, timeline, and equipment of this alternative would be similar to the proposed project.

The project site's long-term visual character would be fundamentally different with this alternative, as the existing vacant land would be developed with approximately 500,000 square feet of commercial uses. The larger buildings would be approximately 30-35 feet in height and have a larger bulk and scale compared to the residential houses that would be constructed under the proposed project. It is anticipated that commercial development would be similar to the existing commercial development across Turner Parkway, known as Gateway Plaza. The view of the project site would generally be the same from Interstate 80 and Admiral Callaghan Lane; however, the commercial buildings in the eastern portion of the property would appear larger in the landscape and would be more obtrusive as viewed from Turner Parkway and other surrounding areas. The westerly views from the residences particularly along Foothill Drive would be partially blocked and interrupted by the increased height and massing of the structures under this alternative. Impacts in this regard would be incrementally greater than those of the proposed project.

Similar to the proposed project impacts as a result of Urban Decay would be less than significant. The Existing Zoning Alternative with additional commercial and retail space would add to the available supply of retail outlets. The current and projected strength of the retail demand within the Trade Areas would likely support this additional supply of commercial and retail space. Also, considering the overall leakage (loss of retail business) illustrated by the current and future retail market analyses, the addition of retail space, or re-tenanting of existing space would provide expanded opportunity for new retailers to enter the market and fulfill unmet consumer demand. Similar to the proposed project, potential impacts would be less than significant, and no mitigation is required.

Under this alternative, light and glare impacts would be neither greater nor lesser than the proposed project as street lighting, pedestrian lighting, and exterior building lighting would be positioned throughout the project site. However, the Existing Zoning Alternative would provide more 20-foot tall lighting poles within the parking lots. These lighting poles would be visible from residential uses to the east and south.

Therefore, potential aesthetics impacts would be incrementally increased compared to the proposed project, but still considered less than significant.

Air Quality

As shown in Table 4.2-6, the proposed project's short-term construction emissions would be below the BAAQMD's applicable thresholds, resulting in a less than significant impact. Short-term air quality impacts from grading, paving, trenching, and building construction would occur with the Existing Zoning Alternative. Comparatively, the construction-related air quality impacts would be similar to the proposed project, as the project footprint would be relatively comparable to the proposed project and the construction timeline would be similar. This alternative would also be required to comply with MM AQ-1, as described in Chapter 4.2, Air Quality, to reduce short-term construction air emissions to a less than significant level.

As indicated in Table 4.2-7, the proposed project would not exceed the BAAQMD's operational thresholds with implementation of mitigation measures with the exception of NO_x emissions which were found to be significant and unavoidable. The project would not result in CO hotspots at any of the study intersections. Long-term air quality emissions under the Existing Zoning Alternative would be increased compared to the proposed project because the increase in the amount of traffic trips. The replacement of 178 single-family homes with 320,300 square feet of commercial space would add approximately 13,664 total daily trips[1] to the surrounding roadways. There would no change in traffic generation from the commercial area on the western portion of the property as it is the same as the proposed project. The addition of approximately 8 times more new daily automobile trips compared to the residential component of proposed project (1,690 total daily trips) would significantly increase NO_x pollutants from auto emissions compared to the proposed project. Overall, impacts on long-term operational air emissions from the Existing Zoning Alternative would be greater when compared to the proposed project.

Biological Resources

The Existing Zoning Alternative would have the same development footprint as the proposed project. As such, potential impacts on biological resources would be the same as the proposed project and the same mitigation measures would be required for the Existing Zoning Alternative. Therefore; impacts would be similar compared to the proposed project.

Cultural Resources and Tribal Cultural Resources

The Existing Zoning Alternative would have the same development footprint as the proposed project. As such, potential impacts on cultural resource and tribal cultural resources would be the same as the proposed project and the same mitigation measures would be required for the Existing Zoning Alternative. Therefore; impacts would be similar compared to the proposed project.

Geology/Soils

The Existing Zoning Alternative would have the same development footprint as compared to the proposed project. The potential for development to be exposed to unstable soils and seismic activity would be similar to the proposed project. The Existing Zoning Alternative would require the same mitigation

1 Using ITE Land Use Code 820 which identifies 42.7 trips per 1,000 square feet (320 x 42.7 = 13,664).

measures as the proposed project and would reduce potential impacts to less than significant. Overall, potential impacts related to geology and soils would be similar under the Existing Zoning Alternative as compared to the proposed project.

Greenhouse Gas Emissions

The Existing Zoning Alternative would have similar construction impacts compared to the proposed project as the project would have the same development footprint and a similar amount of grading. Approximately 35,000 cubic yards) would be required under this alternative. The equipment needed for construction and the construction timeline would be similar. Therefore, greenhouse gas emissions from construction activities would be similar compared to the proposed project.

Operationally, the Existing Zoning Alternative would result in a greater amount of greenhouse gas emissions than the proposed project. The increased building sizes would require more energy for heating, cooling, and lighting. However, the development under this alternative would have opportunities for rooftop solar and charging stations for electrical vehicles. However, this alternative would significantly increase the amount of vehicle trips which would result in a significant increase in greenhouse gas emissions from transportation sources compared to the proposed project. Overall potential impacts related to greenhouse gas emissions are greater under the Existing Zoning Alternative compared to the proposed project.

Hazards and Hazardous Materials

Hazards and hazardous material impacts associated with this alternative would be similar to the proposed project. The transportation, use, and disposal of hazardous materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. As discussed above, the use of hazardous materials would be incidental to the operation of the proposed commercial sites and would be similar to uses proposed for operation under the proposed project. As such, the risks associated with the use of these materials would be similarly small. While the proposed project would involve the transportation, use, and disposal of limited small amounts of hazardous materials, compliance with local, state, and federal regulations and County policies would ensure that the proposed project would result in less than significant impacts and no mitigation is required.

Hazardous materials associated with the residential uses would be replaced with hazardous materials associated with commercial uses. These would include: heavy metals, household chemicals, oils, solvents, paints, pesticides, and fertilizers. Similar to the proposed project, the use of these hazardous materials would be incidental to the operation of the commercial uses under the Existing Zoning Alternative and would be similar to uses found in most commercial and residential areas. As such, the risks associated with the use of these materials would be similar compared to the proposed project. Both the proposed project and this alternative would involve the transportation, use, and disposal of limited small amounts of hazardous materials. Compliance with local, state, and federal regulations and County policies would

ensure that both would result in less than significant impacts and no mitigation is required. Therefore; impacts would be roughly equivalent.

Hydrology and Water Quality

The Existing Zoning Alternative would have a similar footprint as the proposed project. The commercial development of Admiral Callaghan Lane would be same as the proposed project. However, this alternative, would result in more impervious surfaces than the proposed project because landscaped yard areas and common open space areas within the residential component of the proposed project would be replaced with hardscape parking lot areas and rooftops within the commercial development on the eastern portion of the property. The overall drainage plan in this area would be similar compared to the proposed project and surface water runoff would drain to a bioretention basin for infiltration or release into the central drainage area. Due to the increased hardscape areas including parking lots and loss of undeveloped areas that would allow infiltration, potential impacts on hydrology and water quality would be greater than the proposed project under this alternative.

Land Use

The Existing Zoning Alternative is designed to develop the project site consistent with the existing zoning designation of Pedestrian Shopping and Service District. Under this alternative no rezone would be required, but a General Plan amendment would be required because the eastern portion of this property is designated for residential uses. However, because there are no specific environmental impacts due to this alternative's inconsistency with the General Plan, impacts related to land use would be similar to the proposed project and would remain less than significant.

Noise

Construction noise associated with the proposed project, with mitigation incorporated, would result in less than significant impacts to surrounding sensitive receptors to noise levels in excess of the established standards. Construction activities would cause less significant increased mobile noise along access routes to and from the site due to movement of equipment and workers. The proposed project's construction-related vibration impacts would be less than significant. Similar short-term noise impacts from grading and construction activities would occur with the Existing Zoning Alternative, as the development footprint would be the same as the proposed project. Although this alternative includes more commercial development, construction timing, duration, and equipment would be similar to the proposed project. Therefore, the less than significant short-term noise impacts (with mitigation incorporated) that would occur with the proposed project also would occur with the Existing Zoning Alternative. This alternative would also be required to comply with MM NOI-1 to reduce short-term construction noise impacts to a less than significant level.

Existing Plus project modeled noise levels from long-term mobile sources would range from 59.5 dBA to 65.4 dBA at 100 feet from the centerline. The proposed project would increase noise levels on the existing roadways in the project vicinity by a maximum of 1.5 dBA along Admiral Callaghan Drive from Turner Parkway to Rotary Drive, resulting in less than significant noise levels. Under the Existing Zoning

Alternative an additional 320,300 square feet of new commercial and retail space would be developed generating 13,664 total daily trips. These trips would replace the proposed 1,690 total trips generated from the residential development in the eastern portion of the site under the proposed project. The addition of approximately 12,000 total daily trips in this area would increase the amount of traffic noise along Turner Parkway. This alternative also would induce more vehicles to use the roadways that are closest to the existing residents adjacent to the site. Lastly, the increased area for commercial space would increase the truck trips and associated noise for delivering merchandise to the commercial buildings. Therefore, this alternative would result in noise impacts that are greater compared to the proposed project.

Energy Conservation

Development under the Existing Zoning Alternative would create a more intensive development with the addition of an additional 320,300 square feet of commercial space instead of residential development. Energy consumption during construction would be similar for the Existing Zoning Alternative as the proposed project because the construction equipment and duration of construction would be similar. Both types of development would have opportunities to install roof-mounted solar to reduce the amount of electricity consumed by the development. However, the Existing Zoning Alternative would generate 13,664 total daily trips compared to the proposed project which would consume more fuel than the proposed project. Therefore, this alternative would consume more energy when compared to the proposed project and impacts would be incrementally greater.

Population and Housing

The Existing Zoning Alternative would not develop or displace any housing. Under this alternative, an additional 320,300 square feet of commercial space would be developed on the eastern portion of the site in lieu of single-family housing. As discussed in Chapter 4.12, Population and Housing, one employee for every 860 square feet is assumed for the commercial space. As such, an additional 320,300 square feet of commercial space would generate approximately 372 additional employees. Under this alternative, a total of 404 employees would be generated. Similar to the proposed project, this number of employees would not result in the need for additional housing in the City of Vallejo as many of the employees would come from the surrounding area and would not require new housing for employees filling jobs created by the project. This alternative, however, would not provide any residential units to help meet the ABAG RHNA goal of 1,362 units. Nonetheless, the overall impacts would be similar to the proposed project because neither alternative would displace existing residents or require the construction of replacement housing elsewhere. Therefore, potential impacts on population and housing would be roughly equivalent compared to the proposed project.

Public Services

This alternative would involve the development of all commercial and no residential uses. Because of the reduction in the number of residential units and associated population increase, this alternative would involve a reduced demand for police and fire protection services, library services, and would reduce the

number of students that would need to be accommodated at local public schools. Impacts associated with public services would be less than significant and be reduced compared to the proposed project.

Recreation

This alternative would involve the development of all commercial uses and no residential uses. Because of the reduction in the number of residential units and associated population, this alternative would reduce demand for parks and recreation facilities. Impacts associated with recreation would be less than significant, and less than the proposed project.

Transportation and Traffic

Traffic impacts under the proposed project were identified as significant and unavoidable for seven intersections and one freeway segment. Under the Existing Zoning Alternative and increase in 13,664 total average daily traffic trips are anticipated as a result of replacing the residential development with commercial development as a result of the higher traffic generated associated with commercial uses. The addition of 13,664 traffic trips to failing intersections would adversely affect the performance of those intersection and other intersections in the surrounding area. As a result, traffic impacts under the Existing Zoning Alternative would be significantly increased compared to the proposed project.

Utilities

The Existing Zoning Alternative would construct approximately 500,000 total square feet of commercial and retail space. This would be an increase of 320,300 square feet of commercial area compared to proposed project. Compared to the proposed project, the Existing Zoning Alternative would reduce wastewater, solid waste generation, and water use because commercial uses have a reduced water demand than residential uses and, in turn, have lower wastewater generation than residential uses. Furthermore, as mentioned under Hydrology and Water Quality above, this alternative would result in more impervious surface coverage and increased stormwater runoff; but no new public stormwater facilities would be required. The proposed commercial uses would have a greater waste generation rate compared to the proposed project. Therefore; impacts related to water and wastewater would be less the proposed project, but solid waste generation and stormwater infrastructure impacts would greater compared to the proposed project. Overall, impacts on utilities would be reduced compared to the proposed project.

CONCLUSION

Avoid or Substantially Lessen Project Impacts

The Existing Zoning Alternative would reduce impacts related to water supply and wastewater generation, but would increase impacts related to air quality, greenhouse gas emission, hydrology and water quality, transportation, solid waste generation. Land use impacts would similar to the proposed project as the Existing Zoning Alternative would not require a rezone but would not meet the intent of the General Plan designation of Mix Housing Types. As documented throughout Chapter 4.1 through Chapter 4.16 of this Draft EIR, all impacts of the proposed project would be less than significant after mitigation, with the

exception of traffic which would result in significant and unavoidable impacts at seven intersections and one freeway segment.

Attainment of Project Objectives

The *Existing Zoning Alternative* fails to meet the following stated objectives for the proposed project as described in Section 6.1 of this Chapter:

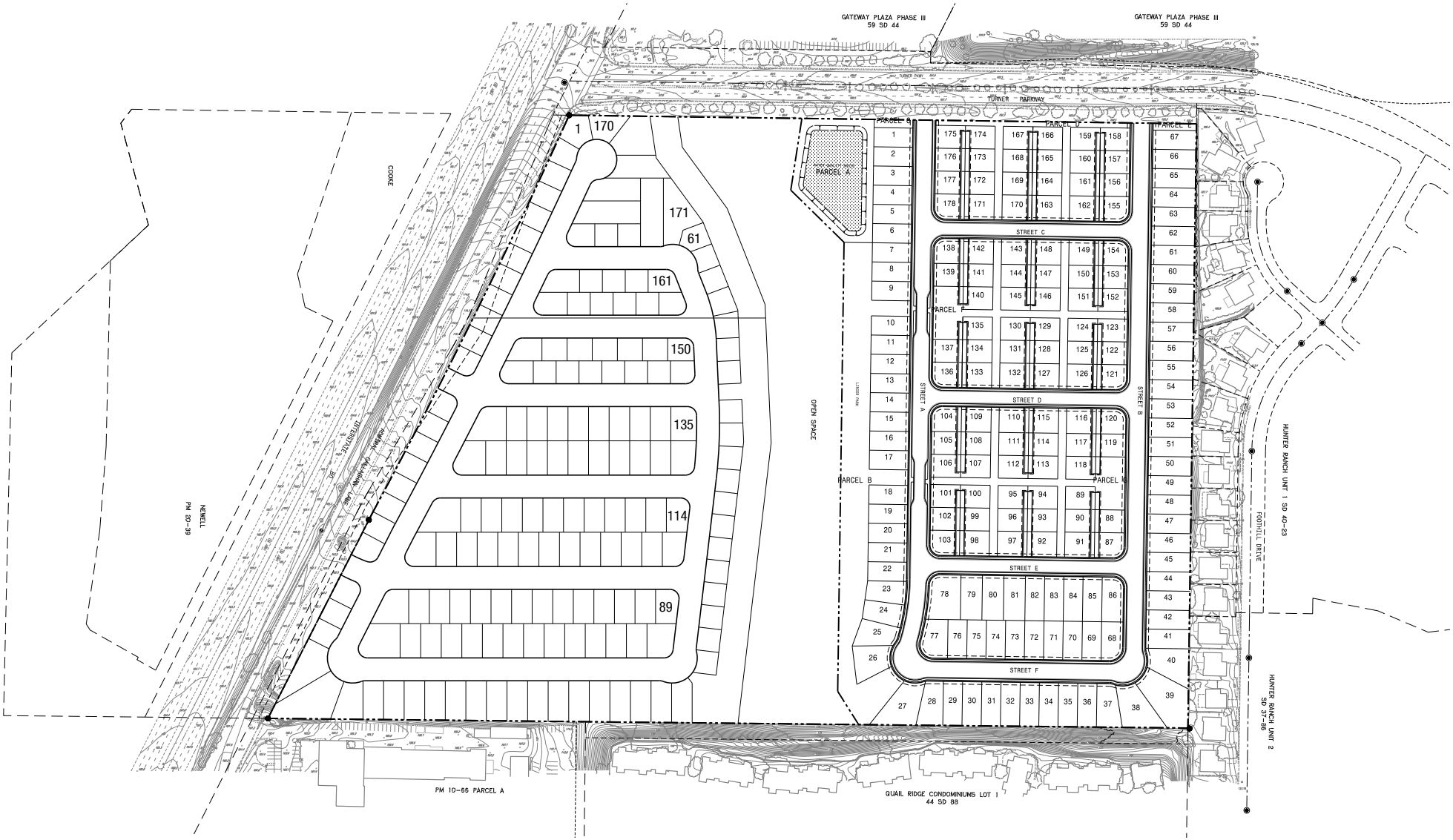
- Implement the objectives of the General Plan to leverage public infrastructure investment to catalyze a mix of new housing, commercial, retail, and recreational development in an opportunity area;
- Develop a project in an opportunity area with an appropriate mix of uses to serve the needs of the public, including housing needs;
- Develop a project in an opportunity area that includes a pedestrian-friendly residential neighborhood with cohesive design that includes active and passive recreational opportunities and bike/pedestrian circulation amenities for future residents and users of the commercial space;
- Develop a project that minimizes visual conflicts by including a thoughtful landscaping and planting plan that is compatible with surrounding development; and
- Develop a project in an opportunity area that enhances amenities and recreational opportunities for residents and visitors to the area.

Comparative Merits

Under the Existing Zoning Alternative, the development footprint would be the same as the proposed project; however, the intensity of development would be significantly increased and impacts on resources such as air quality, greenhouse gas emissions, and traffic also would be increased. This alternative would not provide any new housing opportunities in Vallejo to support the City's job housing balance. This alternative would not be consistent with the General Plan land use designation of Mix of Housing Types.

6.6 ALTERNATIVE 3 – ALL HOUSING ALTERNATIVE

Under the All Housing Alternative, only single-family residential units would be developed on the project site. The existing Costco in Gateway Plaza north of the project site would not relocate to the western portion of the property and there would be no retail component. The project design would maintain the 5.7-acre wetland designated as open space similar to the proposed project. The commercial area on the western portion of the project site would be replaced with 171 single-family homes. The eastern portion of the project would retain the same design as the proposed project and be developed with 178 single-family units. In total, the All Housing Alternative would result in 349 homes. The conceptual site plan for this alternative is shown in **Figure 6-2: All Housing Alternative**. The eastern portion of the project site would retain the same parks as the proposed project, and the residential development in the western portion of the project site would have a linear park along the eastern edge of the development. The same natural gas and sewer utility line relocation would be required under this alternative as compared to the proposed project.



349 Single Family Homes

Source: MaKay and Somps, 2019

FIGURE 6-2: All Housing Alternative
Fairview at Northgate Project

Not to scale

Kimley»Horn

IMPACTS COMPARED TO PROJECT IMPACTS

An evaluation of the potential environmental impacts of the All Housing Alternative, as compared to those of the proposed project, is provided below.

Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur with the proposed project would similarly occur with the All Housing Alternative. Comparatively, the construction-related impacts to the visual character/quality of the project site and its surroundings would be similar to the proposed project because both would provide development that replaces undeveloped land. The construction duration, timeline, and equipment would be considered similar to the proposed project.

The project site's long-term visual character would be altered with this alternative, as the existing vacant land would be developed with approximately 349 single-family homes. The proposed homes on the western portion of the project site would be much closer to Interstate 80 and Admiral Callaghan Lane than the homes on the eastern portion of the project site. As such, the homes on the westernmost portion of the project site would be exposed to higher levels of traffic noise from the freeway. A sound wall along the western site perimeter, as well as portions of the northern and southern perimeter, would be required. To provide proper noise attenuation, the sound wall would have to be a solid continuous wall (with the exception of the project entry roads from Admiral Callaghan along the perimeter. Depending on the site topography, a berm and sound wall combination may be required to provide enough height to attenuate the noise levels for the proposed homes. While the proposed homes and sound wall would be closer to the Interstate 80 and Admiral Callaghan Lane and therefore more visible, the homes would have less mass and bulk than the Costco building and other commercial buildings. Overall, given the differences in aesthetics when compared to the proposed project, potential aesthetic impacts would be similar to the proposed project and less than significant.

Under this alternative, no commercial or retail space is would be constructed. There would be no additional supply of commercial or retail space as a result of the proposed project. As such, compared to the proposed project, this alternative would have less of an impact on urban decay, and potential impacts would be less than significant.

Under this alternative, light and glare impacts would be neither greater nor lesser than the proposed project. Street lighting, pedestrian lighting, and exterior building lighting would be positioned throughout the project site in a similar way as the proposed project. However, the All Housing Alternative would eliminate the need for 20-foot tall lighting poles needed for parking lots in the commercial area. Potential impacts from lighting and glare, therefore, would be incrementally reduced compared to the proposed project and considered less than significant.

Air Quality

As shown in Table 4.2-6, the proposed project's short-term construction emissions would be below the BAAQMD's applicable thresholds, resulting in a less than significant impact. Short-term air quality impacts from grading, paving, trenching, and building construction would occur with the All Housing Alternative. Comparatively, the construction-related air quality impacts would be similar to the proposed project, as the project footprint would be relatively comparable to the proposed project and the construction timeline would be similar. This alternative would also be required to comply with MM AQ-1, as described in Chapter 4.2, Air Quality, to reduce short-term construction air emissions to a less than significant level.

As indicated in Table 4.2-7, the proposed project would not exceed the BAAQMD's operational thresholds with implementation of mitigation measures with the exception of NO_x emissions which were found to be significant and unavoidable. The project would not result in CO_2 hotspots at any of the study intersections. Long-term air quality emissions under the All Housing Alternative would be decreased compared to the proposed project because the decrease in the amount of traffic trips. Replacing the 179,688 square feet of commercial space with 171 single-family homes would reduce the total number of daily trips on the surrounding roadways. The 171 single-family homes would generate 1,628 daily trips[2]. As such the total daily trips under the All Housing Alternative would be 3,318, compared to 18,560 total daily trips of the proposed project. This would be a significant reduction of new daily automobile trips compared to the proposed project and would decrease pollutants from auto emissions compared to the proposed project.

Locating housing closer to the freeway would incrementally increase the exposure of residents to toxic air contaminants from the freeway. While potential impacts would be anticipated to be less than significant, they would be greater compared to the proposed project. Some mitigation such as providing enhanced air filtration systems could be included, but overall impacts would remain greater than the proposed project.

Overall, impacts on long-term operational air emissions from the All Housing Alternative would be less than significant and reduced when compared to the proposed project.

Biological Resources

The All Housing Alternative would have the same development footprint as the proposed project. As such, potential impacts on biological resources would be the same as the proposed project and the same mitigation measures would be required for the All Housing Alternative. Impacts would be the same as the proposed project.

Cultural Resources and Tribal Cultural Resources

The All Housing Alternative would have the same development footprint as the proposed project. As such, potential impacts on cultural resource and tribal cultural resources would be the same as the proposed

[2] Using ITE Land Use Code 210 and the Project TIA which identifies 9.52 trips per house per day (171 x 9.52 = 1628 total daily trips)

project and the same mitigation measures would be required for the All Housing Alternative. Impacts would be the same as the proposed project.

Geology/Soils

The All Housing Alternative would have the same development footprint as compared to the proposed project. The potential for development to be exposed to unstable soils and seismic activity would be similar to the proposed project. The All Housing Alternative would require the same mitigation measures as the proposed project to reduce potential impacts to less than significant. This alternative could potentially be designed with less grading to preserve more of the existing slopes, but this could exacerbate other issues such as the control of water run, use of LIDs, and need for retaining walls leading to a greater risk of impacts to other resource areas. Potential impacts related to geology and soils would be roughly equivalent under the All Housing Alternative as compared to the proposed project.

Greenhouse Gas Emissions

The All Housing Alternative would have similar construction impacts compared to the proposed project. This alternative would have the same development footprint and a similar amount of grading (approximately 165,000 cubic yards) would be required under this alternative. The equipment needed for construction and the construction timeline would be similar. Therefore, greenhouse gas emissions from construction activities would be similar compared to the proposed project.

Operationally, the All Housing Alternative would result in a reduced amount of greenhouse gas emissions compared to the proposed project. The reduction in the number of traffic trips would significantly reduce the amount emissions from transportation sources, which is usually one the highest contributors to a project's greenhouse emissions. Overall potential impacts related to greenhouse gas emissions are reduced under the All Housing Alternative compared to the proposed project.

Hazards and Hazardous Materials

Hazards and hazardous materials impacts associated with this alternative would be similar to the proposed project. Similar to the proposed project, the transportation, use, and disposal of these materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazards to the public from the transportation, use, and disposal of these materials. As discussed above, the use of hazardous materials would be incidental to the operation of the site for all residential development and would be similar to other uses found in residential areas. Hazardous materials associated with the residential uses would be replaced with hazardous materials associated with commercial uses. These would include: heavy metals, household chemicals, oils, solvents, paints, pesticides, and fertilizers. As such, the risks associated with the use of these materials would be similarly small. While the proposed project would involve the transportation, use, and disposal of limited small amounts of hazardous materials, compliance with local, state, and federal regulations and City policies would ensure that the proposed project would result in less than significant impacts and no mitigation is required. Impacts would be roughly equivalent to the proposed project.

Hydrology and Water Quality

The All Housing Alternative would have a similar development footprint as the proposed project. The residential development on the eastern portion of the site would be the same as the proposed project. However, this alternative, would have less impervious surfaces than the proposed project because the residential component on the western portion of the property would have landscaped yard areas and common open space areas. When compared to the hardscape parking lot areas and rooftop areas from the commercial development as part of the proposed project, the number of impervious surfaces and potential for runoff would be reduced. Additionally, while the overall drainage plan in this area would be similar to the proposed project, this alternative would conduct less surface water runoff to the bioretention basin needed for infiltration or release into the central drainage area. Therefore, potential impacts on hydrology and water quality would be reduced compared to the proposed project under this alternative.

Land Use

The All Housing Alternative would require a rezone to a different zone classification from the existing zoning classification of Pedestrian Shopping and Service District. Under this alternative, it is anticipated that a Planned Development zone similar to the proposed project would be required. However, the City's updated General Plan 2040 identified the western portion of this property for retail and entertainment uses and a General Plan Amendment may be required for the development of residential uses in this area. Although an inconsistency with a General Plan guidance does not necessarily result in a significant impact, as discussed, this alternative would increase impacts related to noise, public services, recreation, and utilities. Therefore, potential impacts associated with land use would be greater compared to the proposed project.

Noise

Regarding exposure to noise levels in excess of the established standards, construction noise associated with the proposed project would result in less than significant impacts with mitigation incorporated. Construction activities also would cause less significant increased mobile noise along access routes to and from the site due to movement of equipment and workers and the proposed project's construction-related vibration impacts would be less than significant. Similar short-term noise impacts from grading and construction activities would occur with the All Housing Alternative, as the development footprint would be the same as the proposed project. Although this alternative only includes residential development, the construction timing, duration, and equipment would be similar to the proposed project. Therefore, the less than significant short-term noise impacts (with mitigation incorporated) that would occur with the proposed project would occur also with the All Housing Alternative. This alternative would also be required to comply with MM NOI-1 to reduce short-term construction noise impacts to a less than significant level.

Regarding traffic generated noise, Existing Plus project modeled noise levels from long-term mobile sources would range from 59.5 dBA to 65.4 dBA at 100 feet from the centerline. The proposed project would increase noise levels on the existing roadways in the project vicinity by a maximum of 1.5 dBA along

Admiral Callaghan Drive from Turner Parkway to Rotary Drive, resulting in less than significant noise levels. Under the All Housing Alternative, the replacement of commercial and retail space with single-family homes would generate approximately 1,231 daily trips which are substantially less than the approximate 10,000 daily trips from the commercial uses from the proposed project. The reduction of car trips would decrease the amount of traffic noise along Admiral Callaghan Lane and Turner Parkway. In this regard, this alternative would result in noise impacts that are reduced compared to the proposed project.

The placement of houses near Interstate 80 and Admiral Callaghan Lane would expose more people to traffic noise from those roadways. The level of traffic noise from these roadways would exceed the City's limits of 60 dBA for residential uses. Mitigation would be required in the form of sound attenuation barriers along the western perimeter of the houses in the western portion of the project site. As a result, this alternative would increase noise impacts on future residents from nearby traffic noise compared to the proposed project. Overall, the All Housing Alternative would have increased impacts compared to the proposed project.

Energy Conservation

Development under the All Housing Alternative would create a less intensive development with the replacement of approximately 180,000 square feet of commercial space with 171 single-family homes. Energy consumption during construction would be similar for the All Housing Alternative as the proposed project because the construction equipment and duration of construction would be similar.

Both types of development would have opportunities to install roof-mounted solar to reduce the amount of electricity consumed by the development. However, the All Housing Alternative would generate substantially fewer daily trips compared the proposed project which would consume less fuel. Therefore, this alternative would consume less energy when compared to the proposed project.

Population and Housing

Under the All Housing Alternative, approximately 180,000 square feet of commercial space would be replaced with 171 single-family homes. As discussed in Chapter 4.12, Population and Housing, 2.88 people are assumed per single-family home. Under this alternative, with 349 single-family homes, approximately 1,092 new residents would be generated compared to 513 with the proposed project. The All Housing Alternative would not generate any new permanent employees. Similar to the proposed project, this would be a negligible increase to the City's population and would be well within the range of population growth forecasted by ABAG, which is 131,800 people by 2040. In addition, as discussed above, this alternative would provide 171 more residences than the proposed project within the above moderate-income category. This alternative would do more than the proposed project to help the City meet its ABAG RHNA goal of 1,362 units. Therefore, the proposed project's growth would be consistent with ABAG's projections for the City. Impacts on population and housing would be less than significant and similar to the proposed project.

Public Services

This alternative would involve development of all residential uses and no commercial uses. Because of the increase in the number of residential units and associated population, this alternative would involve an increased demand for police and fire protection services, library services, and would increase the number of students that would need to be accommodated at local public schools. The existing enrolment of the school district is approximately 35% less than capacity. The schools that would serve students generated from the proposed project are anticipated to serve the increased number of students without further expansion. This alternative would increase the demand for other public services including police, fire, libraries, parks, and facilities needed to facilitate service to the increased population. Similar to the proposed project; however, payment of fees would offset potential increases in service requests. Therefore, impacts associated with public services under this alternative would remain less than significant.

Recreation

This alternative would involve development of all residential uses and no commercial uses. Because of the increase in the number of residential units and associated population, this alternative would increase the demand for parks and recreation facilities and increase the likelihood that new recreation facilities are needed to serve the increased population. Impacts associated with recreation would be less than significant, but greater than the proposed project.

Transportation and Traffic

Traffic impacts under the proposed project were identified as significant and unavoidable for seven intersections and one freeway segment. Under the All Housing Alternative, a decrease in approximately 15,242total average daily traffic trips[3] is anticipated as a result of replacing commercial development with residential development. This significant reduction in traffic trips on the study intersections would reduce the impact on those intersections with the exception of the intersection at existing Plaza Drive/Costco Driveway used to access the existing Costco, which currently operates at an unacceptable level of service (LOS) with or without the addition of any project traffic. As a result, traffic impacts under the All Housing Alternative would be significantly reduced compared to the proposed project. This alternative would reduce the significant and unavoidable impact at the I-80/Redwood Parkway interchange.

Utilities

The All Housing Alternative would construct approximately 349 single-family residential houses. This would be an increase of 171 homes and no commercial development compared to the proposed project. Compared to the proposed project, the All Housing Alternative would increase water use, wastewater and solid waste generation compared to the proposed project because residential uses have an increased

3 As shown in the project TIA, the proposed project commercial uses would generate 16,870 total average daily tips, subtracting the 1,628 trips from the All Housing Alternative results in a reduction of 15,242 total daily trips (16,870 – 1,628 = 15,242).

water demand compared to commercial uses and in turn have a higher wastewater generation than commercial uses.

As mentioned under Hydrology and Water Quality above, this alternative would result in less impervious surface coverage and decreased stormwater runoff because there would be more landscaped areas (e.g., yard areas for homes) for water to infiltrate. Similar to the proposed project no new public stormwater facilities would be required. The proposed residential uses would have slightly less solid waste generation compared to the commercial uses with the proposed project. Therefore, overall impacts related to water and wastewater would be greater than proposed project and solid waste generation and stormwater infrastructure impacts would be reduced compared to the proposed project. Overall, impacts on utilities would be greater compared to the proposed project.

CONCLUSION

Avoid or Substantially Lessen Project Impacts

The All Housing Alternative would reduce impacts related to air quality, greenhouse gases, traffic, and energy conservation but would increase impacts related to noise, public services, recreation, and utilities. Land use impacts would be increased as the All Housing Alternative would still require a rezone but would not meet the intent of the General Plan designation of Retail/Entertainment and likely require an amendment to the General Plan.

Attainment of Project Objectives

The *All Housing Alternative* fails to meet the following stated objectives for the proposed project as described in Section 6.1 of this Chapter:

- Implement the objectives of the General Plan to leverage public infrastructure investment to catalyze a mix of new housing, commercial, retail, and recreational development in an opportunity area;
- Develop a project in an opportunity area with an appropriate mix of uses to serve the needs of the public, including housing needs.
- Develop a project in an opportunity area that enhances amenities and recreational opportunities for residents and visitors to the area; and
- Support economic development by developing a vacant, under-developed site with a project that provides a broad range of retail goods and services, retains a major source of sales tax revenue, generates significant additional sales tax revenues, and creates jobs for city residents.

Comparative Merits

Under the All Housing Alternative, the development footprint would be the same as the proposed project, however the intensity of development would be significantly less and impacts to resources such as air quality, greenhouse gas emissions, and traffic would be decreased. This alternative would not provide any new employment opportunities in Vallejo to support the City's job housing balance. The All Housing Alternative would not provide for an opportunity for the expansion and retention of Costco. This

alternative would not meet the intent of the General Plan land use designation of Retail/Entertainment for the western portion of the project site. This property was specifically identified in the City's Callaghan – Columbus opportunity area in the General Plan 2040. The key opportunity areas were identified as important infill sites where development could produce a significant positive impact on quality of life. This alternative would not help the City meet those General Plan goals.

6.7 ALTERNATIVE 4 – WETLAND PRESERVATION ALTERNATIVE

The Wetland Preservation Alternative has been designed to minimize impacts on the wetland areas onsite. Under this design, the majority of wetland areas onsite would be preserved, and no development would occur within the wetland areas, with the exception of internal roadway crossings. The Costco and retail areas would be developed similar to the proposed project, as would the 5.7-acre open space preservation area. On the eastern portion of the site, the development footprint of the residential area would be reduced to avoid wetland impacts. A 25-foot building setback is included around the edge of the wetlands to prohibit development within this area (with the exception of roadway crossings needed for building access and emergency vehicle access). A conceptual site plan is shown in **Figure 6-3: Wetland Preservation Alternative**. Preserving the wetland areas would result in a smaller development footprint and less area for constructing homes. Under this alternative, the residential component would be modified to include 510 multi-family residential units. The multi-family units would consist of 20 buildings located throughout the site. The building heights would range between 3-4 stories. Single-family development would not be feasible under this alternative because the number of units would be substantially reduced, and denser development scheme would be needed to support the construction and infrastructure costs associated with constructing roadways, wetland crossings, water and sewer lines, and wetland preservation costs. Under this alternative, there would be fewer opportunities for common open space areas and a linear park depending on parking requirements and where parking areas would be located.

IMPACTS COMPARED TO PROJECT IMPACTS

An evaluation of the potential environmental impacts of the All Housing Alternative, as compared to those of the proposed project, is provided below.

Aesthetics

The short-term visual impacts associated with grading and construction activities that would occur with the proposed project would similarly occur with the Existing Zoning Alternative. Comparatively, the construction-related impacts to the visual character/quality of the project site and its surroundings would be similar to the proposed project because both would provide development that replaces undeveloped land. The construction duration, timeline, and equipment would be considered similar to the proposed project. Similar to the proposed project, the project site's long-term visual character would be altered with this alternative, as the existing vacant land would be developed with commercial and residential uses. The residential buildings would be up between 35-45 feet in height and have a larger visible bulk

and scale compared to the residential houses in the proposed project. The view of the project site would generally be the same from Interstate 80 and Admiral Callaghan Lane. The bigger buildings would be more visible from Turner Parkway.

Under this alternative, the same amount of commercial and retail space would be proposed as the proposed project, and similar to the proposed project, potential impacts from urban decay would be less than significant

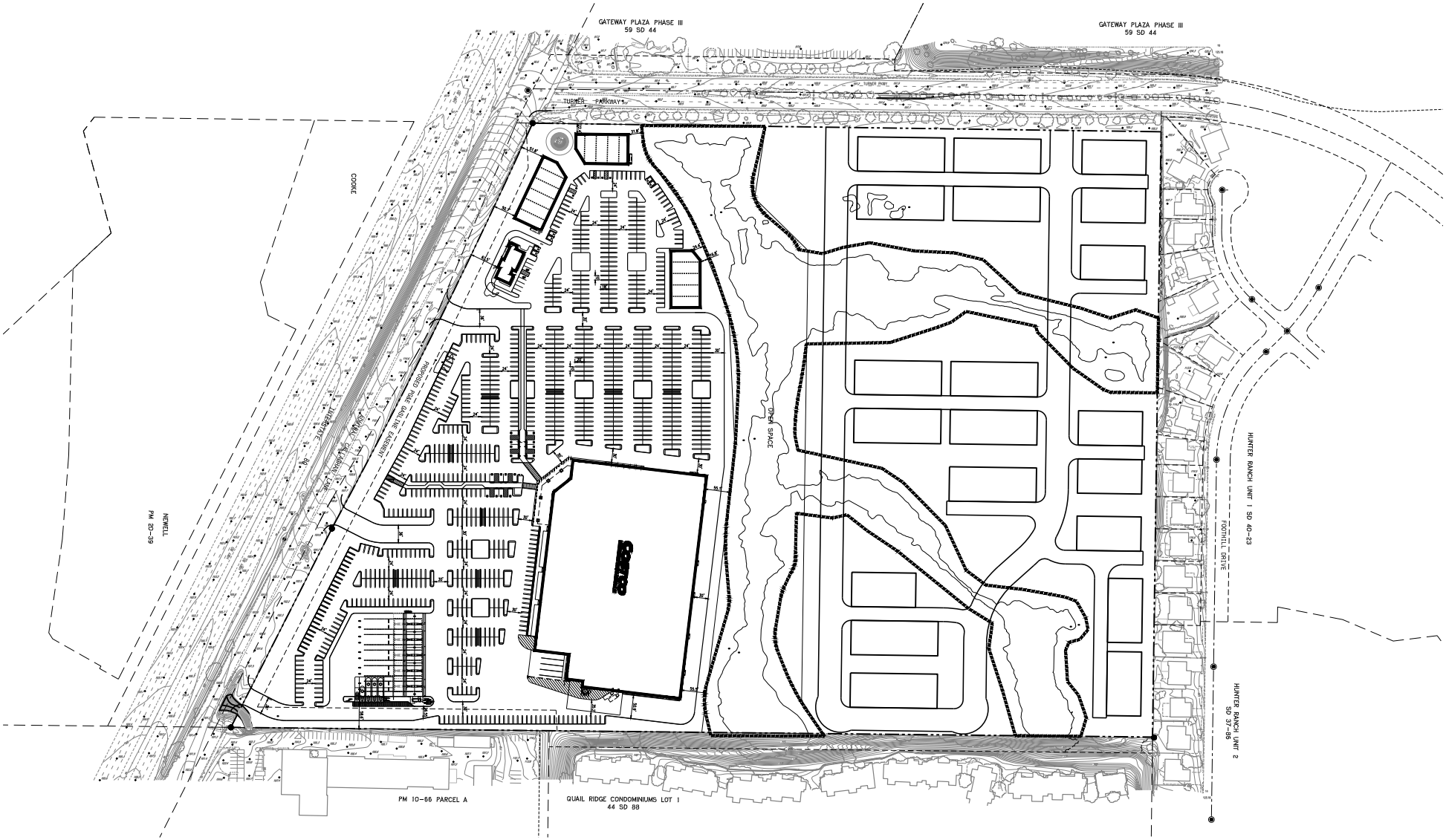
Under this alternative, light and glare impacts would be neither greater nor lesser than the proposed project as street lighting, pedestrian lighting, and exterior building lighting positioned throughout the project site. However, the Wetland Preservation Alternative would provide more outdoor lighting within the parking areas in the residential area. These lighting areas would be visible from residential uses to the east and south. Potential aesthetics impacts would be incrementally increased compared to the proposed project, but still considered less than significant.

Air Quality

As shown in Table 4.2-6, the proposed project's short-term construction emissions would be below the BAAQMD's applicable thresholds, resulting in a less than significant impact. Short-term air quality impacts from grading, paving, trenching, and building construction would occur with the Existing Zoning Alternative. Comparatively, the construction-related air quality impacts would be similar to the proposed project, as the project footprint would be relatively comparable to the proposed project and the construction timeline would be similar. Therefore, this alternative would also be required to comply with MM AQ-1, as described in Chapter 4.2, Air Quality, to reduce short-term construction air emissions to a less than significant level.

As indicated in Table 4.2-7, the proposed project would not exceed the BAAQMD's operational thresholds with implementation of mitigation measures with the exception of NO_x emissions which were found to be significant and unavoidable. Additionally, the proposed project would not result in CO hotspots at any of the study intersections. Long-term air quality emissions under the Wetland Preservation Alternative would be increased compared to the proposed project because the increase in the amount of traffic trips. Replacing 178 single-family units with 510 multi-family units would add approximately 1,055 daily trips[4] to the surrounding roadways. The addition of approximately 1,500 new total daily automobile trips compared to the proposed project (1,690 total daily trips) would incrementally increase pollutants from auto emissions compared to the proposed project. Overall, impacts on long-term operational air emissions from the Wetland Preservation Alternative would be increased when compared to the proposed project.

[4] Using ITE Land Use Code 221 which identifies 5.44 daily trips per multifamily unit (510 x 5.44 = 2,745 total daily trips). The residential component of the proposed project would generate 1,690 total daily trips (2,745 -1,690 = 1,055 total daily trips).



LEGEND:

PROPOSED UNITS: 510

25' SETBACK TO WATERS OF THE U.S.

JURISDICTIONAL WATERS OF THE U.S.

Source: MaKay and Somps, 2019

FIGURE 6-3: Wetland Preservation Alternative

Fairview at Northgate Project

Not to scale

Kimley»Horn

Biological Resources

The Wetland Preservation Alternative would have a reduced development footprint compared the proposed project with the intent of preserving as much of the wetland areas onsite as possible. The proposed project would impact approximately 2.5 acres of the approximately 5.0 acres of wetland habitat onsite. The Wetland Preservation Alternative would avoid the wetland habitat except in those areas where roadway crossings are necessary to provide access, including emergency access and emergency vehicle access. In these areas the impacts associated with increased shading from the widened roadway/bridge would be similar to the proposed project. In addition, impacts from indirect edge effects would be slightly reduced under this alternative because the proposed residential structures would be set back from the wetlands. As such, potential impacts on biological resources would be reduced compared to the proposed project. Mitigation measures for the protection of nesting birds, and the protection of preserved wetland areas would still be required under this alternative. No additional mitigation measures would be required for the Wetland Preservation Alternative.

Cultural Resources and Tribal Cultural Resources

The Wetland Preservation Alternative would have a reduced development footprint compared to the proposed project. However, potential impacts on cultural resource and tribal cultural resources would be similar to the proposed project and the same mitigation measures would be required for the Existing Zoning Alternative.

Geology/Soils

The Wetland Preservation Alternative would have a reduced development footprint compared to the proposed project. The potential for development to be exposed to unstable soils and seismic activity would be similar to the proposed project. The Wetland Preservation Alternative would require the same mitigation measures as the proposed project to reduce potential impacts to less than significant. Overall, potential impacts related to geology and soils would be similar under the Wetland Preservation Alternative as compared to the proposed project.

Greenhouse Gas Emissions

The Wetland Preservation Alternative would have similar construction impacts compared to the proposed project. This alternative would have a substantially reduced development footprint because most of the wetland areas would be preserved and grading in these areas would not occur. Grading under this alternative would be reduced compared to proposed project which would require approximately 165,000 cubic yards. The equipment needed for construction and the construction timeline would be similar. Therefore, greenhouse gas emissions from construction activities would be similar compared to the proposed project.

Operationally, the Wetland Preservation Alternative would result in a greater amount of greenhouse gas emissions compared to the proposed project. The increase in number of units building size would require more energy for heating and cooling, and lighting. However, the development under this alternative would have opportunities for rooftop solar and charging stations for electrical vehicles. This alternative

would increase the amount of vehicle trips by 1, of total daily trips which would result in an increase in the greenhouse gas emissions from transportation sources compared to the proposed project. Overall potential impacts related to greenhouse gas emissions are greater under the Wetland Preservation Alternative compared to the proposed project.

Hazards and Hazardous Materials

Hazards and hazardous materials impacts associated with this alternative would be similar to the proposed project. Similar to the proposed project, the transportation, use, and disposal of these materials would be subject to local, state, and federal laws intended to minimize the risk of exposure to hazardous materials. Consistency with these laws and policies would limit hazard impacts to the public. As discussed above, the use of these hazardous materials would be incidental to the operation of the commercial and proposed residential uses and would be similar to other such developments. Uses would include chemicals that may contain heavy metals, as well as household chemicals, oils, solvents, paints, pesticides, and fertilizers. As such, the risks associated with the common use of these materials would be small and similar to the proposed project. Additionally, the proposed project would involve the transportation, use, and disposal of limited small amounts of hazardous materials, compliance with local, state, and federal regulations and County policies would ensure that the proposed project would result in less than significant impacts and no mitigation is required.

Hydrology and Water Quality

The Wetland Preservation Alternative would have a reduced development footprint compared to the proposed project. The commercial development on the western portion of the site would be the same as the proposed project. However; this alternative would have less impervious surfaces than the proposed project because the residential component on the eastern portion of the property would have a smaller development footprint because the wetland areas that traverse this portion of the project site would remain. Unlike the proposed project, these areas would be left in their existing condition and would not be covered with impervious surfaces. The multi-family units would have some landscaped areas around the buildings and those areas not used for parking would also be landscaped allowing for infiltration. The overall drainage plan in this alternative would be similar with surface water runoff draining to a bioretention basin for infiltration or release into the central drainage area. Potential impacts on hydrology and water quality would be reduced compared to the proposed project under this alternative.

Land Use

The Wetland Preservation Alternative would require a rezone to a different zone classification from the existing zoning classification of Pedestrian Shopping and Service District. Under this alternative, it is anticipated that a Planned Development zone similar to the proposed project would be required. Therefore, potential impacts would be similar compared to the proposed project.

Noise

Construction noise associated with the proposed project would result in less than significant impacts with mitigation incorporated, regarding exposure to surrounding sensitive receptors to noise levels in excess

of the established standards. Construction activities would cause less significant increased mobile noise along access routes to and from the site due to movement of equipment and workers. The proposed project's construction-related vibration impacts would be less than significant. Similar short-term noise impacts from grading and construction activities would occur with the Wetland Preservation Alternative, as the development footprint would be less than the proposed project. Although this alternative includes a higher density of residential development, the construction timing, duration, and equipment would be similar to the proposed project. Therefore, the less than significant short-term noise impacts (with mitigation incorporated) that would occur with the proposed project also would occur with the Wetland Preservation Alternative. This alternative would also be required to comply with MM NOI-1 to reduce short-term construction noise impacts to a less than significant level.

Regarding traffic generated noise, Existing Plus project modeled noise levels from long-term mobile sources would range from 59.5 dBA to 65.4 dBA at 100 feet from the centerline. The proposed project would increase noise levels on the existing roadways in the project vicinity by a maximum of 1.5 dBA along Admiral Callaghan Drive from Turner Parkway to Rotary Drive, resulting in less than significant noise levels. Under the Wetland Housing Alternative, the replacement of single-family residential with multi-family residential homes generating and additional 1,055 total daily trips compared to the proposed project. The increase in vehicle trips would incrementally increase the amount of traffic noise along Admiral Callaghan Lane and Turner Parkway. In this regard, this alternative would result in noise impacts that are slightly greater compared to the proposed project.

Energy Conservation

Development under the Wetland Preservation Alternative would create a more intensive development with the replacement of 178 single-family homes with 510 multi-family homes. Energy consumption during construction would be similar for the Wetland Preservation Alternative as the proposed project because the construction equipment and duration of construction would be similar.

Both types of development would have opportunities to install roof-mounted solar to reduce the amount of electricity consumed by the development. However, the Wetland Preservation Alternative would generate more daily trips compared the proposed project which would consume more fuel. Therefore, this alternative would consume more energy when compared to the proposed project.

Population and Housing

Under the Wetland Preservation Alternative, 178 single-family homes would be replaced with 510 multi-family homes. As discussed on Chapter 4.12, Population and Housing, 2.88 people are assumed per household. Under this alternative, with 510 multi-family homes approximately 1,468 new residents would be generated compared to 513 with the proposed project. The Wetland Preservation Alternative would generate the same number of employees as the proposed project. Similar to the proposed project, this would be a negligible increase to the City's population and would be well within the range of population growth forecasted by ABAG, which is 131,800 by 2040. Therefore, the proposed project's growth would be consistent with ABAG's projections for the City. In addition, this alternative would provide more residential units compared to the proposed project and bring the City closer to meeting the ABAG RHNA

goal of 1,362 units. Nonetheless, the overall impacts would be similar to the proposed project because neither alternative would displace existing residents or require the construction of replacement housing elsewhere. Impacts on population and housing would be less than significant and similar to the proposed project.

Public Services

This alternative would involve development of an increased number of residential units and no commercial uses. Because of the increase in the number of residential units and associated population, this alternative would involve an increased demand for police and fire protection services, library services, and would increase the number of students that would need to be accommodated at local public schools. Impacts associated with public services would be less than significant, but greater than the proposed project.

Recreation

This alternative would involve development of all residential uses and no commercial uses. Because of the increase in the number of residential units and associated population, this alternative would increase the demand for parks and recreation facilities. Impacts associated with recreation would be less than significant, but greater than the proposed project.

Transportation and Traffic

Traffic impacts under the proposed project were identified as significant and unavoidable for seven intersections and one freeway segment. Under the Wetland Preservation Alternative, an increase of approximately 1,055 average total daily traffic trips is anticipated as a result of replacing the 178 single-family homes with 510 multi-family homes. The addition of 1,055 total traffic trips to failing intersections would adversely affect the performance of those intersection and other intersections in the surrounding area. As a result, traffic impacts under the Wetland Preservation Alternative would be significantly increased compared to the proposed project.

Utilities

The Wetland Preservation Alternative would construct approximately 510-multi-family residential homes and 189,000 square feet of commercial space. This would be an increase in residential uses compared to the proposed project. Compared to the proposed project, the Wetland Preservation Alternative would increase water use, wastewater and solid waste generation compared to the proposed project. Although multi-family residences have a reduced demand for utilities compared to single-family residences, the increased number of units would result in an increased water demand compared to commercial uses and in turn have a higher wastewater generation than commercial uses.

As mentioned under Hydrology and Water Quality above, this alternative would result in less impervious surface coverage and decreased stormwater runoff because there would be a smaller development footprint to avoid the wetland areas. Similar to the proposed project no new public stormwater facilities would be required. The proposed multi-family residential uses would have a similar waste generation rate

compared to the single-family uses with the proposed project, however the increase in number of units would result in more solid waste generation overall. Therefore, overall impacts related to water, wastewater, and solid waste generation would be greater than proposed project and stormwater infrastructure impacts would be reduced compared to the proposed project. Overall, impacts on utilities would be increased compared to the proposed project.

CONCLUSION

Avoid or Substantially Lessen Project Impacts

The Wetland Alternative would reduce impacts related to biological resources, hydrology and water quality but would increase impacts related to air quality, energy conservation, greenhouse gas emissions, noise, public services, recreation, traffic, and utilities. Land use impacts would be increased as the Wetland Preservation Alternative would still require a rezone but would not meet the intent of the General Plan designation of Retail/Entertainment and likely required a rezone. As documented throughout Chapter 4.1 through Chapter 4.16 of this Draft EIR, all impacts of the proposed project would be less than significant after mitigation, with the exception of traffic which would result in significant and unavoidable impacts at seven intersections.

Attainment of Project Objectives

The *Wetland Preservation Alternative* fails to meet the following stated objectives for the proposed project as described in Section 6.1 of this Chapter:

- Develop a project in an opportunity area that includes a pedestrian-friendly residential neighborhood with cohesive design that includes active and passive recreational opportunities and bike/pedestrian circulation amenities for future residents and users of the commercial space;
- Develop a project in an opportunity area that enhances amenities and recreational opportunities for residents and visitors to the area.

Comparative Merits

Under the Wetland Preservation Alternative, the development footprint would be slightly reduced compared to the proposed project; however, the intensity of residential development would be significantly greater. Impacts on resources such as air quality, energy consumption, greenhouse gas emissions, public services, recreation, traffic, and utilities would be substantially increased. The increased residential density (approximately 21 dwelling units per acre) proposed under this alternative would not provide the surrounding area with a development of a similar style and intensity as the existing residential development surrounding the property, particularly the adjacent residences to the east. Preserving all of the wetland habitat onsite would substantially reduce the area available for recreational opportunities onsite such as neighborhood parks and a linear park within the residential area. A wetland preservation design also substantially limits the design opportunities to create a walkable neighborhood with interconnected pathways for bike and pedestrian circulation on the project site because the residential development areas are isolated and only connected by bridges. As the commercial development would

be the same as the proposed project, this alternative would provide for an opportunity for the expansion and retention of Costco.

6.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative from among the range of reasonable alternatives that are evaluated. Section 15126.6 (e)(2) of the State CEQA Guidelines require that an environmentally superior alternative be designated and states that if the environmentally superior alternative is the No Project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Based on the summary of information presented in *Table 6-1: Comparison of Project Alternatives Environmental Impacts with the Proposed Project*, the environmentally superior alternative is Alternative 1: No Project Alternative. Because Alternative 1 would leave the project site essentially unchanged and would not have the operational effects that would be associated with any of the alternatives, this alternative has fewer environmental impacts than the proposed project or any of the other alternatives.

Section 15126.6(e)(2) of the State CEQA Guidelines states that if the "No Project" alternative is found to be environmentally superior, "the EIR shall also identify an environmentally superior alternative among the other alternatives. Aside from the No Project Alternative, Alternative 3: All Housing Alternative would have the least environmental impacts because it would develop a total of 349 single-family homes and would have a reduction in most identified impacts; such as air quality, greenhouse gas emissions, noise, and traffic.

The context of an environmentally superior alternative is based on the consideration of several factors including the reduction of environmental impacts to a less than significant level, the project objectives, and an alternative's ability to fulfill the objectives with minimal impacts to the existing site and surrounding environment. According to Table 6-1, the No Project alternative would be the environmentally superior alternative because it would eliminate all of the potentially significant impacts of the proposed project. However, while the No Project alternative is the environmentally superior alternative, it is not capable of meeting any of the basic objectives of the proposed project.

After the No Project alternative, the environmentally superior alternative to the proposed project is the one that would result in the fewest or least significant environmental impacts. Based on the evaluation undertaken, Alternative 3: All Housing Alternative is the environmentally superior alternative. This is an environmentally superior project alternative because it is a less intense development compared to the proposed project. However, the development of 349 single-family homes proposed under this alternative would not meet most of the project objectives, and it would require a policy determination from the City regarding General Plan and zoning amendments. Most critically, the All Housing Alternative would not meet the project objectives of implementing the objective of the General Plan to leverage public infrastructure investment, developing with an appropriate mix of uses to serve the public, and supporting economic development on an under-developed site with a project that provides a broad range of retail

goods and services, retains a major source of sales tax revenue, generates significant additional sales tax revenues, and creates jobs for city residents.

Table 6-1: Comparison of Project Alternatives Environmental Impacts with the Proposed Project

EIR Chapter	Alternative				
	Proposed Project - Level of Impact After Mitigation	**Alternative 1- No Project**	**Alternative 2- Existing Zoning**	**Alternative 3- All Housing**	**Alternative 4- Wetland Preservation**
4.1 – Aesthetics	Less Than Significant	-	=	=	+
4.2 – Air Quality	Less Than Significant	-	+	-	+
4.3 – Biological Resources	Less Than Significant	-	=	=	-
4.4 – Cultural Resources and Tribal Cultural Resources	Less Than Significant	-	=	=	=
4.5 – Geology and Soils	Less Than Significant	-	=	=	=
4.6 – Greenhouse Gas Emissions	Less Than Significant	-	+	-	+
4.7 – Hazards and Hazardous Materials	Less Than Significant	-	=	=	=
4.8 – Hydrology and Water Quality	Less Than Significant	-	+	=	-
4.9 – Land Use	Less Than Significant	-	+=	+	=
4.10 – Noise	Less Than Significant	-	+	-	+
4.11 – Energy Conservation	Less Than Significant	-	+	-	+
4.12 – Population and Housing	Less Than Significant	-	=	=	=
4.13 – Public Services	Less Than Significant	-	-	+	+
4.14 – Recreation	Less Than Significant	-	-	+	+
4.15 – Transportation	Significant and Unavoidable	-	+	-	+
4.16 – Utilities	Less Than Significant	-	-	+	+
Attainment of Project Objectives	Meets all of the Project Objectives	Meets none of the Project Objectives	Meets some of the Project Objectives	Meets some of the Project Objectives	Meets most of the Project Objectives

Notes:
A minus (-) sign means the Project Alternative has reduced impacts from the proposed project.
A plus (+) sign means the Project Alternative has increased impacts from the proposed project.
An equal sign (=) means the Project Alternative has similar impacts to the proposed project.

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